EMPIRE and the ‘Internet Prescription’

Influences that motivate general practitioners to recommend health websites to the health consumer

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STATEMENT OF ORIGINAL AUTHORSHIP

The work contained in this thesis has not been previously submitted for a degree at any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signed: ..................................................

WAYNE TONY USHER

Date: 1/4/2008
ACKNOWLEDGEMENTS

The man who makes a success of an important venture never waits for the crowd. He strikes out for himself. It takes nerve; it takes a great lot of grit. Anyone can fail. The public admires the man who has enough confidence in himself to take a chance. These chances are the main things after all. The man who tries to succeed must expect to be criticized and face opposition. Nothing important was ever done but the greater number consulted previously doubted the possibility. Success is the accomplishment of that which most small minded people think can't be done.

C. V. White

This thesis is dedicated to Mr Allan James, who as a teacher, has inspired many a student and to a large extent shaped my future. To him, I extend an appreciation that goes beyond words – thank you Allan.

This work has been a journey into the unknown and to a greater measure it has been one of self discovery. From its conceptualisation through to its completion, this work has required me to redefine and apply such personal attributes as perseverance and sacrifice. I have learnt much about these qualities.

My journey was made easier with the continual support and guidance from my Principle Supervisor, Dr James Skinner. Without his academic guidance, this thesis would not have been possible, for which I am truly grateful. I would like to thank him for his mentoring, friendship and professionalism. I would also like to thank Dr Allan Edwards and Dr Glenn Finger for their enthusiasm throughout the years.

A heartfelt thank you is extended to my parents, Miriam, Timothy, my friends and colleagues who have offered timely words of encouragement and advice over the years. Their support, patience and tolerance will always be remembered.

Upon reflection, this journey has been worth the sacrifice, as it has opened up many more opportunities than when I commenced and has provided insight into future possibilities. I feel privileged for the opportunity.
PUBLICATIONS

During my candidature for the Doctor of Philosophy, the following publications have occurred.

1a. Manuscripts Accepted for Publication - *Refereed Journal Articles* - C1


1b. Manuscripts Submitted and Under Review – *Refereed Journal Article* - C1


2. Book– *Refereed Book Chapter* – B1


3. Conferences - *Refereed Conference Papers* - E1

The primary aim of this research is concerned with uncovering the influences which, directly or indirectly, motivate Gold Coast General Practitioners (GPs) to recommend particular health websites to the health consumer. To date, there has been little research examining the motives and influences which encourage the practice of health website recommendation, or more commonly referred to as an ‘Internet prescription’, by GPs. To provide a theoretical framework, this study will draw upon the work of Hardt and Negri (2000) to critically examine the influences that motivate GPs to recommend health websites. Hardt and Negri’s (2000) global conceptualisation, known as EMPIRE, will give meaning to the increasing access and use of health websites and attempts to control such cyber environments. EMPIRE is a new global order and a form of sovereignty which operates over the global political economy that has succeeded imperialism and the nation state. Its apparatus of rule is decentralised and de-territorialised, yet capable of incorporating all activities within its domain, managing hybrid identities and flexible hierarchies through its own fluid networks of command. Hardt and Negri propose that modern forms of communication technologies (WWW and the Internet) provide the catalyst for social change on a global scale. They refer to such technologies as ‘Ether’ as they have the ability to permeate and hence, influence every level of society. Hence, particular attention will be directed towards highlighting how the global elite, referring to global pharmaceutical companies in this study, are using the World Wide Web (WWW) and the Internet to disseminate and control every avenue of online health information dissemination to GPs and the health consumer.
A secondary aim of this research is to explore what Gold Coast GPs understand in relation to the levels of reliability, interactivity and usability components throughout the health websites they are interacting with and recommending. The literature surrounding website recommendation includes the necessity for GPs to develop critical appraisal skills associated with online health information. This study will present a profile of those Gold Coast GPs who are actively using and recommending health websites to their patients and their level of understanding associated with such reliability, interactivity and usability components.

Furthermore, it is envisaged that this information will be used to inform future and current health care professionals as to the current trends associated with a website recommendation. It is important to identify and promote to GPs and information technology (IT) experts, the processes and frameworks necessary to effectively design, implement and evaluate health websites. Highlighted throughout this study are issues concerning possible future policy directions aimed at promoting the inclusion of programs throughout medical schools, together with continuing medical education (CME), that address and develop skills necessary for both future and present GPs to deliver effective health care into the 21st century.

The intention of this study is not to make claim that the researcher is an authority in all facets of technology / content design associated with computer programming. Rather, it is the intent of this study to present a guiding framework and a conceptually sound 'springboard' which will help in the theoretical development and presentation of reliable, interactive and user friendly health websites. This research therefore presents a conceptual framework to assist in understanding the
concepts surrounding human – computer interaction (HCI), in terms of the implementation of and the numerous considerations necessary for conceptualising, designing, implementing and evaluating health websites. This conceptual framework has been generated and is supported by the empirical and qualitative data which is presented throughout this study.

This study has provided the first Australian evidential base line data surrounding the topic of website recommendation by GPs. A cross section of GPs was sought, with attention given to participants’ age, gender and years of experience. One hundred and eight surveys were initially utilised to provide the researcher with a foothold in the world of GPs and website recommendation and provided the basis for further conversation in interviews. Statistics from this study indicate that 59% of Gold Coast GPs actively recommend websites to their patients. This study has indicated that male GPs who are aged between 41–50 years and those practising for less than 10 years are more inclined to recommend a health website to a patient. Sixty-nine percent of GPs reported that they most often recommended websites to patients 26–45 years old. Furthermore, 53% of GPs recommend websites to 1%–20% of their male patients, while 47% recommend websites to 21%–40% of their female patients. Forty-seven per cent of participating female GPs do no recommend health websites, compared with 38% of male GPs. This study has further identified that web-based continuing medical education courses or programs in medical schools may help doctors develop the skills necessary for the delivery of effective e-health care. It is envisaged that data from this study will help inform future policies.
associated with GPs and their use of the WWW and the Internet for future health care delivery.
TABLE OF CONTENTS
Chapter 1 – INTRODUCTION TO THESIS

1.0 Chapter Overview

1.1 Introduction 2

1.2 Aims, objectives, hypotheses and research questions 8

1.3 Background to this study 12

1.3.1 Australian Internet trends 13

1.3.2 North American Internet trends 14

1.3.3 Defining the General Practitioner (GP) 16

1.3.4 Defining the patient, the health consumer and consumer health information 17

1.3.5 The Internet and increased access to health information 21

1.3.6 The growth of online health information via the Internet and the WWW 23

1.4 Significance of the study 27

1.4.1 Pharmaceutical companies and online health information 27

1.4.2 The Internet age and the patient – doctor relationship 31

1.4.3 Reliability, interactive and usability components associated with health websites 34
1.5 Structure of thesis

Chapter 2 – EMPIRE AND THE INTERNET PRESCRIPTION

2.0 The World Wide Web, the Internet and EMPIRE

2.1 The Age of Empire

2.2 Information Imperialism

2.3 Governance and control of the WWW and the Internet

2.4 EMPIRE, general practitioners, health websites and pharmaceutical companies

2.5 Globalisation, global pharmaceutical companies and the new millennium

2.6 Conclusion

Chapter 3 – HEALTH WEBSITES

3.0 Categorising health websites

3.1 E-knowledge health websites

3.2 E-business health websites

3.3 E-professional health websites

3.4 Interactive components and health websites

3.5 Interactive technology

3.6 Interactive health websites

3.7 Conclusion

Chapter 4 - EVALUATING HEALTH WEBSITES

4.0 Evaluation criteria for health specific websites

4.1 ‘Built-in’ evaluation tools and mechanisms

4.2 What is current in an attempt to evaluate health websites?

4.3 The need for specific health website evaluation criteria
4.4 Determining a reliable and interactive health website

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.4.1 Authority</td>
<td>125</td>
</tr>
<tr>
<td>4.4.2 Accuracy</td>
<td>127</td>
</tr>
<tr>
<td>4.4.3 Objectivity</td>
<td>129</td>
</tr>
<tr>
<td>4.4.4 Currency</td>
<td>132</td>
</tr>
<tr>
<td>4.4.5 #5 &amp; 6 Coverage and Intended Audience</td>
<td>134</td>
</tr>
<tr>
<td>4.4.6 #7 &amp; 8 Confidentiality and Justifiability</td>
<td>136</td>
</tr>
<tr>
<td>4.4.7 Interactivity</td>
<td>138</td>
</tr>
<tr>
<td>4.4.8 Multimodality</td>
<td>140</td>
</tr>
<tr>
<td>4.4.9 Networkability</td>
<td>146</td>
</tr>
<tr>
<td>4.4.10 Temporal Flexibility</td>
<td>152</td>
</tr>
<tr>
<td>4.4.11 Message Tailoring Capabilities</td>
<td>153</td>
</tr>
</tbody>
</table>

4.5 A critique of 'reliable' and 'interactive' health websites 156

4.6 The National Heart Foundation of Australia 159

4.7 Conclusion 164

Chapter 5 - DATA COLLECTION & ANALYSIS 166

5.0 Introduction 167

5.1 Quantitative data collection methods 167

5.2 Quantitative data analysis 168

5.3 Qualitative data collection methods 169

5.4 Qualitative data analysis 173

5.4.1 Open Coding of interview data 174

5.4.2 Theoretical Sensitivity 175

5.4.3 Validation Procedures 178
### Chapter 6 – QUANTITATIVE RESULTS AND DISCUSSION

#### 6.0 Quantitative survey – introduction and procedure

#### 6.1 Research findings - data presentation

- **6.1.1 Do recommend health websites**
- **6.1.2 Don’t recommend health websites**

#### 6.2 Research findings – data discussion

- **6.2.1 Data discussion**
- **6.2.2 Findings of GPs who do recommend websites**
- **6.2.4 Findings of GPs who do not recommend websites**
- **6.2.5 Reliability, interactivity and usability components associated with health websites**

#### 6.3 Conclusion

### Chapter 7 – QUALITATIVE RESULTS AND DISCUSSION

#### 7.0 Qualitative Interviews – introduction and procedure

#### 7.1 Research findings - data presentation and analysis

#### 7.2 Category - Don’t recommend health websites to the health consumer

- **7.2.1 Limited Time – time constraints and increasing work pressures**
- **7.2.2 Prefer to personally discuss – a collaborative approach to health care**
7.2.3 Reliability issues – lack of trust concerning online health information

7.2.4 Biased information – influenced by pharmaceutical companies

7.3 Category - Do recommend health websites to the health consumer

7.3.1 Helps to educate patient - more knowledgeable about their condition

7.3.2 Enhances the doctor – patient relationship - allowing patients to feel more involved in their own health care

7.3.3 Age appropriate technology -- confidence levels of the patients

7.3.4 Treatment orientated – specificity of information

7.4 Sub-categories

7.4.1 Fewer female GPs than male GPs recommend health websites

7.4.2 Age and years of experience of GPs affect internet prescription trends

7.4.3 Patients more knowledgeable / cyberchondriacs

7.4.4 'Sweeteners' by pharmaceutical companies

7.4.5 A high influence by pharmaceutical companies on the Internet

7.4.6 A lack of knowledge pertaining to reliability issues – issues of trust

7.4.7 Limited knowledge pertaining to interactivity and usability levels

7.5 Conclusion

Chapter 8 - CONCLUSION TO THESIS

8.0 Introduction

8.1 Review of aims, objectives, hypotheses and significance

8.1.1 The Internet age and the doctor - patient relationship

8.1.2 Pharmaceutical companies and health websites

8.1.3 Reliability, interactive, and usability components associated with health websites
8.2 Future implications

LIST OF REFERENCES

LIST OF APPENDICES
GLOSSARY OF MAJOR TERMS
The following provides a glossary of major terms used in this thesis.

**Asynchronously:** Communication such as email, chat rooms and discussion boards which allow interaction to occur at different times and locations between two or more learners. This type of interaction does not take place simultaneously or in real time. In respects to the health consumer, health websites contain technologies that promote and heighten asynchronous communication. Such technologies are also considered as interactive technologies, which may promote the ability for the text to be controlled, manipulated and segmented at a time / place suitable to the patient.

**Bayer:** Widely known throughout the world for Bayer Aspirin. Bayer is a $30 billion company with nearly 140,000 employees working in almost 150 countries.

**Bioterrorism:** Terrorism using germ warfare, an intentional human release of a naturally-occurring or human-modified toxin or biological agent.

**Bouncing or Surfing:** Characterised by its exploratory nature and the absence of planning, goals, or objectives, as opposed to searching that is goal directed and driven by a problem or specific information need. (Dutta-Bergman, 2003, p.265).

**B2B (Business to Business):** companies that use telecommunication channels between businesses to support efficient communication (e.g., email), perform typical commerce functions (e.g., online banking) and transact business with suppliers (e.g., ordering from pharmacy wholesalers) (Felkey, 2000).

**B2C (Business to Consumer):** Within this model of e-business, customers have the opportunity to ‘click in’ from their personal computers to a pharmacy’s website to
learn about or purchase goods and, increasingly, access health information services. (Felkey, 2000).

CBAM Awareness Stage: Little concern about or involvement with the innovation is indicated.

CBAM Information Stage: A general awareness of the innovation and interest in learning more detail about it is indicated. The person seems to be unworried about himself / herself in relation to the innovation. He/she is interested in substantive aspects of the innovation in a selfless manner such as general characteristics, effect, and requirements for use.

Conceptual Phase: Building a theoretical understanding of health issues, user profiles and patterns of health concerns/trends associated with target population under investigation. This conceptual framework can be understood through theorizing patterns of disease from the target group itself; via needs assessment tools, current research and data pertaining to the health issue under investigation.

Critical Appraisal Skills: The ability to effectively determine the reliability (trustworthiness), levels of interactive technologies and the user control levels throughout the web domain / interface.

Design Phase: From the conceptual phase, issues of design and ‘tailoring’ health websites are developed. Consideration must be given to health website categorizing criteria, levels of reliability and interactive components, along with types and numbers of ‘built in’ evaluation tools (formative and summative) and user control.
Digital Divide: Factors / barriers which exclude certain minority groups throughout society. These minority groups may consist of individuals who are from the older, lower socio-economic status with poor levels of literacy. Ethnic groups can also be excluded from accessing and implementing health information found on the WWW / Internet due to English being their second language. The WWW and the Internet has been seen as increasing the divide between the classes, in terms of the access of health related information. Access to information empowers individuals, in terms of giving them access to knowledge and information pertaining to health.

Direct Influences: Direct influences include: 1) the idea that the practice of recommending a website to a patient promotes the doctor – patient relationship, 2) the heightened decision making process between GP and the patient, 3) patients bringing online health information for discussion and consultation with their GP and, 4) patients making requests for their GP to recommend to them a health website.

Direct-to-Consumer: A marketing strategy undertaken by global pharmaceutical companies. Marketing of goods and services are directly promoted to the consumer, by means of communication / information technologies (WWW and the Internet). Modern technologies have made it possible for a greater marketing influence on the health consumer, in terms of their product requests from GPs and purchasing trends of particular products.

Drugstore.com: For most part, Internet pharmacies function just like their storefront counterparts, with the patient obtaining a prescription from his doctor
during as in-service visit, and then forwarding that prescription to the pharmacy to be filled (Tinning, 2005, p. 1).

**E-business**: Involves the dealings of two parties, be it business to consumer or business to business, that exchange online transactions where information is the key commodity being traded. E-business is often divided into three categories: internal transactions using an Intranet, business to business (B2B) transactions through an extranet and business to consumer (B2C) transaction over the Internet. E-commerce, however, on the other hand, is more narrowly defined as the buying and selling of products and services over a digital media, thus it is the subset of e-business.

**Ether**: Communication / information networks (WWW and the Internet) are likened to ‘ether’. The WWW and the Internet, like ‘ether’, can spread and permeate every aspect of society, distributing information, communication and control.

**EMPIRE**: A form of societal control that provides a theory of power. Operates with no control centre (ou-topia). Constitutes the major, global elite. Collectively, Empire strives to homogenise global markets and seeks to control the distribution of wealth, knowledge and people on a global scale. Empire seeks to eradicate the ‘Nation State’ and their established market boundaries; preferring to create a market upon which the whole globe is its market. Modern information / communication technologies (WWW and the Internet) are responsible for Empire’s global influence and power (Hardt & Negri, 2000, p.58). Influences, from within Empire, seek to
informationalise products so that commerce trends may be controlled by capitalistic forces and accessible by the ‘multitude’ (the productive workers of Empire). Empire controls the global distribution of people, wealth, communication and information, striving to create a homogenised, global market place.

**E-patient:** Is a health consumer (patient) who actively searchers for online health information (WWW and the Internet) in an attempt to improve his / her knowledge about a specific disease, treatment or drug therapy.

**Evaluation Phase:** ‘Built in’ and progressive evaluation techniques and tools should be designed and implemented throughout the website’s entirety. Evaluation tools should be designed so as to measure both formative and summative development. Examples of ‘built-in’ evaluation technologies include; (a) email capacity, (b) chat rooms, (c) help buttons, (d) questionnaires, and (e) support numbers.

**General Practitioner (GP):** A doctor, who provides primary care, treats acute and chronic illness provides preventative care and health education for all ages and both sexes. Recruitment of participants was done through accessing the Internet: www.yellowpages.com.au. Age and years of experience of the participants were not obtainable from such a database. Survey instrument allowed participants to indicate age, gender and years of experience.

**Global Pharmaceutical Companies:** Companies responsible for the development and marketing of drugs to treat diseases. The success of pharmaceutical companies, in the new millennium, is largely dependent on the amalgamation of a group of core
/ integrated global pharmaceutical companies. This action will hold particular significance, in terms of enabling global commercial trends (surrounding the distribution and dissemination of health information, knowledge, drugs and treatments) to be further controlled and exploited by EMPIRE (the capital elite).

**Globalisation:** For the sake of this study, globalisation will be described as the process of homogenising global markets. In theory, globalisation (do you need the capital?) seeks to promote and heighten levels of world policing and seeks to promote equal wealth / resource distribution. This process seeks to establish a 'global citizen'. The WWW and the Internet has enhanced and promoted attempts to globalise markets, information and people. The centralisation of global markets is very attractive for capitalistic forces and can lead to the control and exploitation for capital gain – Empire. A complex set of processes, not a single one. These operate in a contradictory or opposite fashion (Giddons, 1999). Globalisation is not developing in an even handed way, and it is by no means wholly benign in its consequences. This hold particular significance when applied to this study, in terms of how transnational corporations, such as pharmaceutical companies, and their distribution of drugs and advertising to the consumer via the WWW and the Internet.

**Gold Coast Region:** Participating GPs were chosen from throughout the Gold Coast region. This corridor stretches from central, western, northern and southern regions of the Gold Coast. Participants were recruited as far south as Coolangatta, stretching to Coomera (north), Canungra (western) and throughout the central suburbs of the Gold Coast.
Governance: Governance is another name for control and surveillance. Increasingly, attempts are being made by global governments and associated corporations to seek control of the WWW and the Internet. Commerce trends and capitalistic elites seek to control the WWW and the Internet for capital gain and governance of the multitude.

Health Consumer: Is a patient who acts similarly to that of a consumer. They actively search for the most affordable, value for money product for their particular health need. Modern day health consumers have become more ‘empowered’ through the development of such information / communication technologies as the WWW and the Internet. Research (Eysenbach & Jadad, 2000) suggests that the WWW and Internet has promoted a higher degree of consumer expectations (85%), consumer demands (58%), consultation time between GP and patient increases (77%) and a more active involvement in his / her treatment was initiated by the patient (80%).

Health Informatics: An evolving scientific discipline that deals with the collection storage, retrieval, communication and optimal use of health related data, information and knowledge. The discipline utilizes the methods and technologies of the information sciences for the purpose of problem solving and decision – making thus assuring healthcare in all basic and applied areas of biomedical sciences (HINZ, 2001). The emergence of an industrial skill called ‘health informatics’ may see the necessary fixture within many hospitals or medical practices as to the inclusion of expertise in accessing online medical information in a fee-for-service type structure. Furthermore, health informatics is the appropriate and innovative
application of the concepts and technologies of the information age to improve health care. With the evolution of the field, health informatics is probably best defined in the context of e-health, which is generally accepted as an umbrella term composed of two elements; (1) health informatics (related to the collection, analysis and movement of health information and data to support health care), and (2) telehealth (related to direct e.g. videoconferencing or indirect e.g. website delivery of health information or health care to a recipient).

**Health Literacy:** Is the ability to read, understand, and act on health care information. Health literacy has been identified as a public health goal for the 21st Century and a significant challenge facing health care globally. The next healthcare revolution is in information and systems, or informatics. Building a sustainable health system for the 21st Century will require the reinvention of much of the present day system, and require the intelligent use of information and communication technologies to deliver high quality, safe, efficient and affordable health care.

**Human–Computer Interaction (HCI):** Addresses any human interaction with computers, as developers or as users, as individuals or as groups. Specifically, the discipline of HCI is concerned with the design (reliability, interactivity and usability), evaluation and implementation of interactive computing systems for human use and with the study of major phenomena surrounding them.

**Indirect Influences:** Indirect influences include: 1) capitalistic forces, namely pharmaceutical companies, which seek to exploit the WWW and the Internet
through direct – to – consumer advertising of products, 2) the promotion of biased health information throughout health websites and, 3) commerce trends that seek to make GPs an extension of capitalistic forces. For the sake of this study, 'capitalistic forces' are associated with the transnational corporations (global pharmaceutical companies), situated within the second tier of Empire.

**Internet Prescription:** The recommendation of a website by a physician (to the health consumer) can be thought of as an Internet prescription (Gerber & Eiser, 2001, p. 128).

**Internet:** Is a network that joins countless numbers of smaller computer networks from around the world to help facilitate electronic communication.

**Interactive Components:** Those components of a web page design which demonstrate the types and levels of interactive technologies throughout a web page. Forms of interactive components are: *multimodality, networkability, temporal flexibility* and *message tailoring capabilities*.

**Informationalisation:** Within a global market, products are sought that have become or have the ability to be informationalised. This is sought so that they can be distributed and *marketed* via the WWW and the Internet. Within a global networked society, information is seen as a product to be bought, sold and distributed across vast stretches of geography.

**Implementation Phase:** Upon completion of health website, implementation should be such that it has the most impact on the target population. Marketing and
advertising of the website must be given consideration, with an expressed need for the implementation phase to generate interest and approval from health professionals and the general public.

**Measurement Scale:** An extensive search of the current literature has demonstrated a limited amount of information / models surrounding any attempt to measure the level of reliability, interactivity and usability components throughout a website. Specific tools have been developed to evaluate the reliability of a health website, but little exists as to the combination of the three components (reliability, interactivity and usability). This research has developed and presented a framework from the literature surrounding reliability seals, interactive components and usability scales associated with websites.

**Health Website:** Any website which disseminates health-related knowledge to the patient. (Gerber & Eiser, 2001, p. 457). Generally aimed to educate the layperson (in terms of literacy levels) pertaining to health recommendations, treatments and drug therapies. Health websites may present a variety of reliability, interactive and usability components. When all components are working seamlessly throughout the web domain, a patient’s engagement is heightened, thus, promoting the patient’s self-efficacy and health promoting behaviours.

**Message Tailoring Capabilities:** Consists of interactive technologies which promote the ability to narrow messages so as to be more precise to an audience, crafted to suit preferences and characteristics of user.
Multimodalities: Consist of interactive technologies that promote 'sensory stimulation' (visual, hearing, and verbal). Examples consist of text, graphics, video, sound and language.

Multitude: The productive workers of Empire. By creating a networked society, the multitude (the health consumer) is capable of interacting (buying and selling) within the global market. The multitude is not to be mistaken with 'the people' or the 'the masses'.

New World Order: The WWW and the Internet are bringing about a change in the fabric of society (economically, politically and socially). Due to the process of globalisation, brought about through the WWW and the Internet; social norms, laws and commerce trends are changing.

Networked Society: A society that is reliant on and operates within the WWW and the Internet. Communication and economic transactions (buying and selling) are carried out via the WWW and the Internet.

Networkability: Consists of interactive technologies which promote either / both synchronous and asynchronous communication mediums with other users and service providers (chat rooms, emails and online forums).

Psychobehavioral Therapy: Refers to the use of behavioural and psychological therapies to help an individual / patient deal with a particular health condition / addiction.
Reliability Components: Those components of a web which allow for a user to determine the level of trustworthiness and reliability of a web page, in terms of its content material and the credibility of individual/s or groups intentions and qualifications. Forms of reliability components are: authority, accuracy, objectivity, currency, intended audience, coverage, confidentiality and justifiability.

Segmentation: Audience segmentation can be achieved in three applications. Firstly, messages can be tailored to residents of particular geographical locations. Secondly, demographic characteristics can be used to segment audiences and tailor messages. Thirdly, through the psychobehavioral profile of the audience, in terms of ‘readiness for change’.

Self-Efficacy: A person’s pro-activeness when it comes to seeking out information and implementing positive health behaviours. The WWW and the Internet has promoted increased self-efficacy amongst patients, in terms of accessing and implementing health information found on the WWW and the Internet.

Shared Decision-Making Model: A collaborative process in which both the GP and the patient are involved. The shared decision-making process is generally aimed at holding discussions pertaining to prevention, treatment and drug therapy associated with a particular health condition or disease. In relation to their treatment by a GP, this process heightens the patient’s feelings of ‘inclusion’. The WWW and Internet has been largely responsible for the development of the decision-making process to modern day health care / delivery. Patients are increasingly searching for
online health information, upon which they present to their GP for discussion and consultation.

**Synchronously:** An environment that patients and GPs communicate in real time, as in the GP’s office. Shared information is not kept or stored via networks so as to be dealt with at a later time. In this case interaction between participants is simultaneous.

**Temporal Flexibility:** Consists of interactive technologies that promote the control and manipulation of text at a time suitable to the user.

**Transnational Corporations:** Large, global companies that control the distribution of global wealth and information. Pharmaceutical companies are a part of Empire and are situated within its second tier. Modern day communication/information technologies have made it possible for these global corporations to control and manipulate information that is distributed to the multitude (the health consumer).

**Trans-Theoretical Model (TTM):** has become one of the most widely applied frameworks for developing health behaviour change interventions. According to the TTM, the behaviour change process can be mapped as five discrete and generally sequential stages: pre-contemplation (not considering change), contemplation (considering change but not in the near future), preparation (considering change in the near future or already begun change), action (changed behaviour in the short term) and maintenance (changed behaviour long term). Trans-theoretical model is currently conceptualized in terms of several major dimensions. The core constructs, around which the other dimensions are organized, is the stages of change. These
represent ordered categories along a continuum of motivational readiness to change problem behaviour.

**Trust:** The expectation that individuals, institution and / or systems can be relied upon to act appropriately, perform competently and responsibly and in a manner considerate of our interests in contexts of risks or uncertainty.

**Usability Components:** Refers to the extent to which the user of the system can participate in modifying the form and content of the mediated environment. Forms of Usability Components are: *health literacy, interface engagement and educational.*

**World Wide Web (WWW):** A worldwide ‘library’ of pages of pictures, text, data, graphics, audio and video connected through keywords. Through WWW, users can view documents, and then connect to other related documents anywhere in the world by clicking the mouse on a word or phrase. Popular software interfaces, such as Netscape or Internet Explorer facilitate the navigation and use of the WWW. Every organisation and even every individual user of the WWW can create a home page that contains whatever information they want to present. The hypertext capabilities of WWW facilitate the linking of information within one’s home page with all other home pages on the WWW.
Table 3.1: A comparative analysis of various health promotion media

Table 4.1: Application of Measurement Scale - National Heart Foundation

Table 6.1: Number and percent of participating GPs who recommended websites and number and percent of GPs who did not recommend websites

Table 6.2: Number and percentage of GPs who indicated that they recommend websites to 0%, 1-20%, 21-40%, and more than 41% of their patients

Table 6.3: Number and percentage of male and female GPs who did recommend websites

Table 6.4: Number and percent of participating GPs in each age group who recommended websites to the health consumer

Table 6.5: Number and percentage of GPs who reported that they most often recommended websites to each age group

Table 6.6: Number and percentage of GPs who indicated that they recommend websites to 0%, 1-20%, 21-40%, and more than 41% of their male patients

Table 6.7: Number and percentage of GPs who indicated that they recommend websites to 0%, 1-20%, 21-40%, and more than 41% of their female patients

Table 6.8: Number and percentage of GPs who indicated that 0%, 1-20%, 21-40%, and 41% or more of their patients request website recommendations

Table 6.9: Number and percentage of GPs who indicated that 0%, 1-20%, 21-40%, 41% or more of their patients brought online medical information to them
Table 6.10: Number and Percentage of participating GPs who indicated that each of the age groups was the main age group of patients who brought them medical information obtained online

Table 6.11: Number and percentage of GPs who indicated that 0%, 1-20%, 21-40%, and 41% or more of their male patients brought online medical information to them

Table 6.12: Number and percentage of GPs who indicated that 0%, 1-20%, 21-40%, and 41% or more of their female patients brought online medical information to them

Table 6.13: Number and percentage of participating male and female GPs who did not recommend websites

Table 6.14: Number and percent of participating GPs in each age group who did not recommend websites to the health consumer

Table 6.15: Number and percent of participating GPs in each experience group who did not recommend websites to the health consumer

Table 6.16: Number and percent of participating GPs who selected each reason as being the main reason they chose not to recommend websites to the health consumer

Table 6.17: Number and percentage of participating GPs who indicated that 0%, 1-20%, 21-40%, and over 40% of the medical websites they recommended were sponsored by pharmaceutical companies

Table 6.18: Number and percent of participating GPs in each age group who had been offered incentives by pharmaceutical companies to recommend websites
Table 6.19: Number and percentage of male and female participating GPs who had been offered incentives by pharmaceutical companies to recommend websites

Table 6.20: Number and percentage of GPs in each experience group who had been offered incentives by pharmaceutical companies to recommend websites

Table 6.21: Number and percent of participating GPs who indicated each reason as their main reason for recommending pharmaceutically sponsored websites to health consumers

Table 6.22: Number and percent of participating GPs who indicated each reason as their main reason for not recommending pharmaceutically sponsored websites to health consumers

Table 6.23: Number and percent of participating GPs who selected each incentive category as being the main incentive offered to them by pharmaceutical companies to recommend websites to health consumers

Table 6.24: Number and percentage of participating GPs who indicated that 0%, 1-20%, 21-40%, and over 40% of the pharmaceutical companies they deal with offered them incentives to recommend their websites

Table 6.25: Number and percentage of participating GPs who indicated that they checked the quality of information for 0%, 1-20%, 21-40%, and over 40% of the websites that they recommend

Table 6.26: Number and percent of participating GPs who indicated that each method of determining reliability was the main method that they used

Table 6.27: Number and percent of participating GPs who indicated that they understood each specific reliability component
Table 6.28: Indications of highest percentages related to reliability component understanding indicated by gender, age and years of experience

Table 6.29: Indications of highest percentages related to interactive component understanding indicated by gender, age and years of experience

Table 6.30: Indications of highest percentages related to usability component understanding indicated by gender, age and years of experience

Table 6.31: General practitioners who do recommend websites \((n = 64)\)

Table 6.32: General practitioners who do not recommend websites \((n = 44)\)

Table 7.1: Paternalism and Consumerism in Expert–Lay Relationships

Table 7.2: Statistics dealing with confidence levels and web literacy of GPs

Table 7.3: Defining qualities of each reliability component

Table 7.4: Indications of highest percentages related to reliability component understanding indicated by gender, age and years of experience

Table 7.5: Defining qualities of each Interactive and Usability Component

Table 7.6: Indications of highest percentages related to interactive component understanding indicated by gender, age and years of experience

Table 7.7: Indications of highest percentages related to usability component understanding indicated by gender, age and years of experience
LIST OF SCREEN CAPTURES
Screen Captures / Figures highlighting Quyyam’s (2003) four e-health models

Figure 2.1: WebMD - webmd.com/ - e-knowledge

Figure 2.2: MedScape - medscape.com/ - e-professional

Figure 2.3: HealthAxis - healthaxis.com/ - e-business

Figure 2.4: Neoforma – Neoforma.com/ - e-business

Figure 2.5: drugstore.com - www.drugstore.com/ - e-business / e-knowledge

Figure 2.6: cvs.com - cvs.com/CVSApp/cvs/gateway/cvsmain - e-business / e-knowledge

Figure 2.7: InfoMedics - infomedics.com/ - e-business

Screen captures highlighting three categories of health websites

Screen Capture 3.1: e-knowledge health website
2heartdisease.com/high-blood-pressure.htm

Screen Capture 3.2: e-business health website.
consumersdisconptrx.com/rfunkhouser

Screen Capture 3.3: e-business health website
emedical.com.au

Screen Capture 3.4: e-business health website
homepharmacy.com.au/home/default.cfm

Screen Capture 3.5: e-professional health website
diagnosisheart.com/

Screen Capture 3.6: e-professional health website
nbcc.org.au/bestpractice/journals/

Screen captures highlighting interactive health websites

Screen Capture 3.7: Blubber busters
blubberbuster.com/

Screen Capture 3.8: Blubber busters
blubberbuster.com/
Screen Capture 3.9: Healthcentral
healthcentral.com/

Screen Capture 3.10: myDr
mydr.com.au/

Screen Capture 3.11: myDr
mydr.com.au/

Screen Capture 3.12: Health Matter
abc.net.au/health/experts/

Screen Capture 3.13: Eating Disorder Chat Room
eatingdisorders.netforce.com.au/

Screen Capture 3.14: HealthScout
healthscout.com

Screen Capture 3.15: Nucleus Med. Art
nucleusinc.com

Screen Capture 4.1: Evaluation Tools
netwellness.org/

Screen Capture 4.2: HONcode -- accredited, not accredited

Screen captures highlighting reliability components

Screen Capture 4.3: Authority
Active Patients.com

Screen Capture 4.4: Authority
Childhood Obesity.com

Screen Capture 4.5: Accuracy
Health.com

Screen Capture 4.6: Objectivity
myDr/Heart Disease.com

Screen Capture 4.7: Currency
wetbusters.com

Screen Capture 4.8: Coverage and Intended Audience
Aussie Fit Kids.com.au
Screen Capture 4.9: Confidentiality and Justifiability
mayoclinic.com/health/weight-loss

Screen captures highlighting interactive components

Screen Capture 4.10: Interactivity
paniccentre.net

Screen Capture 4.11: Interactivity
kidneypatientguide.org

Screen Capture 4.12: Multimodality
MoodyGym.com

Screen Capture 4.13: Multimodality
ninemsn.dietclub.com.au

Screen Capture 4.14: Multimodality
Healthscout.com

Screen Capture 4.15: Multimodality
MedlinePlus.com

Screen Capture 4.16: Networkability
americiatiino.net

Screen Capture 4.17: Networkability
emedical.com.au

Screen Capture 4.18: Networkability
Healthy Community.com

Screen Capture 4.19: Temporal Flexibility
abcHealthyMatters.com

Screen captures highlighting measurement criteria

Screen Capture 4.20: Application of Measurement Scale
heartfoundation.com.au
CHAPTER ONE

...INTRODUCTION TO THESIS
1.0 Chapter Overview

This chapter will present the primary aim of this research as investigating the influences which, directly or indirectly, motivate Gold Coast GPs to recommend health websites to the health consumer. A secondary aim was to further examine the level of GP understandings pertaining to reliability, interactivity and usability components associated with health websites. Following the elaboration of the research aims and objectives, a discussion of the background to the study will be presented. Subsequently, the significance of the study will be established. Finally, an overview of the organisation of the thesis will be provided.

1.1 Introduction

Gerber and Eiser (2001) define a health website as any website which disseminates health-related knowledge to a patient. GPs undertake the recommending of such websites or an internet prescription, due to the heightened levels of doctor – patient communication and the shared decision making this process promotes (McCray, 2005). However, to date, there is little research examining the motives and influences which encourage the practice of health website recommendation by GPs to the health consumer. Therefore, this study will apply the work of Hardt and Negri (2000) to theorise and critically examine the influences that motivate GPs to recommend such websites. Hardt and Negri (2000), in their exploration of the development and rise of a networked digital information highway, more commonly called ‘The Internet’, give particular attention to the concept of cyberspace and the impacts of a new
form of global juridical sovereignty, known as 'Empire'. Snyder (2002) identifies in the concept of Empire what Hardt and Negri (2000) call the pyramid of global constitution. Snyder (2002) goes on to suggest that “When we analyze the configurations of global power in its various bodies and organizations, we can recognize a pyramidal structure that is composed of three progressively broader tiers, each of which contains several layers” (pp. 199-200).

At the top of the list, unified tier is the United States, the superpower with hegemony over the global use of force. This tier also contains on a second level “a group of nation-states (which control the primary global monetary instruments and thus have the ability to regulate international exchanges” (Snyder, 2002, p 309) and, on a third level “a heterogeneous set of associations (including more or less the same powers that exercise hegemony on the military and monetary levels) [which] deploy cultural and biopolitical power on a global level” (p. 309). In the second tier “command is distributed broadly across the world, emphasizing not so much unification as articulation, ...this tier is structured primarily by the networks that transnational capitalist corporations have extended throughout the world market” (p. 310). Also on this tier, though “on a level that is often subordinated to the power of the transnational corporations”, are: “....the general set of nation-states that now consist essentially in local, territorialized organizations” (p. 310). The nation-states serve various functions such as political mediation with respect to the global hegemonic powers, bargaining with respect to the transnational corporations,
and redistribution of income according to biopolitical needs within their own
territories. Nation-states are filters of the flow of global circulation and
regulators of the articulation of global command. The third tier consists of
“groups that represent popular interest in the global power arrangement that are
relatively independent of nation-states and capital, including many non-
governmental organizations (NGOs)” (p. 310). This tier is beyond politics
“meeting the needs of life itself” (p. 324).

Hardt and Negri (2000) map out the pyramidal shape of Empire where, although
the United States is at the top, it is by no means the control centre of Empire.
Empire is not an imperialist project, even though the United States occupies a
“privileged position” (Hardt & Negri, p. 12) and even though “the contemporary
idea of Empire is born through the global expansion of the internal United
States constitutional project” (Hardt & Negri, pp. 12-16). In the era of Empire
Hardt and Negri (2000) suggest there can be no single imperial power that
exercises hegemony over others. Moreover, they suggest,

.....many locate the ultimate authority that rules over the
processes of globalization and the new world order in the
United States... Our basic hypothesis, however, that a new
imperial form of sovereignty has emerged, contradicts (this).
The United States does not, and indeed no nation-state can
today, form the center of an imperialist project. Imperialism
is over. No nation will be world leader in the way modern European nations were. (pp. 13 – 14).

Consequently, Hardt and Negri (2000) maintain that Empire operates in a non-place (ou-topia) that has no control centre, although it does have more or less dominant constituent forces and layers as highlighted in Figure 1.1. Hardt and Negri (2000) suggest that new communication technologies (WWW, the Internet) have given rise to a potentially new system of power and control, and therefore, an emergence of a singular elite global power. Empire, as in Figure 1.1, is comprised of three tiers of global influence.

Figure 1.1: Hardt and Negri (2000), Empire – Three Tiers of Power.

It is identified in Figure 1.1 that the United States is situated itself at the pinnacle by virtue of being the only remaining superpower. The second tier of which pharmaceutical companies are a part of, comprise transnational corporations (TNCs) who regulate the global flow of communication, capital, technology and people (Hardt & Negri, 2000). Hardt and Negri (2000) suggest that TNCs have the ability to control communication and information (Ether). Therefore, “if communication is one of the hegemonic sectors of production and acts over the
entire biopolitical field, then we must consider communication and the biopolitical context coexistent” (p. 348). According to Hsieh, Chi-Jen (2002), TNCs are firms that have transcended their national borders by undertaking and controlling foreign production. A TNC tends to be an oligopolistic corporation in which ownership, management, production, and sales activities extends over several national jurisdictions. As such TNCs are structured and operated in such a way that they are able to create efficiencies that provide them with tremendous economies of scale (Amis, 2005). Hoos (2000) therefore infers that TNCs are today’s most important actors in the world’s economy; they are perhaps the main driving forces of the prime mover of globalisation and its accompanying development.

By means of the TNC, Hsieh, Chi-Jen (2002) drawing on the work of McAuley (2001, p. 240) suggests globalisation is thus “a relentless transition of the economic and political landscape by self-seeking multinationals” whose goal is to create a “gigantic K-Mart with no exit” (Silk, Andrews & Cole, 2005, p. 4). Hsieh, Chi-Jen points out that

....in a model of the global capitalism system based on transnational practices the TNC is the most important economic institution for economic transnational practices; the transnational capitalist class is the most important political institution for transnational political practices; and consumerism, expressed through the transnational media, is the
most important cultural institution for transnational cultural-ideological practices. TNCs become the global business elite, TCCs the global political elite, and consumerism the dominant culture in the world. (pp. 83-84).

Hsieh, Chi-Jen (2002) further suggests there is concern about how these elites operate to transform the world. TNCs typically affect consumption patterns and values, knowledge and skills, and cultural identity.

The humanitarian organizations (non government organisations - NGOs) are positioned in the third tier of the Empire. The implications for the health consumer include their ability to access reliable, unbiased health information that is not driven and influenced by commerce. This has significance for this study, as the emergence of a new capitalism, brought about by communication technology has created the potential for health websites and GPs alike, to be an extension of a global capitalistic market that is driven by global pharmaceutical companies.

Pharmaceutical companies are influencing health websites in an attempt to manipulate the health consumer through direct-to-consumer prescription drug advertising. As a result of this online marketing tactic, pharmaceutical drugs are becoming increasingly more obtainable by the health consumer. This is highlighted when statistics indicate that 70 million Americans have actively searched the Internet to acquire health-related information and drug
prescriptions (Anderson, Rainey & Eysenbach, 2003). Furthermore, 45% of American adults, or about 91 million people, take prescription drugs on a regular basis (Pew Internet & American Life Project, 2004). In total, 64% of American households have regular online, connection to the prescription drug marketplace. It is expected that by 2010, an estimated $7.5 billion will be spent on drug advertising directly to the health consumer; an increase of 1,200% over a decade. Pharmaceutical companies have tripled the amount of money they spend on direct-to-consumer advertising prescription drugs. From 1996 to 2005, totals rose from $791 million to nearly $2.5 billion (Robinson, 1997; Fillon, 2005). To heighten the health consumer’s and health professional’s awareness, avenues need to be explored which will increase knowledge as to what steps have been and can be undertaken to ensure health consumers obtain both reliable and unbiased online health information from their GP.

1.2 Aims, objectives, and research questions.

The aims, objectives and hypotheses of this study have been generated through an extensive review of the literature surrounding GPs and their website recommendations to the health consumer. Moreover, the identified aims and objectives are closely associated to the outlined significance of this research. Furthermore, the aims, objectives and significance of this study are joined by a number of research hypotheses.

The general aim of this research is to investigate the influences that, directly or indirectly, motivate general practitioners (GPs) to recommend health websites to
the health consumer. This study has explored why GPs use and recommend certain health websites over others and the degree to which the WWW and the Internet plays in the process of health care delivery by GPs and website recommendations to the health consumer. A secondary aim of this research has been to explore what GPs understand to constitute levels of reliability, interactivity and usability in regards to health websites when recommending them to health consumers.

An extensive search of the current literature has demonstrated a limited amount of information surrounding any attempt to measure the level of reliability (see Appendix 1 - authority, accuracy, objectivity, currency, coverage, intended audience, confidentiality, and justifiability), interactivity (see Appendix 2 - multimodality, networkability, temporal flexibility and message tailoring capabilities) and user (see Appendix 3 - health literacy, interface engagement and educational) components throughout a health website. In an attempt to evaluate the reliability of a health website, specific tools and research have been undertaken by a number of researchers (Eysenbach, Yihune, Lampe, Cross & Brickley, 2000) but a void exists as to how, when combined, these components interact to improve the health promoting capabilities of health websites. As a result of this gap in the research, this study will present conceptual frameworks (see Appendices 4 & 5) surrounding reliability seals, interactive components and usability scales associated with current health websites. Throughout this study, specific attention will be directed towards these frameworks in an attempt to
demonstrate the possibilities of further developing an evaluation tool for health websites.

More precisely, the four objectives and associated hypotheses that will provide a guiding focus throughout this research are:

**Hypothesis 1:** Modern communication technologies (WWW and the Internet) are changing the traditional doctor-patient relationship.

Objective 1: To establish the prevalence and trends related to health website recommendation by GPs throughout the Gold Coast region.

Objective 2: To establish GPs’ personal information (age, gender, and years of experience) associated with health website recommendations, patient requests/usage throughout the Gold Coast region.

**Hypothesis 2:** Modern communication technologies (WWW and the Internet) are being controlled by transnational corporations in an attempt to manipulate general practitioners and the health consumer.

Objective 3: To establish the level of influence pharmaceutical companies have on GPs’ practices pertaining to the recommendation of health websites to the health consumer.

**Hypothesis 3:** A general practitioner’s level of confidence associated with information technology does directly influence their website recommendation trends and Internet use.

Objective 4: To establish GPs’ understanding and their conceptualisation pertaining to levels of reliability, interactivity and usability (user control) components associated with the health websites they use and recommend to health consumers.
These aims and objectives form a pivotal point for the development of this study, as they represent important perspectives and necessary considerations relating to uncovering patterns of Internet use, trends and attitudes by GPs; especially in terms of the recommendation of health websites to the health consumer. To achieve the stated research aims and objectives, further detailed research questions have been developed. These questions provided the guiding focus for the development of the survey instrument (see Appendix 7) and have been divided into sections, with the overall aims and objectives contained and addressed throughout.

More precisely, the supporting research questions (see Appendix 7 for elaborations) are:

1) **Section A**: What are the participant’s (GP’s) personal information (age, gender and years of experience)?

2) **Section B**: What are the usage trends, attitudes and prevalence of health website recommendation to the health consumer by Gold Coast GPs?

3) **Section C**: What level of influence do pharmaceutical companies have on Gold Coast GPs with regards to the recommendation of health websites to the health consumer?

4) **Section D**: What do Gold Coast GPs understand about reliability, interactive and usability components associated with the health websites they recommend to the health consumer?
1.3 Background to this study

The Internet has revolutionised the way we communicate and access information sources. It allows a person to locate a vast amount of information quickly and easily and to establish contacts with people all over the world. The Internet was the result of visionaries, who, in the early 1960s, saw great potential value in allowing computers to share information on research and development in scientific and military fields. J.C.R. Licklider of MIT, first proposed a global network of computers in 1962, and moved over to the Defence Advanced Research Projects Agency (DARPA) in late 1962 to head the work to develop it. The early Internet was used by computer experts, engineers, scientists, and librarians. There was nothing friendly about it. There were no home or office personal computers in those days, and anyone who used it, whether a computer professional or an engineer or scientist or librarian, had to learn to use a very complex system. Information via the internet, that was once restricted to the computer expert or laborious to retrieve, is now available at the touch of a button. The access to health information is no exception, with traditional health information dissemination largely being controlled by the GP. With the development and rise of the WWW and the Internet the doctor-patient relationship is undergoing significant changes; with the balance of 'power' shifting; to one which is seeing an empowered patient.
1.3.1 *Australian Internet trends*

There has been an unprecedented increase and growth in Internet usage, which has been seen across all demographics of Australian society. This trend has continued throughout the western world as countries become more technologically minded and computer software has become more affordable and hence, more obtainable by the general public. The Australian Bureau of Statistics (ABS, 2005) has indicated that since 1998 the numbers of Australian households with access to the internet has risen from 1,098,000 to 4,039,000, a rise of 268%. It has been established that households without children who are under 15 (2003 - 2,537,000) have a higher rate of Internet access as compared to households with children under the age of 15 (2003 - 1,502,000). Other demographics of Australian population have indicated a strong increase in Internet access by such sub-population groups as over 60s, indigenous persons, people with disabilities and children.

The Australian Bureau of Statistics (ABS, 2005) has published statistics of, 'Household Use of Information Technology' for years pertaining to 2001 – 2003 (private households, aged 18 years and over). Statistics indicate that 61% of Australian households had access to a computer at home (up from 44% of households in 1998) and 46% of Australian households had some Internet access (up from 16% of households in 1998). The number of adults using the Internet continues to grow strongly, and there is evidence to suggest that adult Internet access is predominantly from home. In 2002, 58% of Australian adults accessed the Internet, rising from 13% of adults in 1998. Access to the Internet at home
has shown particularly strong growth during this period (1998 – 2002), from 13% of adults in 1998 to 43% of adults in 2002. Statistical, evidential base line data, associated with Australian’s online health information retrieval and user trends is limited. However, with such exponential growth and access to the WWW, it is predicted that online health information access and use will steadily grow throughout all demographics.

1.3.2 North American Internet trends

In relation to the American experience, findings presented by Pew Internet and American Life Project (2004), a group that has been monitoring web usage, has revealed that 61% of Americans (or approximately 122,000,000 persons) currently have steady access to the Internet. On an average day, 72,000,000 (59%) American adults go online and of those with access to the Web, 52% send or receive email, 32% get news, 29% use a search engine, and 6% look for health or medical information. Over half of American adults have searched for health information at some point, and searchers are overrepresented by women and the more highly educated. Currently, about 76% of Americans persons have at least some access to the Internet, while 24% have no access. The Healthy People 2010 initiative has set a goal of 80% of the American population having access by 2010. Statistics have indicated that nonusers are typically older, poorer, and are more likely to be white, male, retired, and live in rural areas.

It is estimated that if this rate of growth continues, the vast majority of Australians and Americans will be using the Internet in the near future. This
growth in Internet use is occurring among all groups of people regardless of age, sex, race, disability or ethnicity, but within some demographic groups, variations exist. There has always been a gap between those people or communities who can make effective use of information technology and those who cannot (Digital Divide Networks, 2001). Divergence in the adoption of technology sometimes referred to as the 'digital divide', excludes many people from accessing and realizing the benefits of such technologies. Studies of the 'digital divide' have highlighted the fact that those without Internet access are less well off financially and are more likely to be minorities (Lenhardt, 2000). It has also been shown that Internet non-users are less likely to be employed than Internet users (Fox & Raine, 2000). It may be that the major barriers to technology do not relate to race and education levels as previously believed, but rather to economic class. Lenhardt (2000) points out that most middle-class Australians are online at roughly the same rates. These points alone may indicate that access to the Internet is becoming more of a middle to upper class tool, which may in time even further broaden the socio-economic divide throughout Australian society.

While Internet access and use for all racial and age groups is growing, the number of baby boomers and seniors who access the Internet are two sub-populations with the fastest growing Internet-user population (Media Metrix, 2000). An American study shows that individuals aged 45 to 64 use the Internet more frequently, stay on line longer and explore more Internet pages than any other sub-population (Sorensoj, 1997, Whitman, 2000). Interestingly however,
this study has identified that older GPs are more reluctant to recommend websites to their patients compared to younger GPs. It is because of these user patterns, as well as the ageing of the baby boomer generation, that many for-profit companies, such as global pharmaceutical companies, and non-profit organisations are investing large sums of money and other resources on their Medical [health] Websites. The American National Cancer Institute (2000) expects to budget approximately $35 million toward its online information and informatics delivery system, while drug giant Merck formed a one hundred million dollar venture fund to invest in emerging Internet health care and health information sites (Wolfinbarger & Gilly, 2001).

1.3.3 Defining the General Practitioner (GP)

The medical profession is characterised by a diverse range of roles and corresponding role descriptors. Medical practitioners maybe assigned one or several titles such as specialists, general practitioners (GP), psychiatrists or alternate practitioners. In this research, GPs were chosen because of the diverse nature of their patient population and that these physicians are often the primary source of medical care. Tinning (2005) defines a GP as a doctor who provides primary care, treats acute and chronic illnesses and provides preventive care and health education for all ages and both sexes. Some also care for hospitalized patients, do minor surgery and/or obstetrics.

It will also be viewed that a GP is any doctor who deals directly with the wider general public without the need for the patient to obtain referral or appointment.
The GP would be expected to deal specifically with clinically proven drugs and treatments. Since GPs are expected to be lifelong learners as a requirement for their occupation, and medicine is fast becoming one of the most technologically reliant professions, these elements combine to make GPs a good group to study when examining issues related to education, technology and health websites use and recommendation.

1.3.4 *Defining the patient, the health consumer and consumer health information*

Today, health consumers are expected to know about and participate in their own health care and delivery. This phenomenon has collectively been brought about through the increased access to medical [health] information via the WWW. The health consumer can be defined as a patient, usually used by some governmental agencies, pharmaceutical / insurance companies, and / or patient groups (Tinning, 2005). Furthermore, the modern day health consumer is someone who is relatively proactive in his / her health care, as opposed to the more traditional term of patient; one of compliance and obedience. A more traditional explanation, in terms of what constitutes a patient is warranted at this point. A patient is any person who receives medical attention, care, or treatment. A patient is often ill or injured and is being treated by, or in need of therapy by a physician or other medical professional (Wikipedia Encyclopaedia, 2005).

Modern day health care professionals frequently refer to the patient as the health consumer. The term health consumer, and associated perceptions this title holds,
has been brought about, in part, by the changing nature of modern health care delivery, commence trends and expectations. The health care system is undergoing a consumerism movement that has lead to an explosion in the amount and kind of health information directed towards health care (Burton, 2005). As health information becomes easier to find and more ubiquitous, health consumers will actively seek (e.g., on the Internet) or passively be exposed to (e.g. while watching television, surfing the internet) some kind of health information on a daily basis. Burton (2005) further explains that,

.....today’s health information aims to educate laypeople about the various decisions they must make about their personal health behaviours and interactions with the health care system. The Internet offers a new communication medium that provides fast and timely information to a large demographic cross section of the population. (p. 71)

Online health information is increasingly encouraging patients to think about and participate in deciding their best treatment options, as well as educating and informing them about their drug treatment options. In short, health consumers are becoming more demanding, and health providers are supplying the health information necessary for them to make informed health care decisions. A number of changes to health care delivery occur when patients actively search for online health information. Such online ‘search’ patterns produces a higher degree of consumer expectations (85%), consumer demands (58%),
consultation time between GP and patient increases (77%) and a more active involvement in his / her treatment (80%) (Eysenbach & Jadad, 2000).

On the Internet alone, it has been estimated that 6 million Americans go looking for online health information every day (Burton, 2005). Burton outlines that as of March 2002, 110 million adults in America had actively searched for health information found on health websites. However, while some research has indicated that Internet health information can educate and empower consumers, other work has found that health information can overwhelm and misguide consumers (Saltman, Figueras & Sakellarides, 2000). In either case, health information found via the Internet, has the potential to reshape the way consumers interact with the health care system, and in particular with their GP. The benefit of the Internet, as an information channel is that it has a number of unique characteristics that make it especially attractive as a source of consumer health information. Saltman (2000) indicates that the Internet is able to (1) present information in text, audio and graphic formats to optimise learning, (2) present tailored information to meet each individual’s needs and preferences, (3) provides anonymity, (4) create and enhance opportunities for social and medical professional support, and (5) present updated and current health information at all times.

Additionally, and perhaps most importantly, the health information provided via the Internet, offers consumers ready made ‘pre-packaged’ tools for promoting self-efficacy, decision-making and support (e.g. for choosing a new health plan.
or treatment option). No other communication medium or health information resource compares to the volume, variety, or tailoring of health information, as does information delivered by the Internet (Burton, 2005).

With online health information in hand, health consumers are challenging their GP’s expertise and hence are altering the amount and kind of health services they use, or comply differently with their treatment regimes. In other words, easily accessible health information via the Internet, has given once traditionally passive patients, a consumer orientation; were individuals may browse health websites in an attempt to gain knowledge and the most affordable products, remedies and treatments on offer; hence the term ‘health consumer’. Operating similarly to that of retail shoppers, modern day health consumers have at their fingertips an enormous amount of health information to choose from, which is aggressively marketed by pharmaceutical companies to the consumer in much the same way as any commercial commodity is throughout the western world. This direct-to-consumer marketing strategy undertaken by pharmaceutical companies has and will collectively limit and alter the involvement and role of the middleman; in this case, the GP. The results will severely alter the doctor-patient relationship, insofar as shifting the power of medical knowledge and treatment from GPs directly into the hands of the health consumer. These and other changes in health behaviour and health information delivery could have profound impacts on the utilization, cost and quality of medical services provided. Burton (2005) adds that the provision of cost and quality information to health consumers will alter their expectations and eventually influence them
to choose the highest quality of care at the lowest price, which presumably will be more satisfying and appropriate care for their individual medical needs.

1.3.5 The Internet and increased access to health information

Before increased access to information through print, media, and more recently the Internet, knowledge of medicine tended to be controlled and accessed by the medical profession, including GPs. Consequently, it might have been expected that the patient, also referred in this study as the health consumer, when in consultation with the GP in his or her office was generally one of compliance and obedience. This traditional method of medical intervention stood firm and unchallenged as the modus operandi for doctor-patient relationships for centuries. According to Kassirer (2000), the doctor-patient relationship was essentially a form of information exchange from doctor to patient. The Internet is changing the traditional doctor-patient relationship. Kassirer (2000) further suggests,

...increasingly, rather than provide information, the doctor assists patients with health decisions through recommending particular websites and health information found from the Internet. (p. 115)

The recommendation of a website by a GP can be thought of as an Internet prescription. Physicians have adopted recommending or ‘prescribing’ certain Internet websites for educating their patients about particular conditions or
diseases or to help patients cope with their medical conditions (Eysenbach & Jadad, 2001). Research to date does specifically indicate a number of reasons why GPs actively engage in the recommendation of websites to the health consumer. Physicians see the process of recommending websites to health consumers as an opportunity to improve relationships with patients. Furthermore, Evans (2001) believes that the recommendation of Internet websites to patients is an opportunity to improve the quality of communication between health professionals and patients. The sharing of health information with a patient creates a shared decision making model (Gerber & Eiser, 2000), Eysenbach & Jadad, 2001). Such an approach to health care delivery places the patient and provider on the same level of participation, thus, hopefully, improving the quality of care and shared responsibility to health promotion.

However, research does indicate that there are a number of reasons why GPs are reluctant to recommend health websites to the health consumer. Anderson, Rainey and Eysenbach (2003) remark that physicians remain relatively sceptical about advantages of using the Internet more actively in practices due to the concern that their patient may turn to websites without consulting a doctor about serious health conditions. Similarly, while doctors are willing to recommend websites to patients, this would only be if those sites are guaranteed to contain quality content (Wyatt, 1997). Other researchers indicate that many physicians [GPs] do not have the time or technical expertise to analyse such sites (Eysenbach & Jadad, 2001, Gerber & Eiser, 2001). Furthermore, GPs frequently express concerns about the validity and accuracy of health information found on
the Internet (Eysenbach & Diepgen, 1998). It is further suggested that GPs appear slow to adopt the innovative use of recommending websites to patients due to issues of trust, awareness and ability to manage integrating recommending health websites to patients. It has been indicated that for the physician prescribing health websites, there is the persistent challenge of ensuring quality in online content (Bader & Braude, 1998). Both GPs and the health consumer must become aware of what information is available, the source of information, and the intended audience.

Many of the reasons why GPs are reluctant to recommend websites are underpinned by the growing concern of biased pharmaceutically sponsored information. Such propositions support Hardt and Negri’s (2000) claims that online environments are creating avenues for global companies (pharmaceutical companies) to control and manipulate information to consumers and the GP alike.

1.3.6 The growth of online health information via the Internet and the WWW.

At this point, clear definitions should be presented so as to highlight the differences between such technologies as the Internet and the World Wide Web (WWW). Wikipedia Encyclopaedia (2005) defines the Internet as a publicly accessible worldwide system of interconnected computer networks. It carries various information and services, such as electronic mail, online chat and the interlinked webpage and other documents of the WWW. The WWW is an
information space in which the items of interest, referred to as resources, are identified by global identifiers called Uniform Resource Identifiers (URIs). The terms are often mistaken as one in the same and frequently interchanged; however, the WWW is actually a service which operates over the Internet.

Not since the invention and introduction of the printing press has a technology, such as the WWW and the Internet, had such a dynamic impact on our daily lives. We are now in what has been termed the 'information age'; during which the availability of information of all types, including health information, has been greatly improved by the advent of computers and the Internet (Laflamme, 2003). However, Hardt and Negri (2000) refer to the onset of modern communication technologies as creating a 'networked society', which is becoming increasingly controlled and manipulated by global TNCs for capital gain. Nevertheless, the development and growth of such technologies as the Internet and the WWW have been unprecedented, surpassing all expectations. In 1998, estimates projected the number of Internet users in 2000 at 130 million worldwide (Johnson, 1998). More specifically, in Australia, the number of households connected to the Internet grew rapidly between 1998 and 2002, with 46% (3.5 million) of Australian households using the Internet at home by 2002 (ABS, 2005). Such technologies, as the Internet and the WWW, have enabled a greater access to the amount of health information, among other information, creating cyber-environments that have an unlimited capacity for information dissemination. Much of medical literature that in the past, was only available in
large libraries or medical schools, is now easily accessible to the general public via the Internet.

Research indicates that the most popular content on the Internet is related to health and medicine. According to Baker (2003), 98 million Americans have searched the web to find information about health and medicine. Furthermore, a Harris Poll (2003) has indicated that Internet health information seeking behaviour falls collectively under three categories, these being: 1) more than 70% researched the medical literature, 2) more than half said they were researching descriptions of diseases or information about treatment, and 3) more than 80% said they used the web to search for information on drugs, such as side effects, interactions and generic availability. The act of looking for health or medical information is one of the most popular activities online, after email (93%) and researching a product or service before buying it (83%) (Akerkar, 2004). Such Internet, health seeking behaviours have dramatically altered the doctor–patient relationship in respect to the health consumer becoming an integral and dynamic component throughout the decision making process.

With such a rapid advance of Internet access and use by the general public, it is leading to dramatic changes in information delivery for GPs and health consumers alike. Literature indicates that the user profile of the individual who is most likely to search the Internet for health related information will be white, female and from the younger age bracket (Johnson, 2004). Akerkar (2004) gives a further description of a classic Internet user by stating that the e-patient is
better educated and is more likely to belong to the higher income group. They search for specific medical condition (63%), medical treatment or procedure (47%), diet and nutrition (44%), exercise and fitness (36%). It can be deduced that a classic e-patient has been brought up in the information age and does make optimum use of it.

With the development, growth and the resulting increased access and flexibility of information dissemination and exchange of such compelling technologies as the WWW and the Internet, there comes with it an abundant of challenges, not only for the GP but also for the health consumer alike. Due to the speed at which the Internet is developing, architecture and policies which would normally ensure quality assurance and content control, have not been able to keep pace or are in a state of constant flux. Health websites present some unique and at times compelling issues and problems associated with the accuracy of information presented and recommended to the health consumer. Internet users must be aware of the potential for misinformation and recognize the critical need to assess the quality of the information provided (Health Summit, 1998). With this in mind, GPs, health consumers, content providers / web page developers must be encouraged to understand, recommend and design web domains which aim to post high-quality and accurate health information, and furthermore, ensure that policymakers and health-care professionals are educated on these important health issues.
1.4 Significance of the study

In this section, the objectives will be re-visited, highlighting the study’s research hypotheses and general aims.

1.4.1 Pharmaceutical companies and online health information.

*Hypothesis 3: Modern communication technologies (WWW and the Internet) are being controlled by transnational corporations (pharmaceutical companies) in an attempt to manipulate general practitioners and the health consumer.*

*Objective 3: To establish the level of influence pharmaceutical companies have on GPs’ practices pertaining to the recommendation of health websites to the health consumer.*

This study presents three key arguments justifying the significance for undertaking this study. Primarily, this study will present insights into the attempts by TNCs (global pharmaceutical companies) for global market control through the monopolisation of the WWW and the Internet. Hardt and Negri (2000) suggest control, is becoming integrated into every aspect of social life by way of increasingly interconnected networks (WWW and the Internet). Increasingly, global pharmaceutical companies are seeing GPs and online health information mediums, as commodities for capital gain and control.

Global pharmaceutical companies are increasingly influencing and changing the traditional doctor -- patient relationship. In an article published in the *Internet Medical Journal* (2006), it has been highlighted that there’s new evidence of a
lucrative and cosy relationship between GPs and big drug companies. The article reports that GPs are now being accused of approaching drug companies cap in hand. The University of New South Wales published in the *Internet Medical Journal* (2006) that the health industry’s ethical guidelines on gifts and other inducements are often breached. The research has documented appeals for travel, nurses’ salaries, electronic equipment and at least one request to fund a private Christmas party.

The growing influences of global pharmaceutical companies, and online health information, hold particular significance for this study. To date, there is limited research investigating online health information and the extent to which it is becoming manipulated and controlled by pharmaceutical companies. Furthermore, from this research, three types of health website categorisations have emerged, these being: 1) e-knowledge, 2) e-professional and 3) e-business. It has been highlighted how global pharmaceutical companies have sought to monopolise all three online website categories in an attempt to control global markets. Discussions and elaborations have been directed towards highlighting the commonalities and the relevance of these categories to this study, in terms of the influence and impact of the WWW and the Internet has on health website’s recommendations, usage trends by GPs and the health consumer. Attention has also been directed towards uncovering how such health websites have the potential for exploitation by global TNCs.
The implication for the GP and health consumer alike is that there are no avenues associated with online health information and dissemination that is not being controlled and manipulated by large pharmaceutical companies for capital gain. This statement is supported by Hardt and Negri (2000) who posit that communication is the form of capitalist production in which capital has succeeded in submitting society entirely and globally to its regime, suppressing all alternative paths. The development of the WWW and the Internet has opened up 'new relationships' or direct to consumer advertising in the U.S. and New Zealand and it has been predicted that such trends will be unstoppable across the world. Like many other companies, prescription drug marketers are beginning to take advantage of the extensive reach of the WWW and the Internet to promote their products (Villanueva, 2003). Moreover, the implications of such actions are yet to be researched in any depth. Similarly, there is considerable less research and evidential base line data surrounding the influences pharmaceutical companies are having on GPs, in relation to the growing practice of an Internet prescription.

Research conducted by Kassirer (2000) and Angell (2004) highlights the growing influences of large, global pharmaceutical companies throughout the WWW, the Internet, medical journals, medical schools and drug trials. Kassirer (2000) suggests that the drug industry and the US based companies (pharmaceutical companies) have spent an estimated $15.7 billion on promotion in 2000. A high proportion of this has been directed towards advertising via such technologies as the Internet (Angell, 2004). In most countries, drug
companies can only advertise to the physician, with the results of such legislation encouraging drug companies to become, what Angell (2004) phrases as, 'marketing machines'. Throughout the pharmaceutical industry, since 1995, research staff is down by 2%, whilst marketing staff is up by 59% (Angell, 2004). It has also been highlighted by Kassirer (2000) that the drug industry spends an estimated $10,000 per physician on promotion of their respective products. The traditional face-to-face pharmaceutical representative consultation is being replaced with a more cost effective marketing technique; using email, chat rooms and online cyber environments.

Global pharmaceutical companies are highly profitable and politically powerful organisations. They are intent on creating ‘monopolies’ associated and surrounding online health information, clinical drug trials and positioning themselves as ‘banks’, rather than embracing the traditional notion and paternalistic ideology of health care (Kassirer, 2000). Shaoul (1998) further adds that the exorbitant stock market returns of the drug companies are underpinned by an internationally recognised system of intellectual property rights, a favourable domestic regulatory regime and mass health provision, be it funded publicly or through insurance. This has contributed towards driving up healthcare costs all over the world and making it increasingly unaffordable for many working people. In an ironic way, the freedom of the internet and WWW has added to the class segregation, more commonly becoming known as the ‘digital divide’.
It has been argued that the repercussions and implications of such commerce trends has seen a deflection of many GPs’ moral compasses and will directly impact the everyday care health consumers receive from doctors. In other words, the choice and treatment of healthcare is being driven by cost, not clinical judgement, to suit the needs of global pharmaceutical companies and not the patients (Kassirer, 2000).

1.4.2 The Internet age and the doctor–patient relationship.

_Hypothesis 1_: Modern communication technologies (WWW and the Internet) are changing the traditional doctor-patient relationship.

_Objective 1_: To establish the prevalence and trends related to health website recommendation by GPs throughout the Gold Coast region.

_Objective 2_: To establish GPs’ personal information (age, gender, and years of experience) associated with health website recommendations, patient requests / usage throughout the Gold Coast region.

The research to date supports the need for further investigation into how GPs use the Internet as a tool for enhancing the doctor–patient relationship. The impact of the web affects decision-making processes and offers new possibilities for physician-to-patient recommendations (Gerber & Eiser, 2001). The recommendation of a health website to a patient, from a GP, can form an integral part of the doctor-patient relationship, or more directly the decision-making process. A patient may be motivated to become involved in the decision-making process and have access to additional sources of information.
about a particular illness as well as the treatments available (the informed decision-maker). Such a patient could be at an additional advantage by having accessed related information via the Internet prior to meeting with a physician. Instead of utilizing scheduled time to provide the patient with basic knowledge, the physician may devote extra time to refining what the patient has learned and offering greater depth on treatment options (assuming the information obtained is accurate) (Gerber & Eiser, 2001).

The recommendation of a health website to particular patients may be of benefit with health consumers obtaining information on the WWW after the clinic visit. This supplemental information may allow the individual to feel more comfortable or satisfied with a treatment decision, even though there is no involvement in the actual decision-making process (Gerber & Eiser, 2001). As a direct result of such emerging trends, Schwartz (2006) suggests that 63% of physicians have suggested a specific website to their patients. Unfortunately, a substantial portion of medical information on the Internet is false or misleading. Ullich (2002) has indicated in his recent article, ‘Patient education on the Internet: opportunities and pitfalls’, that as a result of unreliable online health information, patients would like their physicians to help guide their online searchers for medical information. Andersen (2002) has found that there are an increasing number of patients who are actively bringing online health information to their GP. Andersen (2002) further highlights that more than 75% of US doctors report that patients bring Internet printouts to their visits. The most frequently brought information is pertaining to disease (83%), alternate
therapies (69%), pharmaceuticals (69%), treatment protocols (51%) and specialists or hospitals (24%).

With such a significant rise in interest and demand by the health consumer for the recommendation of online health information by the physician, it is important to investigate the possible changes to the traditional role/s of the GP and the changing practices and relationships surrounding the dissemination of online health information to the health consumer. Over the last 10 years, there has been a large amount of research generated that has addressed issues surrounding the changing doctor–patient relationship within the ‘Internet age’. However, to date, there have been few peer-reviewed studies published in the public health and medical literature that examine the influences that motivate GPs, directly or indirectly, to recommend health websites to the health consumer within the ‘Internet age’.

The growing trend and practice pertaining to health website recommendation by GPs does present particular significance for undertaking such a study and warrants further investigation into how GPs use the Internet to enhance the doctor-patient relationship. In relation to the health consumer and their Internet usage trends, recent research has indicated that individuals who searched for health information on the Internet were indeed more likely to be health-orientated than those who did not. Consumers who sought out medical information on the Internet reported higher levels of health-information orientation and healthy activities, as well as stronger health beliefs than those
who did not search for medical news on the Internet (Dutta-Bergmann, 2003). With respects to online health related information becoming the most popular trend for self-diagnosis amongst health consumers, this study has been directed towards establishing the role of the GP and to what extent the profession plays in this process. Most importantly, this study has addressed the underlying principles for why GPs choose to recommend particular health websites to the health consumer and the possible motives and consequences of such actions. More precisely, findings from this study will inform GPs and other health professionals about the current trends in relation to the phenomenon associated with Gold Coast GPs and their practices associated with the recommendation of health websites to patients in their care. Likewise, researchers will benefit from this study because they will learn the factors that influence GP’s attitudes and their decision process to adopt or reject such an innovative and growing approach to health care delivery.

1.4.3 Reliability, interactive and usability components associated with health websites.

**Hypothesis 3**: A general practitioner’s level of confidence associated with information technology does directly influence their website recommendation trends and Internet use.

**Objective 4**: To establish GPs’ understanding and their conceptualisation pertaining to levels of reliability, interactivity and usability (user control) components associated with the health websites they use and recommend to health consumers.
Changes in health care markets offer new opportunities for using information and communication technology. As health becomes more centred on wellness and prevention, and to a greater degree ‘consumption’, and less on disease and treatment, the environment is ripe to demonstrate innovations in general health promotion, increase access to health information and services, lower costs and create a collaborative / seamless health care environment. A critical challenge facing web designers and health professionals alike, is how to develop a web presence that is not only compelling to the user, but also establishes trust. Users’ lack of trust still constitutes a major psychological barrier to the adoption of new forms of online services and health information (Keen, 1997, Hoffman, 1999, Egger, 2000, Tilson, 2000). Active health information seekers evaluate the usefulness and trustworthiness of a web provider when they first interact with the website user interface. Therefore, design of the interactive user interface is important. And, usability, which is measured by the ease, efficiency and pleasantness with which the user is able to learn, navigate and experience the user interface, is one of the most important requirements when developing a web site interface (Nielsen, 2000, Eggar, 2000).

Another recurrent theme throughout this research, which has further provided relevance to the undertaking of this study, has been aimed at developing an understanding of what GPs conceive as important factors as to the inclusions of reliability, interactivity and user components of the health websites they recommend to their patients. Kassirer (2000) maintains that many physician organisations are preparing for the electronic transformation, but most
physicians are unprepared, and many are resistant. In a recent Australian study by Tang (2006), specialists and GPs at Princess Alexandra Hospital in Brisbane were studied as to how effective the search engine (Google) was for helping them diagnose rare diseases. The work published online by the *British Medical Journal* (2006), recommends specialists and GPs use Google because it is a source of three billion journal articles (Gold Coast Bulletin, 2006, p. 6). Similarly, research by Hart and Gerber (2004) indicates that healthcare practitioners need to improve their own skills in Internet use and similarly, in respect to steering patients to health websites, that GPs need to be further educated about using their technical skills to guide trusting patients to ‘approved sites’. Researchers are highlighting the need to up-skill physicians in terms of educating them about the health promoting potentials of interactive technologies and usability components of the websites they are using and recommending. (Deering, 1999, Silberg, 2000).

A report of the Medical Informatics Panel of the American Medical College (2000), recommended that medical schools should incorporate a new discipline of teaching online health information retrieval and application skills into their curriculum. Unfortunately, few colleges have yet to implement such classes that teach literature searching, resulting in little evidence regarding the efficacy of various instructional methods (Berner et al., 2002). Similarly, Decco (2003) suggests that physicians need training to help them assess medical Internet materials. Courses added to medical school curriculum on how best to use medical Internet websites for patient education could be a solution to this
problem (Decco, 2003). Other research indicates the need for quality assurance rating systems for medical Internet material. One model, MedCERTAIN, attempts to develop a technically advanced, third party rating system that explores the kinds of components needed to effectively assess health website content. However, with any new innovation, GPs will need training on how to use it effectively. Ullich (2002) makes a further claim that by searching for and recommending medical websites physicians need to consider the level of interactivity of the website the quality of the content the ethics of the site and the ease of navigation.

One such concern of health professionals is the noticeable absence of any framework that helps guide the conceptualization, design, implementation and evaluation of health websites so as to allow active users the ability to determine the sites category, reliability, levels of interactivity and user control. In response to such a noticeable research gap, specific reliability (authority, accuracy, objectivity, currency, intended audience, coverage, confidentiality, justifiability), interactive (multimodality, networkability, temporal flexibility, message tailoring capabilities), and usability (health literacy, interface engagement and educational) components will be discussed. Moreover, this discussion will detail how these components can strengthen and promote confidence and user engagement with health websites. Burton (2004) posits that to enhance the acceptance of health related information it would be to the developer's advantage to drive traffic to sites in a respectable manner, and to build a credible site. Moreover, Deering (1999) has found that the most
frequently cited criteria for evaluating the reliability of online health information were those dealing with content, design and aesthetics of site, disclosure of authors, sponsors, or developers, currency of information, authority of source, and ease of use.

Many organisations and individuals have published criteria to evaluate health related information on the WWW. In terms of its significance to this study, Deering (1999) claims that key criteria for evaluating health related websites may be helpful in determining the reliability of online health information. The next step is to identify and assess a clear, simple set of consensus criteria that the general public can understand and use. There is a growing consensus amongst physicians and health consumers alike regarding the need to develop and implement critical criteria for the evaluation of web based health information (Eng & Deering, 1999).

To date, the main topic which is frequently being discovered via studies is that GPs need to be educated about what constitutes a reliable health website. Silberg and Musacchio (2000) remark that physicians need critical appraisal skills to determine that the information found by a patient is relevant to that patient's condition and is based on the best available evidence. In addition, physicians directing patients to websites for health information must be confident that the site is maintained and updated by a reliable and credible source. Training for patients and physicians to improve their critical appraisal skills or at least, ability to discern reputable sites is also needed.
As a direct result of these above discussions, numerous annotated screen captures will be presented throughout this study. A discussion and presentation of these screen captures will allow for a more detailed critique of various health websites in relation to their reliability scale (reliability components), interactive health promoting capability (interactive components) and levels of usability (usability components). Research surrounding reliability, interactivity and user components suggests that when all are seamless and working together, interactivity, user engagement and connectedness are heightened throughout the health domain (Simons, 2001). Such components (reliability, interactive and usability) bring about a number of outcome commonalities, these being; (1) an increase in self-efficacy (2) the ability to communicate and control information either synchronously or asynchronously, (3) the ability to manipulate text, and (4) the ability to narrow / segment information for a particular audience, target group or individual.

Furthermore, this research will demonstrate how the Internet, and in particular how health websites, can allow health messages to be individualized and tailored to the particular needs or interests of the health consumer and hence, provide access to large amounts of health information, enable contact with other people (e.g. online experts, support groups, and others with similar health concerns) locally and globally, can be used to create simulations to foster disease management and prevention skills, and can accomplish these functions using an array of interactive technologies. It is further thought that this process
is adding to the development of a new profession. The description and manipulation of medical knowledge and has become the ‘lens’ through which disease and treatment are now viewed.

1.5 Structure of thesis

This thesis is organized into eight chapters. Chapter 1 has discussed the research purpose. It has outlined how the thesis explores how GPs use the Internet and the WWW, insofar as GPs actively recommending health websites to the health consumer. Further in chapter 1, the general aims, objectives and supporting research questions have been presented. Particular attention was directed towards highlighting the background and significance of such a research endeavor.

Chapter 2 has provided discussion of the theoretical framework used to guide the study. Hardt and Negri’s (2000) work is presented in this chapter. Their work will be discussed through reference to the control of communication networks (the Internet and WWW), wealth, people and knowledge. It has been hypothesized that the emergence and development of the WWW has altered the entire nervous system of the social organization. Moreover, attention will be paid to how TNCs (global pharmaceutical companies) have the potential to control the Internet’s limitless health information. Attention is turned towards giving insights into the changing nature of the Internet; insofar as it’s changing
architecture and the ability of cyberspace to be controlled by governments and commercially driven organisations, who seek to homogenise global markets.

Chapters 3 and 4 have presented the three types and categorisations of health websites. These three have been indicated as being: 1) e-knowledge, 2) e-professional and 3) e-business. Elaborations and key indicators are presented and specific reference given to current websites which fall into these three categories. Further to this, research has drawn from various evaluation criteria and checklists to design frameworks and models for developing and determining levels of reliability, interactivity and usability components associated with health websites. Specific Screen Captures have been presented in an attempt to highlight the various reliability criteria and interactive technologies that are available and presented throughout current health websites.

Chapters 3 and 4 have also presented how interactive technologies are much more capable of tailoring health messages to an individual's needs, interests, and preferences than are other mediums. It will explore what GPs understand in relation to interactive health websites and the potential this technology has in its ability to promote the health of the consumer. Furthermore, the importance of effectively developing and implementing interactive technology which promotes and enhances self-efficiency amongst individual patients and helps create environments which encourage active exploration in search of information on particular health issues will be discussed. Also throughout these
chapters, attention has been directed towards outlining the methods already employed to evaluate health websites and the information contained within.

Chapter 5 has addressed the data collection methods and analysis. Attention is directed towards presenting the protocol for the pilot and major quantitative (survey) instruments, outlining participant recruitment processes and considerations. Furthermore, discussions have outlined the quantitative and qualitative approach used, outlining the methods that have been implemented to ensure the validity and reliability of the findings.

Chapter 6 is concerned with the quantitative results and associated forthcoming discussions. Research findings and data have been analysed and presented in an attempt to further understand the changing face and nature of the doctor-patient relationship as a direct result of the increasing trend in health website recommendation by GPs. Specific attention has been directed towards highlighting the empirical data and the relevance this has to the study. Research findings have been discussed in relation to the impact they will have on the future directions of e-health care delivery and the necessary steps to ensure a safer and more reliable cyber environment for the health consumer.

Chapter 7 has presented the qualitative results and associated forthcoming discussions of these results. Specific attention has been directed towards the generated research themes and categories from the participants' experiences.
Research findings have been discussed in terms of their impact on the future direction of e-health care delivery and the necessary steps to ensure a safer and more reliable cyber environment for the health consumer.

Finally, Chapter 8 has synthesised and drawn together the research findings in an attempt to shed new light on the growth of the Internet prescription. Furthermore, attention has been directed towards the future implications of an e-health care system which is becoming increasingly controlled by TNCs (global pharmaceutical companies). Recommendations will be made particularly, in terms of creating a safer e-health environment for the 21st Century.
CHAPTER TWO

......EMPIRE AND THE INTERNET PRESCRIPTION
This research will demonstrate how the WWW, with its vast capillary network, is a control mechanism used by global pharmaceutical companies to exploit the health consumer. Many western countries and IT experts have in the past ridiculed the notion that the Internet can ever be fully controlled and governed by any single one power or government. However, Lessig (2000) points out that the architecture of the Internet is undergoing changes that continue to enable control and with the control of communication, comes the potential of 'information imperialism' on a global scale. The dissemination and subsequent commercial exploitation of health information, via the Internet, will not escape the manipulation and control of global pharmaceutical companies.

Within the current economic climate, health websites will eventually come under the control and influence of transnational corporations (global pharmaceutical companies). Andersen (2002) indicates that to ensure the success of the pharmaceutical industry into the new millennium, a need exists for heterogenous, fragmented drug companies to be integrated into a core group of transnational companies, creating a homogeneous, global market. That is, those who control and monopolize information are in a position to define what legitimate health knowledge is (Soules, 1999). Likewise, Innis (1991) and Foucault (1996) suggest that individuals or groups (governments) who control access to nodal communication points wield great power. The implications of such controlled information, for the health consumer will be an ever increasing powerlessness. The WWW has opened up limitless prospects for producers and consumers alike. However, with any new technology
comes the potential for its exploitation and intended use for capital gain. The WWW is a core component of the pyramid of power -- as highlighted in chapter 1 (Hardt & Negri, 2000) and the Internet is “becoming integrated into every aspect of social life by way of increasing interconnected networks” (p. 176).

2.1 The age of Empire

The work of Hardt and Negri (2000) will provide the theoretical framework for this study. Their research highlights how global marketing and informationisation have become possible through the introduction of new technologies, such as the WWW and the Internet. Munro (2002) indicates on the same tier as the United States are the global elite which determines the transnational agreements and monetary instruments that regulate international exchanges. The second tier contains the transnational corporations that regulate the global flows of capital, technology, and people. Nation states are situated slightly below the massive transnational corporations, but they are able to bargain with these huge corporations and still have the power to redistribute incomes and discipline their own populations. In the lowest tier of Empire we find the civil society, NGOs and humanitarian organizations that form the capillary ends of the networks power. NGOs can play an important role. Since power does not emanate from the workings of a single powerful state, the cohesion of a transnational organization must include the consent of the dominant group. NGOs are largely privately funded without assistance from governments and appear independent. Their mandates and missions vary. NGOs have numerous strengths, in comparison to the nation state. A significant strength lies in their capacity to link diverse people to a
common cause. The mandates, composition and number of NGOs undermine the sovereignty of nation states.

Hardt and Negri (2000) argue that sovereignty functions through three tiers that serve as checks and balances on each other while extending its power to all realms, namely, monarchy, aristocracy, and democracy. These forms of sovereignty correspond to the bomb, money and ether. The bomb relates to the United States military superiority and nuclear supremacy. Hardt and Negri (2000) suggest,

...the development of nuclear technologies and their imperial concentration have limited the sovereignty of most countries of the world insofar as it has taken away from them the power to make decisions over war and peace, which is a primary element of the traditional definition of sovereignty. (p. 345)

Money relates to the economic wealth of the Global 8. Hardt and Negri (2000) suggest that,

...the construction of the world market has consisted first of all in the monetary deconstruction of national markets, the dissolution of national and/or regional regimes of monetary regulation, and the subordination of those markets to the needs of financial powers. As national monetary structures tend to lose any characteristics of sovereignty, we can see emerging through
them the shadows of a new unilateral monetary reterritorialization that is concentrated at the political and financial centers of Empire, the global cities. (p. 346)

Finally, Ether refers to the realm of the media, culture, and the global telecommunication network. Hardt and Negri (2000) suggest that,

......education and culture too cannot help submitting to the circulating society of the spectacle. Here we reach an extreme limit of the process of the dissolution of the relationship between order and space. (p. 347)

Although the tiers are placeless – any momentary fixes are quickly destabilized by the deterritorialising nature of Empire itself – Hardt and Negri (2000) suggest that ‘new Romes’ appear to control them: Washington DC for the Bomb, New York for Money, and Los Angeles for Ether. Hardt and Negri (2000) describe this new world order as being created by the global spread of ‘ether’ (capital and communications technology). Thus ‘ether’, or communication networks, has a very significant role to play as an element of Empire. Hardt and Negri (2000) argue that communication has become the central element that establishes the relations of production, guiding capitalist development, and also transforming productive forces. ‘Ether’ is responsible for a new ‘biosocial society’ where the barriers between nature and culture have entirely broken down and our very biology is becoming artificial (Rabinow, 1996).
Communication is the form of capitalist production in which capital has succeeded in submitting society entirely and globally to its regime, suppressing all alternative paths. With such a communication network at its disposal, pharmaceutical companies hold the power to capital and information dissemination throughout the globe and consequently to the multitude (the health consumer). Exploitation of the multitude (the health consumer), in terms of communication, according to McQuail (1999) is brought about through media systems [which are in] the hands of a few transnational corporations; [where] the expansion of the information economy and the convergence of technologies, [contribute to] the decline in public control over communication systems. As the WWW has increased the potential for financial gain it has also created opportunities for global pharmaceutical companies to search out and dominate new and potentially lucrative financial global returns. This principal aspect of capitalist production, according to Karl Marx, is “the creation of a world market” (Bottomore & Rubel, 1956, p. 46). It is in a truly world market that profits can be maximised, and Westernisation is a process that homogenizes the world market. The result is the development of a single planetary consumer culture rather than numerous consumer cultures or a mixture of cultures, some based upon consumption and some not.

Hardt and Negri (2000) make the claim, in relation to the present world market (the flow of finance, money, information and commodities), by stating that, “In its ideal form there is no outside to the world market: the entire globe is its domain” (p. 82). In its purest form, global pharmaceutical companies aim to maximise profit, whilst health consumers act as individuals, searching for the lowest price and best quality.
Historically, single disciplinary governments and their associated communities have been responsible for creating market boundaries, however with the introduction of the WWW, and hence the redistribution of power through global informationisation of products, there has been a power shift that has transcended from governments and communities to TNCs, such as global pharmaceutical companies.

These discussions hold particular significance when attempting to understand and give meaning to the reasons to the influences which motivate GPs to directly or indirectly recommend health websites to the health consumer. By understanding the motives and giving meaning to these reasons, that are driving online health information access and its delivery, it can be better understood as to the capitalistic influences operating. Kevin (2004) gives his opinion as to how the ‘new’ capitalism and commerce trend affects the health care system by stating that we now have a health-care system whose primary mission is not delivering health care. Instead, insurance companies, pharmaceutical companies, medical device manufacturers and, in fact, many hospitals exist to make money. According to Kevin (2004), that's their first priority, and also their second and third priority. The product they sell happens to be improved health. Kevin (2004) goes onto argue that they jack up the prices on the product and restrict it to those who can afford it. "Sometime in the next decade, we'll be forced to admit that governments will have to step in and shore up the safety net by guaranteeing basic health care to all" (Kevin, 204, p. 30).
The need for all health services and products in this ‘new world’, to become informationalised and accessible to the health consumer, has seen the rapid development and growth of the Internet and consequently created new commercial opportunities for global pharmaceutical companies. Informationisation of health services and products has been made possible through the development of the WWW. Such an innovation as the WWW and the Internet has surpassed all imagination as to the effects it would ultimately have on the global market and economy. The Internet has been credited with the production of limitless information and consumer potential. This is largely due to the Internet’s bandwidth, whereupon it posses the unlimited ability of creating a communication network - cyber-environment - which has the capacity to be a many-to-many medium; in other words, there is room for everyone to be a health consumer. Such a network creates the quintessential institution, being a virtual space for both the production and circulation of information on a global scale (Hardt & Negri, 2000).

2.2 Information Imperialism

‘Information Imperialism’ or “the control of global communication networks for the intended purpose of capital gain” (Innes, 1999, p. 56) is brought about through such networks being in the hands of a few transnational corporations. These global corporations are not linked with public interest groups or organisations but yield great influence over governments (Baskakov, 1987). Innes (1999) has divided information / communication media into two ‘biases’; Time-Building media (manuscripts and oral communication which has limited distribution potential and
favour close communities and traditional authority) and Space-Binding media (print
and electronic media concerned with expansion and control, and the establishment
of commercial capitalism). The Space-Binding media holds particular significance
for this study, with respects to its unstable biases of informalisation over time and
space, the potential means of exploitation of the health consumer and the control
and dissemination of health information via the Internet. Information and
communication networks are fundamental to the control of health information. The
WWW has made it possible for limitless amounts of information to be transported
across the information highway. 'Information' today can be seen as a product which
has the potential to be an ever expanding commodity, distributed over vast stretches
of geography (Shade, 2000). This 'information distribution' has developed a
compulsion towards a centralisation of decision-making and authority, while
decentralising work (global markets); the persistence of global 'virtual'
corporations over local organisations; and a homogeneity of participants and
content (control of the multitude) (Shade, 2000).

Innis (1991) recognises that the central role that communication mediums play is in
controlling consciousness, social organisation and cultural expectations. The control
and governance of such communication mediums as the WWW has added to the
powerful position of TNCs and a limitless exploitation of the health consumer.
Social Activist groups have campaign tirelessly over the years against any attempt
by TNCs (pharmaceutical companies) to control and globalise the WWW for capital
gain. The WWW is seen as a vehicle for the worldwide propagation of information.
Governments can limit or control access to the WWW, thus ensuring that
populations will remain largely the recipients, rather than the contributors of information on the WWW. The WWW and the Internet can be used to manipulate health information that the health consumer receives.

It is the control of ‘knowledge’ through such communication networks which are collectively in the hands of powerful global TNCs that is of concern (McChesney, 1999). Each mass medium is controlled by an elite (in this case global pharmaceutical companies), which controls what knowledge, and information gets disseminated. The regulation of knowledge and information from these elites to the multitude (the health consumer) has influenced our global landscape. Monopolies of knowledge tend to polarise societies into a mass of misinformed individuals (Soules, 1996). Monopolies of knowledge also encourage a centralisation of power and the opportunity to define what is real. Foucault (1996) supports this statement and adds, “Those who control knowledge have the power to define reality” (p. 21).

2.3 Governance and control of the WWW and the Internet

Lessig (2000) asserts that the Internet, given its architecture, can easily be controlled by means of governance surveillance. Many libertarians view Lessig’s (2000) claims as misguided, asserting that the control of the Internet by authoritative states is impossible, given “the technology of the medium, the geographical distribution of the users and the nature of the content” (p. 30), what Boyle (2000) calls, “The Internet’s Holy Trinity” (p. 49). Sharing perhaps an optimistic view is former Vice President Al Gore’s (2003) standpoint on the
WWW. Gore (2003) believes that the WWW and the Internet are vehicles which will be directed and used to bring world democracy and equality, stating that the linking of the world's people to a vast exchange of information and ideas is a dream that technology is set to deliver. It will bring economic progress, strong democracies and a greater sense of shared stewardship of our small planet.

Lessig (2000) however, argues that the WWW and the Internet have all the potential to be regulated and controlled and ultimately exploited. He maintains, "The government can regulate behaviour by way of law, architecture, social norms and the market" (p. 139). These 'Four Modalities of Control' and regulation, together, determine how individuals and states within their scope are controlled. The law regulates by threat of state sanctions, architecture by design, social norms regulate by the threat of sanctions of a community. Markets regulate through price. According to Lessig (2000) law, architecture, social norms and markets together regulate behaviour. Together, they set the terms on which one is free to act or not. Together, they set the constraints on what is and is not possible. They are 'Four Modalities of Regulation'; they together determine how individuals and states within their scope are regulated. If individual powers can get control of that architecture, by mandating filters on content, regulating virtual property or the creation of e-commerce ID’s; the powers to be can collectively maintain substantial control over the culture of any communication space – cyberspace.

Cyberspace, or 'communication space' has been constructed on decisions made by people, along with the invisible code which was written by individuals we did not
elect, such as the Internet Engineering Task Force (IETF), or a more recently formed group, such as the Internet Corporation for Assigned Names and Numbers (ICANN). As cyberspace has been developed and created by people, so to is the potential for it to be controlled. Cyberspace is not an evolving organism that created itself, but rather the Internet has mutated through the ever-increasing need to strengthen commerce productivity and communication on a global scale. Lessig (2000) makes comment that most think about this architecture – this code that defines cyberspace – as given. Most think about this code as if it is simply defined. As if it has a nature and that nature can’t change. As if God gave us cyberspace, and we must simply learn how it is (p. 40).

Since cyberspace is human-made and determined, many people are unaware of the controls that already exist and are operating throughout their lives via technological architecture. An example as to how the Internet’s architecture already has control mechanisms “is the development of cookies to maintain control across HTTP accesses, which then became an instrument for user tracking and the gathering of marketing information” (Coyle, 2000, p. 81). To insure that authoritative states are readily kept in check, with regards to Internet control, governance of cyberspace and the written codes of tomorrow should be determined by people we know and elect, rather than being developed by a consortium of power brokers, governments and private institutions with their own interests in mind.

The WWW, the Internet and Internet governance / control are issues that are closely linked to matters of state power, privacy and democracy. Williams (2005) states that
“Non-authoritarian and authoritarian regimes alike are looking for ways to control and regulate the Internet” (p. 7). Many experiences dealing with ‘Internet control’ and the expressed futility of the endeavour are written from a Western point of view. However, in the case of China, Internet regulation was formally announced on 1\textsuperscript{st} February 1996 and verified on 20\textsuperscript{th} May 1997. Article 6 of the Temporary Regulation outlined that all direct International Networking traffic must use International incoming and outgoing channels provided by the national public network of MPT. In short, every bit of traffic that comes from foreign servers, into China, must pass through the network of the former MPT (now MII), making it easier for the government to monitor traffic.

The principle behind the concept of Internet regulation in China is that “one is responsible for what one publishes” (Williams, 2005, p. 29). China practices and encourages a high degree of ‘self-censorship’ when it comes to posting material onto the Internet (Williams, 2005). If individuals / groups are seen as posting information that is damaging to the state or the government (as with the case of pornographic material), then the government, by way of the law, can close the website. Law, as a means of control, depends on the threat of sanctions by the state. Williams (2005) indicates that intimidation is a very strong weapon in the battle for Internet control and something the Chinese government is very good at. Its goal is to set a ‘standard’, so everyone knows which boundaries they should not cross. The government has not hesitated to set examples in order to intimidate the public; these practices however do not exist in many western democracies.
In his discussions of *Cyberspace, Control and the Internet*, Barlow (1996) refers to the 'Declaration of the Independence of Cyberspace'. He suggests that,

...cyberspace consists of transactions, relationships, and thought itself, arrayed like a standing wave in the web of our communications. Ours is a world that is both everywhere and nowhere, but it is not where bodies live. We are creating a world that all may enter without privilege or prejudice accorded by race, economic power, military force, or station of birth. We are creating a world where anyone anywhere may express his or her beliefs, no matter how singular, without fear of being coerced into silence or conformity. Your legal concepts of property, expression, identity, movement, and context do not apply to us. They are all based on matter, and there is no matter here. In China, Germany, France, Russia, Singapore, Italy and the United States, you are trying to ward off the virus of liberty by erecting guard posts at the frontiers of cyberspace. These may keep out the contagion for a small time, but they will not work in a world that will soon be blanketed in bit-bearing media. We will create a civilization of the mind in cyberspace. May it be more humane and fair than the world your governments have made before” (p. 49).
2.4  **EMPIRE, general practitioners, health websites and pharmaceutical companies.**

Hardt and Negri (2000) refer to transnational corporations as “the organizations that regulate the global flow of capital, technology and people” (p.180). The movement and control of people and commercial transactions has been heightened through the emergence of the WWW and the Internet. This process has encouraged global pharmaceutical companies to attempt to control cyberspace for monetary gains, in turn reducing the liberty of the health consumer and facilitating monopoly control over the health industry.

Such practices have implications for the health consumer, insofar as relating to accessing reliable, unbiased health information that is not driven and influenced by the commercial motivations by global pharmaceutical companies. This creates the potential for health websites and GPs alike, to be an extension of TNCs, where the potential for information control and manipulation by transnational drug companies is ever increasing. Angell (2004) suggests that the pharmaceutical industry has moved very far from its original high purpose of discovering and producing useful new drugs. Now primarily a marketing machine to sell drugs of dubious benefits, this industry uses its wealth and power to co-opt every institution that might stand in its way, including the U.S. Congress, the Food and Drug Administration, academic medical centers, and the medical profession itself (Kage, 2005).

Veracity (2005) comments on the influence global pharmaceutical companies have on GPs and associated medical institutions. By referring to GPs as nothing more
than, 'glorified drug dealers' and 'puppets of the pharmaceutical industry', Veracity (2005) makes claim that GPs are prescribing drugs to the health consumer on the basis and influence of pharmaceutical companies; which is largely occurring as a result of direct-to-consumer advertising and marketing via the Internet and WWW. His scathing attack on the medical fraternity is fuelled by other recent articles by Kage (2005) who writes that drug companies have not only infiltrated the WWW but have influences throughout medical schools, journals and clinical drug trials. Many drug companies 'entice' GPs to openly promote their products via health websites, by offering them free trips, vacations, lunches and cheques for a 'consulting fee' (Veracity, 2005). Kassirer (2000) offers an unsettling look at the pervasive payoffs that physicians take from big drug companies and other medical suppliers, arguing that the billion-dollar onslaught of industry money has deflected many physicians' moral compasses and directly impacted the everyday care we receive from the doctor and institutions we trust most.

Pharmaceutical companies have been quick to recognise the potential for advertising their drugs via health websites. By using the Internet, the possibility to reach a larger market population has expanded the potential for direct-to-consumer marketing on a global scale. Recent research indicates that the drug companies' influence on the American economy is evident; insofar as indicating that, in 2001, 2.8 billion prescriptions were filled in the United States for an average of 9.9 prescriptions per person (Veracity, 2005). Furthermore, it is highlighted that in 2000, pharmaceutical companies spent $2.5 billion on mass media pharmaceutical advertisements. This number increased to over $3 billion in 2003. Hence, it is
expected that, “Americans would spend over $500 billion on drugs in 2006, with an expected extra $100 billion spent on Medicare drug benefit programs” (Fillon, 2005, p. 176). It is estimated that the billion dollar pharmaceutical / drug industry generates monetary worth which surpasses the American Oil Industry, leading many medical experts to wonder if health consumers are being unnecessarily medicated. These concerns are fuelled by recent concerns about the safety of prescription drugs. Recent research indicates that 125,000 people die from drug reactions and mistakes every year, making it the forth most common cause of death in America (http://www.suntimes.com/output/health).

As a direct result of aggressive marketing tactics via the WWW and the Internet, pharmaceutical drugs are becoming increasingly more affordable and obtainable by the health consumer. Research undertaken by Anderson, Rainey and Eysenbach (2003), indicates that 70 million Americans have actively searched the Internet to acquire health-related information and drug prescriptions. In total 64% of American households have regular connections to the prescription drug marketplace via the WWW” (Pew Internet & American Life Project, 2004). Cohen (2005) further suggests that the manipulation of the health consumer, by pharmaceutical companies, is evident when recent research indicates that it is expected that by 2006 an estimated $7.5 billion will be spent on drug advertising directly to the health consumer; an increase of 1,200% over a decade. Similarly, since the mid 1990s, pharmaceutical companies have tripled the amount of money they spend on direct-to-consumer advertising of prescription drugs. From 1996 to 2000, totals rose from $791 million to nearly $2.5 billion (Fillon, 2005). Furthermore, forty – five percent
of American adults, or about 91 million people, take prescription drugs on a regular basis. Forty-one percent of American adults live with someone who regularly takes prescription drugs. Such commerce trends are presently only legally achievable throughout the United States. The United States is the only country in the world that allows drug companies to advertise prescription drugs directly to the consumer, either be it through television, media or the Internet (Minddell, 2005). However, if global pharmaceutical companies have their way, it maybe a distant reality that Australian pharmaceutical companies are legally allowed to follow suit.

2.5 Globalisation, global pharmaceutical companies and the new millennium.

In summary, the previous sections of this chapter have identified the key elements of globalisation as: (1) rapid economic transformation in which states are no longer closed units and cannot control their economies, (2) electronic technologies / communications have fundamentally revolutionised our perceptions of the social group we live in and work in, (3) a global shared culture is emerging, (4) the world is becoming more homogeneous, with differences between people diminishing, (5) time and space seem to be collapsing with, for example, the speed of modern communications and media, (6) a global policy is emerging, which is characterised by transnational social and political movements, and (7) a risk culture is beginning to emerge, with the realisation that many problems are global and that states cannot deal with them on their own.

Historically, many world powers have attempted to control the global market but have fallen short due to the vastness of the geography, the resistance it produces and
the exhaustive impacts this endeavour has had on both human and natural resources.
The WWW and Internet have changed this, creating a 'networked' global village with no economic, market or cultural boarders, which led to the creation of a citizen of a 'new world order'. With such dramatic changes to the global political and economic landscape, comes potential exploitation of the health consumer. The WWW and the Internet have changed commerce trends like no other time in history. Health consumers interact with computer technology, which has ultimately opened up unlimited market boundaries and purchasing opportunities. Health consumers are going online to purchase and gain information on anything and everything imaginable.

There are a number of concerns when addressing TNCs such as global pharmaceutical companies and the WWW. Smith (2000) suggests that medicine is global, but there is no international 'health organisation' that has the resources and power of the drug industry. Smith (2000) further posits that research - based drug companies have emerged and have been driven largely by the costs of discovering new drugs and bringing them to the market. As a direct result, the drug industry has consistently been one of the most profitable industries, is truly global and has demonstrated great political power, particularly in the United States. This ever increasing global demand for drugs and the drive to bring new drugs to the market place has produced spiralling economic costs. This has allowed for the 'barrier of entry' to be raised, thus creating a limited and homogenised market place, controlled by a handful of large global pharmaceutical companies. In recent times, this 'veil of secrecy', has created an environment where the drug industry was cut
off from the health consumer. Yach and Bettcher (2000) reveal that drug companies favour secrecy for commercial reasons; doctors and patients want transparency. As a consequence, the drug industry has concentrated its enormous marketing resources on GPs; because they write the prescriptions. Resulting on the ‘spend’ per doctor as enormous.

Pharmaceutical companies must produce a good return on investment for shareholders if they are survive into the new millennium. They do this through producing much needed new (generic) drugs--from which everybody benefits. The exploitation and commercialisation of the health care industry is highlighted by suggestion that large global pharmaceutical companies do not produce new drugs for very rare conditions or conditions affecting those who have no money to pay for them (Villanueva, 2003). It does, however, make commercial sense to produce a ‘me too’ drug for a profitable market and market this product as aggressively as possible. The great majority of ‘new’ drugs are not new at all but merely variations of older drugs already on the market. The idea that many drug companies except as ethical practice is to grab a share of an established, lucrative market by producing something very similar to a top selling drug. Examples of this practice are evident with six variations to lower cholesterol on the market, all variations of the first. Villanueva, 2003, who is the director of the Kaiser Permanente Medical Group, remarks,

.....if I was a manufacturer and I could change one molecule and get another twenty years of patent rights, and convince physicians to prescribe and consumers to demand the next form of Prilosec, or
weekly Prozac instead of daily Prozac, just as my patent expirers, then why would I be spending money on a lot less certain endeavour, which is looking for brand – new drugs? (p. 35).

There is a growing need to get the drug industry to focus on discovering truly innovative medical discoveries instead of turning out ‘me too’ drugs and spending millions of dollars to promote them as if they were miracle drugs (Angell, 2004). Over the past two decades the pharmaceutical industry has moved very far from its original high purpose of discovering and producing useful new drugs. Now primarily a marketing machine to sell drugs with dubious benefits, this industry uses its wealth and power to co-opt every institution that might stand in its way, including the U.S. Congress, the FDA, Academic Medical Centres, and the medical profession itself, however, most of its influence is aimed at the GPs; as they write the prescriptions (Angell, 2004).

Giddon (1999) attests to such marketing development, by highlighting that the need to establish and maintain the necessary 12-15% increase in sales (half of it coming from price increases) is becoming impossible to sustain because of political pressure and that the current business models surrounding research-based drug companies. The answer lies with promoting mergers, creating ‘monopolies’ and a homogenous global pharmaceutical industry (Yach & Bettcher, 2000). Further survival tactics, deemed necessary by the pharmaceutical industry, has seen new ‘relationships’ being created with the health consumer. The development of the WWW and the Internet has opened up ‘new relationships’ or direct to consumer advertising in the U.S. and New Zealand and it has been predicted that such trends
will be unstoppable across the world. Like many other companies, prescription drug marketers are beginning to take advantage of the extensive reach of the WWW and the Internet to promote their products (Villanueva, 2003). More importantly is the growing influence the WWW and the Internet is having on the medical profession, Quyyam (2003) indicates that there are five e-Business models that are being pursued into the new millennium by pharmaceutical companies and revolve around the WWW and the Internet. Firstly, there are the Content Providers (e-knowledge) such as WebMD, as highlighted in Figure 2.1, that are aimed at providing information to the health consumer. Secondly, there are Medical Providers (e-professional) such as MedScape, as highlighted in Figure 2.2, that are aimed at providing online data and information to health professional (GPs).

Figure 2.1: Content Provider (e-knowledge) – WebMD
Figure 2.2: Medical Provider (e-professional) – MedScape

Thirdly, there are Market-Makers (e-business) such as HealthAxis, as highlighted in Figure 2.3 or Neoform, as highlighted in Figure 2.4, that are applications services providers (business-to-business) to pharmaceutical companies for establishing a web presence and performing online business.

Figure 2.3: Market-Makers (e-business) – HealthAxis
Fourthly, there are e-Tailers (e-business / e-knowledge) such as drugstore.com, highlighted in Figure 2.5, or cvs.com, as highlighted in Figure 2.6 which provide a combination of business-to-consumer (B2C) and content exchange for many pharmaceutical companies.
Finally, there are Service Providers such as InfoMedics (e-business), as highlighted in Figure 2.7, who provide products and services to pharmaceutical companies, in regards to detailing, gaining market share, and increasing brand performances.
These above health website categories (e-knowledge, e-professional, and e-business) are discussed and further elaborations given throughout chapter 3. The implication for the GP and health consumer alike is that there are no avenues associated with online health information and purchasing that is not being controlled and manipulated by large pharmaceutical companies for capital gain. Indirectly, GPs and health consumers are being controlled and manipulated in respects to the GP’s drug prescribing habits, health behaviours and information dissemination and implementation. As a result, there seems there is no escape from the ever increasing control of global pharmaceutical companies.

Hardt and Negri (2000) maintain that such corruption is evident in the fabric of Empire and it is a process by which capitalism separates a body and mind from what it can do, thus controlling its productive powers and extracting surplus value.

This global pharmaceutical control is evident by McAfee’s (2003) work, who suggests that the WWW and the Internet will strongly influence many of the future research, manufacturing and marketing developments of pharmaceutical companies. As highlighted in Figure 2.8, McAfee (2003) indicates this as the “typical pharmaceutical drug manufacturing process” (p. 10).

Figure 2.8: Pharmaceutical Value Chain (2003)
McAFee (2003) further indicates that the WWW and the Internet influence every phase of the Pharmaceutical Value Chain. He maintains that the 'Research Phase' is characterised by such processes as data-sharing, databases, connectivity, and quick screening. Similarly, recruiting, data capturing, and virtual trials will impact 'Preclinical and Clinical Development'. Branding, product data, and online communities will influence 'Marketing', whilst online sales and details will influence the pharmaceutical firm's 'Sales'. Finally, forecasting, procurements, and place and trade will influence 'Supply Chain Management'. In terms of connecting the processes of research, development, manufacturing, marketing and sales, the WWW and the Internet are central to this chain and forms a common thread throughout the pharmaceutical industry. Such a Pharmaceutical Value Chain, as outlined by McAFee (2003) aligns itself with Hardt and Negri's (2000) process of informationisation; whereupon all manufacturing, marketing and production avenues are subject and controlled by global technology networks (WWW, the Internet). Hardt and Negri (2000) maintain that we are in a process of economic informatisation. Through this process, all production tends towards the production of services and marketing, toward becoming informationalised.

However, debate rages as to the exploitative nature pharmaceutical companies are exhibiting when it comes to the WWW and the Internet. Hardt and Negri (2000) comment that the new communication technologies, which hold out the promise of a new democracy and a new social equality, have in fact created new lines of inequality, control and exclusion, both within the dominate countries (U.S.A) and especially outside them. These debates have focused on the value of online drug advertisements, their informational content and ethical aspects, and the potential conflicts of interest.
arising from revenue they generate (Villanueva, 2003). Ethical concerns surrounding drug companies and their advertisements are not unusual and with the influence of the WWW there are growing concerns that pharmaceutical companies are directly influencing both the health consumer and GP’s prescribing habits.

Further ethical concerns exist when reports highlight how drug companies are influencing GPs prescribing habits through ‘gifts for service’. In an article appearing in the Journal of the American Medical Association (January, 25, 2006), a group of 11 medical leaders voice that the practice of ‘gift giving’ does influence which drugs doctors prescribe and are undermining the quality of medical care. Rothman (2006) President of the Institute on Medicine as a Profession further comments that the data is overwhelming. Gifts, travel grants, consulting contracts, support for continuing medical education and speaking fees affect which drugs doctors prescribe for their patients. Pharmaceutical companies spend an average of $13,000 per physician annually to promote their products. There was an urgent call on medical schools and research hospitals to ‘provide leadership’ and cap gifts at ‘zero dollars’, and hope that all GPs would follow. It was strongly highlighted that marketing and market values should not be allowed to undermine GPs’ commitment to their patients’ best interest or to scientific integrity. Interestingly, this research has identified that GPs are being offered ‘sweeteners’ by pharmaceutical representatives, in an attempt to get them to recommend their health websites.

The extent, to which pharmaceutical companies influence GPs, is further highlighted in a recent article by Blumenthal (2004). He states, “The marketing expenditures of the drug industry have been estimated variously at $12 billion to $15 billion yearly, or
$8,000 to $15,000 per physician. In 2002, there were 90,000 drug retailers total. That is 1 salesperson per 4.7 office-based physicians” (p.68). However, Blumenthal places the responsibility for the relationship between pharmaceutical companies and GPs on the GP, rather than the pharmaceutical industry. In many ways, the ultimate arbiter of the nature, extent, and consequences of interactions between drug companies and physicians is the medical profession itself. As a for-profit business, the pharmaceutical industry should be expected to market its products aggressively within legal boundaries. It is then up to physicians to decide whether to accept the proffered information and enticements. Due to the secretive nature of the pharmaceutical industry, it has been difficult to get a clear indication as to just how much financial net the industry is actually producing. However, Angell (2004) estimates include figures around the $200 billion mark. This figure is only reflective of the direct to consumer purchases via pharmacies, mail order and the Internet and not revenue from larger drug dependent institutions such as, hospitals, nursing homes and GPs offices.

There have been many calls for reforms to be initiated pertaining to the broad influence of the pharmaceutical industry's money on GPs and other health professionals, hospitals, and medical schools. Few have been as sweeping as the recent article in the Journal of the American Medical Association (2006) by Brennen (2006). The drug industry has been roundly criticized for its intense, diverse, and unrelenting efforts to influence doctors and sell more drugs. The criticism has accomplished little, and drug sales have soared. The analysis by Brennen (2006) focuses on the medical profession, acknowledging that "Physicians' behavior is a large part of the problem", and that the "Stature of the medical profession and the trust of patients have been jeopardized by
medicine's many conflicts of interest with the drug industry” (p.71). Similarly, the Guardian Weekly (2006, p. 1) presents further reports examining the marketing practices of 20 of the world’s biggest pharmaceutical companies. It alleges that (1) pharmaceutical companies are promoting their products through patient groups, students and Internet chat rooms to bypass the ban on advertising except to doctors, (2) they offer information to the public on "modern" lifestyle diseases, such as stress, to encourage people to ask their doctors for medicines, (3) they make inaccurate claims about the safety and efficacy of their drugs, (4) doctors are offered incentives to prescribe and promote drugs including kickbacks, gifts, free samples and consulting agreements, and (5) many companies have been implicated in anti-competitive strategies, including cartels and price hikes.

It has been an accepted practice that pharmaceutical companies are not permitted to advertise products directly to the public (albeit U.S.A. and New Zealand). However, Brennen (2006) comments that pharmaceutical companies and online pharmacies are increasingly looking to influence health consumers through the exploitation of the WWW and the Internet. One example of such commerce trends was highlighted in an article by Sweet (2001). Sweet indicates that online drug purchasing by health consumers is seeing a rapid incline due to what Sweet refers to as 'bioterrorism'. In light of the recent terrorist attacks and the increasing threat of bioterrorism, many U.S. citizens have turned to the Internet in an attempt to gather the supplies needed to protect them and their loved ones. Central to the effort is the increased purchasing of prescription drugs over the Internet. This increased, online consumer purchasing trend has collectively been in response to attacks of anthrax on the American public. Sweet
(2001) further remarks, that Americans are taking the war on bioterrorism into their own hands, using online pharmacies to stockpile anthrax antibiotic ciprofloxacin (Cipro - a prescription drug). Capitalizing on this vigilantism, a number of foreign websites are promoting and selling Cipro, to American health consumers.

As fears of bioterrorism spike the U.S. is working to eliminate rogue online pharmacies that prescribe unwarranted drugs. Although health consumers may benefit from international prices and online anonymity, increased accessibility to prescription drugs online may prove to do more harm than good. As with each commercial domain it enters, the Internet brings new opportunities for businesses and consumers and new challenges for law enforcement. Such practices drew considerable attention from the then President of the United States – Bill Clinton. In an attempt to curve this growing trend, Congress submitted new laws to regulate the growing sale of prescription drugs over the Internet. As a result, online drug stores will be required to get approval from the Food and Drug Administration (FDA) and to comply with state regulations on the practice of medicine and pharmacy.

Much of the research surrounding the pharmaceutical industry indicates that their operations are such that they put profits before public health. Testimonies from five doctors and two consumer champions, who were being questioned by the health select committee for its inquiry into the influence of the pharmaceutical industry, painted a picture of an industry that creates health anxieties among the public to boost its profits. Further speculations are directed towards drug companies withholding unfavorable trial results and controlling what research gets published in an attempt to ensure that GPs get the messages that pharmaceutical companies want to promote. The pharmaceutical
industry is active in all these fields and has a very clear agenda—that of profit—and that is in direct conflict with the responsibilities of the NHS (tp://www.nofreelunch.org — accessed 26.11.06).

2.6 Conclusion

This chapter has highlighted that there are a number of influences that motivate GPs to recommend health websites to the health consumer. On the surface (direct influences), there are varied reasons why GPs choose to recommend online health information to their patients. Potts (2001) indicates that many physicians view the recommendation of health websites as a means to improve the patient’s understanding of their own condition, promote self-care and even educate the doctor. In respects to the changing nature of health information, Reeves (2000) comments that online health information lends itself to an obvious shift in the traditional asymmetry of information between patient and provider. Likewise, in respects to understanding the evolving professional roles of the GP, Gerber and Eiser (2001) suggest that the decision-making process between GPs and patients may improve with efforts to share the burden of responsibility for knowledge. In an attempt to contend with this changing nature of the patient-GP relationship, and to further strengthen the decision-making model, GPs are adopting the process of ‘recommending’ health websites to patients.

Increasing trends pertaining to online health information seeking and purchasing by health consumers, has warranted studies to be conducted which address such issues as online pharmacies and health website recommendation by GPs to the health consumer. However, to date, there is little research examining the motives (indirect influences) for these practices. It has been highlighted that global pharmaceutical companies are using
the WWW and the Internet in an attempt to manipulate and control global markets. Health websites and GPs alike are a vehicle for capitalism to thrive and to control the global pharmaceutical market place. The pharmaceutical manufacturing process is heavily reliant on the WWW and the Internet to maximise profits into the new millennium (McAfee, 2003). The global pharmaceutical industry is attempting to infiltrate every aspect of the WWW and the Internet; monopolising every channel of health information dissemination and consequently product / drug purchasing and prescribing. The delivery of online health information to the health consumer via 'e-knowledge' health websites, 'e-professional' health websites aimed at GPs and commerce driven B2B or B2C 'e-business' health websites, have been earmarked as necessary markets to control for further financial gain. Hardt and Negri (2000) argue that Empire must develop and strengthen such predatory commerce trends so as to maintain control over global markets. Such market authority ensures control over the purchasing power of the multitude (the health consumer).

Chapter 3 has presented the three types and categorisations of health websites, these being; 1) e-knowledge, 2) e-professional and 3) e-business. Elaborations and key indicators will be presented and specific reference given to current websites which fall into these three categories.
3.0 Categorising health websites

Before categorising a health website a detailed criteria must be designed. The criteria displayed throughout the following Appendices and Screen Captures will form the guiding model for this chapter and will assist in determining the category of each health website. At present, literature surrounding the categorisation of health websites is limited. Therefore, much of the criteria generated, has been developed from an extensive review of the literature and critique of current health websites. The developed criteria (see Appendices 10 & 11) can be applied to any web interface, allowing for IT / health professionals and active web users to formulate a categorisation system for health websites. This process is vital in the design phase, as it is necessary for developing reliable, interactive and user friendly health websites. Below are the general defining qualities of each category (e-knowledge, e-business and e-professional) with elaborations given in an attempt to assist in categorising and to provide clarity of purpose for these health websites. Reference to how these same three categories of health websites are being utilised by pharmaceutical companies has already been outlined in the preceding chapter.

3.1 E-knowledge health websites

E-knowledge health websites can be determined by the level of literacy, content and objectivity (profit / non-profit) throughout the website’s interface. The health literacy and content level that is needed to promote user engagement throughout this interface is of a low to moderate level. Norman (2006) found that over 40% of US and Canadian adults have low basic literacy levels, suggesting that e-health resources are likely to be inaccessible to large segments of the population. E-health literacy is the ability to read,
use computers, search for information, understand health information, and put it into context (Norman, 2006). This composite skill requires that people are able to work with technology, critically think about issues of media and science, and navigate through a vast array of information tools and sources to acquire the information necessary to make decisions.

Consideration must be given to the problems associated with online health information seekers who possess a lower level of health literacy. Statistics presented by the Centre of Healthcare Strategies (2002) indicate that most adults in the U.S. read at a 6th grade level, with 45% below a 6th grade level. Consumer-orientated health information on the Internet is often difficult to access, hard to understand and often incomplete (Felkey, 2000). Felkey notes that because nearly half of the U.S. population have low literacy skills, many consumers are unlikely to comprehend most health information they find online. Generally, most studies on the literacy of the general population of the United States show that approximately 20% of the U.S. population is functionally illiterate (Healthcare Strategies, 2002) and that the reading comprehension of public clinic patients is about Grade 6 (Healthcare Strategies, 2002).

Guidelines for the development of e-knowledge health websites should be designed with a reading level at or under the 6th or 8th grade level; however, most websites are at reading levels that far exceed these health literacy levels. As a direct consequence, older people, immigrants and those of low incomes are disproportionately more likely to have trouble accessing, reading and understanding health related information found on the WWW (Centre of Healthcare Strategies, 2002). Furthermore, according to Anton (2002)
the latest U.S.A. census data indicates that 41% of Californian’s over the age of 5 have English as their second language. Such factors and barriers add to the digital divide.

E-knowledge health websites are generally from non-profit organizations, where their primary objective is to inform the general health consumer about a particular disease, treatment or alternate health care and delivery. Much of the information and Interactive Components are pertaining to case studies, prevention of disease, educating the general public about maintaining and promoting their own health. Recent work by Sher (2000) on ‘tailoring’ the searching of health information on the Internet, includes developing user models that estimate a health consumer’s level of education, health literacy and medical experience. Such inclusions and levels of interactivity components are dependent and conditional on the desired outcome/s of the organization, support systems available and economic rationalising. E-knowledge health websites possess and display interactive components which allow for heightened levels of doctor-patient communication, connectedness throughout the website and a sense of content control and tailoring to the health consumer’s needs. Generally, information displayed throughout the interfaces is expressly aimed at the general population and a low to moderate level of literacy. Hence, wordage and other associated information (diagrams) are written and displayed in an easy and user-friendly manner.

An example of this is highlighted in Screen Capture 3.1, where information about high blood pressure is expressed as, “High blood pressure is dangerous because it makes the heart work harder”. Such an approach to health information sharing and delivery allows for a large cross section of the population to understand and develop self-efficacy surrounding their personal health behaviours. Other facilities which characterizes this
page as 'knowledge', is the interface emphasis on 'educating' individuals about such topics as; Heart disease information, Steps to control heart disease, answers to generic questions and preventative strategies and information. E-knowledge health websites may possess varying degrees of interactive components. These generally come in the form of such synchronous or asynchronous communication methods as chat rooms or email facilities. Either, the level of interactivity is seen as not necessary or considered too costly, or the level of interactive components throughout e-knowledge health websites is determined and driven by parties associated with the interface. Websites, which fall under this category, are generally associated with non-profit organizations, which in turn, attract little funds for the development of such information portals and, interactive components. In short, e-knowledge health websites can be summarised as being more ‘reactive’ in nature rather than ‘interactive’.

E-knowledge health websites

Screen Capture 3.1 – example of an e-knowledge health website
2heartdisease.com/high-blood-pressure.htm - accessed 9/2006
3.2 E-business health websites

E-business health websites can be determined by the level of literacy, content and objective (profit / non-profit) throughout the web's interface. The literacy and content level that is needed to engage users throughout this interface is of a low to moderate level. E-business health websites are from profit organizations or those organisations motivated by e-commerce / B2B (business to business / e-business), where their sole objective is to generate capital gain and profit from the general public and other organizations. Kalakota (2001) predicted that IT spending in the e-business pharmaceutical industry would increase from $3 billion in 2000 to $5 billion in 2005. Kalakota (2001) suggests that e-business is not just about transactions or about buying and selling on the Web; it’s the overall strategy of redefining old businesses which, with the aid of technology, maximize customer value and profit.

E-business health websites are expressly concerned with presenting and promoting a product for financial gain. However, there is a great deal of debate surrounding the reliability of advertisements used throughout these websites to promote drugs to the health consumer. The accuracy and usefulness of drug advertisements throughout health related websites has been the subject of controversy for more than 10 years (Villanueva, 2003). Debates have focused on the value of the advertisements, their informational content and ethical aspects, and the potential conflicts arising from the revenue they generate. Online drug advertisers have been criticised for making false or misleading claims; omission of adverse effects and other information important for prescribing; extension of the standard developed countries and another for developing world’ and reinforcement of gender, ethics, or professional prejudices; and unethical implications.
Much of the information and associated interactive components are pertaining to other similar sites and are positioned so as to deliver speed of transactions and communication between businesses and customers. Levels of interactive components are conditional upon the desired outcome of the organization/s; support systems available, economic gain and do possess limited information that is aimed at educating the health consumer. Other important e-business models are associated with business to consumer (B2C) applications. Pelkey and Brent (2000) comment that in the traditional community pharmacy, patients walk in to a "brick and mortar" retail operation to buy products and services. "In the B2C model of e-business, customers have the opportunity to 'click in' from their personal computers to a pharmacy's website to learn about or purchase goods and, increasingly, access health information services" (p. 2).

Pelkey and Brent (2000) further add that pharmacies that combine a traditional retail operation with Internet-based B2C services are called 'bricks and clicks' pharmacies (see Screen Capture 3.2). In the view of many experts, this model is poised to become the most successful type of pharmacy in the future (Pelkey & Brent, 2000). Information is aimed at keeping individuals engaged within the interface for a prolonged period of time with the purpose of increasing the chance of acquiring a potential customer. The majority of these websites are concerned with advertising a particular product or service which ultimately will require some form of monetary exchange to obtain. Email facilities are present for the sole purpose of bulk advertising and follow-up. Due to the nature and commercial objectives attached to these types of health websites there is a limited need to adopt and implement comprehensive interactive components. Products displayed throughout these types of e-business websites may range from therapeutic
drugs, supplements, remedies, advertisement or expressed health / fitness related information (see Screen Captures 3.3 & 3.4). There has been a rapid increase in business-to-consumer (B2C) online commerce in recent years. According to the United States Census Bureau, total e-commerce sales in 2001 were estimated at $32.6 billion, an increase of 19% over 2000 (US Department of Commerce, 1998).

E-business health websites

Welcome to eMedical Pharmacy Online

The eMedical Online pharmacy is operated by experienced Australian pharmacists. It offers discount health and beauty products and over the counter and prescription medications. All orders are delivered to your home, Australia wide.


There has been an improvement in the health consumers' attitudes towards online pharmacies; suggesting buying online is becoming acceptable to many people. Indeed, Korganonkar and Wolin (1999) found health consumers, who purchase products or services on the Internet were very similar to the general population, suggesting that online shopping is becoming increasingly 'mainstream'. Many benefits have been suggested for consumers who use the Internet as an alternative channel to traditional brick-and-mortar retail outlets (Page & Lepkowska-White, 2002; Wolfinbarger & Gilly, 2001). Some of these benefits include (1) the Internet is convenient and can save time, (2) the Internet is a rich source of free information and (3) the Internet can be used to easily compare prices from different vendors.

According to Wee (2000), the Internet has empowered health consumers and led them to have higher expectations. Chiam (2006) presents a model (see Figure 3.1) which represents people's willingness to purchase in an Internet context. The model combines the work of various researchers and assumes that brand image, site reputation, relative price, perceived risk, convenience, affect and trust influence perceived value, which, in turn, influences willingness to purchase. From a Health Consumer's perspective, there are three (3) important aspects which web designers should consider in an attempt to create a reliable, interactive and user friendly health website. The three web design considerations of (1) Interface, (2) Content, and (3) Interactivity have been widely researched and the literature supports their considerations.
The WWW is becoming the place for global pharmaceutical companies to market its wares to healthcare professionals across the world. Thomaselli (2005) indicates in his recent article, ‘Pharma replacing reps with web', that in an emerging trend, drug companies are marketing their brands to doctors through email and web conferencing, capitalizing on the high efficiency and low cost of the Internet. This trend is largely in response to a decrease in budgets as well as a decrease in numbers -- pharmacies, for instance, recently cut 700 more jobs -- are also factors in how pharmaceutical companies are restructuring their markets in favour of the WWW and the Internet.
However, one of the overriding factors which has drawn increased attention to the benefits of the Internet is the staggering statistics surrounding search habits of current GPs. Thomaselli (2005) asserts that 64%, of the U.S total, an estimated 379,000 practising physicians, go online to find out about drugs and treatment options, prescribe medications and pursue continuing medical education (CME). It is not surprising that since virtually every physician reports some professional use of the Internet that many products / marketing teams are now searching for ways to use online channels to derive the maximum benefits from marketing, promotional and customer – engagement perspective (Bard, 2006).

3.3 E-professional health websites

E-professional health websites can be determined by the level of literacy, content and objective (profit / non-profit) throughout the web’s interface. The literacy and content level that is needed to engage users throughout this interface is of a high level. E-professional websites are designed to educate and inform health professionals (i.e. GPs) as to the latest medical advances and information pertaining to specific medical conditions, treatments, drugs and technology. Much of the information, hyper links and interactive components are pertaining to other similar websites. Levels of interactivity are conditional on desired outcome of organization and support systems available. Much of the interactivity technology is designed so as to demonstrate the latest medical technology and advances.
A great deal of the health information portrayed throughout e-professional health websites are aimed at advocating and informing the health professional (i.e. – GP, as to the latest medical advancements associated within a particular field). Screen Capture 3.5 highlights that the information outlined throughout the website is encouraging specialists to explore the latest developments in Robotic Heart Surgery. Other information portals displayed throughout the interface allows for medical experts to research and submit articles that delve deeply into a vast array of health conditions. The Screen Capture below displays two such examples, these being; ‘Homocysteine and Hypertension’ and ‘Iron and Infection’. The articles and information displayed throughout these types of interfaces are inappropriate for meeting the needs of the general public / health consumer. When presented with this website, unless the individual possesses a reasonable depth of understanding associated with medical terminology and possesses a high level of literacy skills, the health information may seem overwhelming and inappropriate.

E-professional health websites

Screen Capture 3.5 – example of an e-professional health website - accessed 9/2006 - Diagnosis Heart – www.diagnosisheart.com/
E-professional health websites do possess many interactive qualities. The majority of these types of interfaces have such multimodality capabilities such as; feedback facilities, 3D graphics and animation, information portals and links to appropriate specialists. However, e-professional health websites differ slightly to that of other health websites. The majority of these websites are to educate and up skill GPs as to the latest medical advances and techniques associated with one or more specialist areas. Little evidence is apparent as to how this information is disseminated to the patient or the general public in terms of preventative measures and recommendations.

Within these 'cyber - environments', doctors / specialists are encouraged to submit medical articles which keep their professional peers abreast as to the latest developments of a particular medical treatment, diagnosis, drug therapy or the most recent medical technology (see Screen Capture 3.6).

3.4 Interactive components and health websites

Interactivity levels can be determined by the number and type of interactive components present throughout a website’s interface. There are four interactive components generally displayed throughout a health website, these being; multimodality, networkability, temporal flexibility and message tailoring capabilities. There are varying levels, types and degrees of interactivity that can be demonstrated throughout any of the three categorised websites (e-knowledge, e-business, and e-professional). The main objective of inclusion of these types of interactive technologies should be to increase the active engagement of the user/s throughout the interface; creating avenues for the tailoring of information and providing facilities to promote general communication and feedback at a time suitable to the user. In terms of e-business health websites, interactive technologies are included so as to heighten the user’s ability to purchase pharmaceutical products via the WWW and the Internet. Furthermore, a sense of ‘connectedness’ throughout the cyber-environment together with a sense of ‘control’ of outcomes, information collection and manipulation processes heightens health promoting capabilities and purchasing trends.

Murray (2004) highlights the importance of such inclusions as interactive components throughout health websites. Murray describes interactive components as ‘interactive health communication applications’ or IHCAs. Examples of these additional components are peer support (often provided by on-line support chat rooms), decision support and behaviour change support (e.g. tolls for personal assessment, setting goals and tracking progress). Increasingly such packages are being delivered over the Internet, and are becoming known as ‘Internet interventions’. Interactive components over and above simple information are essential features for IHCA. These additional components help users interpret health information, apply it to their own personal
situation, and hence have the potential to promote healthy behaviours and improve overall health status (Murray, 2004).

Interactive components possess an enormous potential for individuals to adopt and apply the knowledge to their everyday tasks. Screen Captures 3.7, 3.8 and 3.9 display a range of interactive components which are typical throughout health websites. When health applications can be integrated with everyday tasks (e.g., nutrition analysis of a grocery list) the levels of self-efficacy amongst users are heightened. Self-efficacy and control of the decision-making process, is an important component in the success of health promotion interventions. Interactive components throughout health websites do enhance an individual’s attention to and actively encourages the processing of health promotion messages.

Screen Capture 3.7 — accessed 9/2006
Blubberbusters – www.blubberbuster.com/
A study that highlights the above point was conducted with young people and their interaction with health video games. The video game series were designed to encourage healthy behaviours involving either prevention of health problems or self-
management of ongoing conditions. The study concluded that participants of the video games attested to a greater memorable experience and the video games helped players learn about prevention and self-care and improved their health-related skills and behaviours. Lieberman (2000) posits that interactive components increase motivation to learn about health, knowledge about prevention and self-management, self-efficacy regarding health behaviours and communication about health with others who can provide social support. Quintana et al. (2001) concluded, after surveying 42 patients, that consumers want technologies that will inform them on preventions for taking care of themselves and for participating in a more informed way in health discussions with their physician. These factors alone have been identified within the fields of education, public health promotion, human-computer interaction, and other social sciences as vital components in the success of health promotion interventions. In short, when high degrees of interactive components are positioned throughout health websites it can be hypothesised that the potential for promoting positive health behaviours amongst users is increased considerably.

Many health professionals and program designers are for the most part optimistic, if not enthusiastic about the prospects of using interactive components throughout health websites for promoting health. More precisely, from the user’s perspective, health websites which possess a high degree of interactivity can be engaging, creative, and used in accordance with one’s individuals needs and interests, tailoring health messages to fit the needs of sub-populations and individuals. Additionally, from a provider’s perspective, interactive components are a resource for developing modifiable and timely health information systems for health consumers and health promotion initiatives. However, the degree and type of interactive components used to enhance health is very dependent on the objectivity and desired health outcomes.
aimed at the general public. One area of research that may need to be investigated in greater depth is the question pertaining to the success of certain interactive components and their suitability for particular health concerns. For example, an individual who is suffering from cancer may not need or wish for an Interactive website which helps with frequent / tailored feedback as to his / her progression, as in the case where this maybe more beneficial for an individual wishing to quit smoking. The online feedback and support system may be a valuable addition to a QUIT Smoking cessation website. Furthermore, interactive components should only be included throughout a health website once health professionals have a greater understanding as to the desired levels and types of intervention technologies which will specifically address the health concern and their patients' needs.

3.5 Interactive technology

Rafaeli (2000) defines interactive technology as enabling users to access information and services of interest, control how the information is presented, and respond to information and messages in the mediated environment (e.g., answer questions, send a message, take action in a game, receive feedback or a response to previous actions). Furthermore, interactivity refers to the number and forms of input and output, the level of responsiveness to user actions and states, and the range of interactive experiences (including components) offered by the system (Rafaeli, 2000).

It is important to emphasise that this application is not to be confused with 'reactive technology', where participants click buttons and an appropriate, generic, response is delivered, divulging copious amounts of health information about a specific disease or treatment. For example, a health website that simply switches screens after a keystroke is more reactive than interactive. A more responsive program might
generate a certain response (e.g., praise or corrective feedback) depending on previous information provided by the user (e.g., a correct or an incorrect answer to a question). A highly responsive website might be a game or simulation where the responses of the program are continually changing in form and content and are directly contingent on specific actions by the user (e.g., a person versus a computer chess game or a flight simulator) or in the case of health websites a changing game based on real life scenarios. Lieberman (2000) comments about the term 'interactive technology' by stating that IT is used to refer to computer-based media that enable users to access information and services of interest, control how the information is presented, and responds to information and messages in the mediated environment (e.g., answer questions, send a message, take action in a game, and receive feedback or a response to previous actions).

As opposed to a single component (e.g., a brochure or DVD), interactive technologies are comprised of individual modular units that are linked together through programming. Interactive components which are throughout health website enable the program to utilize a diverse array of multimodalities (animation, narration, graphics, text, motion pictures, music) within a single device or linked together in a variety of services (e.g., email, library data banks) within a single network. Thus, rather than making a single presentation in a predetermined linear sequence, interactive computing enables users to access different parts of the program and move with relative ease from one domain to another (Dede & Fontana, 1995). With the above information in mind, consideration will be given to the following case scenario.
Scenario 1

A young boy (Paul) is having difficulties controlling his weight. He has been diagnosed as obese and as a result he has had difficulties undertaking any regular form of exercise and calorie control. He understands the ‘triggers’ to his eating problem but rarely follows any advice set out by his local GP. Being an enthusiastic computer user, he is encouraged to view an interactive, web based computer program – ‘Living with Obesity’. The website not only gives information to manage his condition, but he is subject to problem-solving simulations and a series of tailored, interactive experiences throughout his Internet journey. Often a feeling of loneliness overcomes him, as many of the activities his peers undertake are too strenuous for his condition. However, support is found throughout the website’s chat rooms; where youngsters suffering the same health condition can find solace with cyber-friends who understand one another, sharing their experiences, hopes and dreams.

Throughout the website he is able to access online professionals who monitor his nutritional intake and regularly set exercise programs that are tailored for him personally. The website allows for online ordering of nutritional balanced meals that have been specifically catered for to meet Paul’s dietary needs. His meal orders are delivered to his house, making the healthier choice the easier choice. Access to a child psychologist, who is an expert in the field of eating disorders, also offers friendly, online communication with him and his parents. A great variety of issues are discussed, allowing all parties to better understand the psychological reasoning behind their eating disorders, and offering strategies to help combat his eating triggers.
Interactive technology allows for Paul to wear a wireless, computerised device that monitors and stores his vital signs during his daily exercise program (heart rate, blood pressure, body temperature and fat content). This information has the ability to be uploaded onto the Internet where it is transferred to designate health professionals who plot, graph and make comment about Paul's progress. With all this information in hand, Paul is able to make scheduled, online, appointments to see his local GP. In essence, Paul has access to a tailored, interactive website which allows for privacy, cuts down on visits to a variety of health professionals and allows him and his parents to feel as if they are part of a shared decision-making process.

The advances of interactive technology are moving at an exponential rate and the above scenario will be a reality in the not so distant future. There are many reasons why interactive technology is gaining so much attention not only throughout the general public but also throughout the health care system. The notion of a seamless, collaborative treatment and prevention process has many exciting possibilities for a vast array of health care issues and health problems. To add credibility to Paul's previously highlighted story, information maybe drawn from factual cases and genuine reports. A good example as to how interactive technology maybe used in the future, has been highlighted in a report by the UK Guardian Newspaper (16th November, 2000). This report presented information of the future, where we would all be wearing 'wireless Internet - aware devices' that monitor our health and alerted us if something were amiss. There are already products available to the health consumer that offers this type of service. In a particular case, concerning Asthma suffers; individuals can already purchase equipment to monitor their breathing. What makes this equipment unique is the fact that the recorded data can be uploaded (via the Internet) to the manufacturer's health website where it is then analysed so that
information maybe set to the patient so as to help users spot the 'triggers' that might be causing their disease / health condition. With the user's permission this health information / data can also be forwarded to the appropriate healthcare team.

From such reports, it would seem that the idea that health websites possessing a high degree of interactive components are fast becoming more of a reality than sci-fi. Interactive computer technology is growing in popularity amongst health professional, the general public and web designers, as a medium to tailor health messages to an individual's needs (age, gender, health status, socioeconomic standing). The future of interactive technology has been met enthusiastically as the new communication and information medium that could potentially change the face of health care and the doctor – patient relationship. Not only does the interactive technology allow (as in the case of Paul) health messages to be individualized to the particular needs or interests of the user, but it provides access to practically unlimited information (e.g., through the Internet and the WWW), and enables contact with other people (e.g., experts, others with similar health concerns) throughout the country and the world, which can be used to create games and simulations to foster disease management and prevention skills, and can accomplish these functions using an array of multimodalities - images, sounds, and text.

To create successful and sustainable behavioural change, the underlying principle of a health website which possesses a high degree of interactivity should be designed towards developing a technological cyber-environment that creates and acts as a powerful source of self-efficacy for the user. Simulation environments have the potential to personalize the experience, emphasise individual responsibility and promote internationalisation of the knowledge and application of skills (Dede &
Other applications that help create self-efficacy amongst users are the exchange of messages with other people linked to the system. Such communication via 'chat rooms' can solicit medical advice; gain information from experts and access medical/health libraries and other databases throughout the WWW. However, one of the major benefits of Internet communication is the 'connectedness' that individuals feel when they are sharing their experiences with other people who may have the same medical condition/s. Developing and being part of a cyber-community is one-way that users develop social and decision-making and support. Furthermore, chat rooms have displayed enormous benefits in limiting isolation amongst users and positively developing social support networks. Recent research by Lieberman (2000) revealed that adolescents are more likely to seek out programs where they felt open to discuss their social problems free from fear of retribution from parents and teachers. Such health issues as sex, drugs and relationships scored high on the list of most discussed topics throughout cyber chat rooms.

Technologists and web designers have not yet fully engaged the health community in an appreciation of how interactive technology could advance the cause of health. One reason is that they tend to describe technology changes as "either propelling the health care system to some faster, fully computerized time (the information age), or sending it to a strange and somewhat cosmic space (cyberspace)" (Quintana, 2001, p.1764). To create a seamless, collaborative health care system, where physicians communicate with insurance agencies and openly work in partnership with pharmaceutical companies, who in turn promote drug via unbiased advertisements, may sound very fanciful. Encouraging the implementation and adoption of an interactive computer program where all parties are guaranteed satisfaction with its properties is another point of contention in the ever-dynamic world of 'the health
care system'. Similarly, such innovations must have a significant impact on the economic rationalists and GPs alike who need to perceive that such an approach to minimizing health care costs is warranted and based on sound empirical data and workable models / frameworks.

To determine whether or not interactive technology is a feasible and an effective medium, it is necessary to compare its performance against other more traditional means of health information dissemination (video tapes / DVDs, professional consultations, printed material and telephone). There are six cost and performance measures which can be used to compare interactive technology against traditional methods of health information dissemination, these are: (1) Sensory vividness (multimodalities), (2) Networkability, (3) Modifiability (temporal flexibility), (4) Availability, (5) Message tailoring capabilities, and (6) Easy of use (user control). When a comparative analysis is made (see Table 3.1), using these indicators, interactive components fare extensively better against the more traditional mediums. Dede & Fontana (1995) makes comment that interactivity components enhance interest, active information processing and satisfaction with the health message, which in turn contributes to the effectiveness of persuasive and educational materials.
Table 3.1: A comparative analysis of various health promotion media.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Interactive Components</th>
<th>Professional Consultation</th>
<th>Telephone</th>
<th>Videotape DVD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensory Vividness Multimodality</td>
<td>high</td>
<td>moderate</td>
<td>low</td>
<td>moderate</td>
</tr>
<tr>
<td>Networkability</td>
<td>high</td>
<td>moderate</td>
<td>moderate</td>
<td>low</td>
</tr>
<tr>
<td>Modifiability Temporal Flexibility</td>
<td>high</td>
<td>high</td>
<td>moderate</td>
<td>low</td>
</tr>
<tr>
<td>Availability</td>
<td>moderate</td>
<td>moderate</td>
<td>high</td>
<td>high</td>
</tr>
<tr>
<td>Message Tailoring Capabilities</td>
<td>high</td>
<td>moderate</td>
<td>moderate</td>
<td>low</td>
</tr>
<tr>
<td>Easy to use Usability Components</td>
<td>moderate</td>
<td>moderate</td>
<td>moderate</td>
<td>high</td>
</tr>
</tbody>
</table>

One important factor of interactive technologies is the potential to create a more vivid and memorable presentation for the user, as there is a heightened level of sensory stimulation (sight, sound, colour, movement) during the experience. Furthermore, information is reinforced by the combination of other auditory stimulations as narrative and the inclusion of motion pictures. Sensory vividness and information enhancement appear to be two reasons why health promotion materials that present information through multimodalities are more effective than are materials that rely solely on a single channel, i.e. brochures, printed material (Rothenberger & Bunnell, 1999). Another important factor that supports the effectiveness of interactive components is the ability of established programs to be modified as the need arises, or posses temporal flexibility capabilities. Health websites that can be updated to stay abreast of the current, ever changing information will fare better and prove more cost effective in the eyes of the health care policy makers. This is in contrast to the creation of a permanent printed presentation that cannot be easily adapted to the needs of different users and has a set lifespan prior to its unavoidable obsolescence.
Interactive technologies do seem to have some distinct drawbacks in its implementation, which will need to be addressed if health websites are to be seen as an attractive alternative to other methods of health information delivery. There does seem to be a perception that users of the new media, need to possess special expertise when it comes to computer use and online health information searching. Statistics indicated in the ABS (2005) suggests that not all Australian households are accessing the Internet or computers. Some perceptions as to this trend, maybe due to a number of factors, these being: (1) socio-economic status, (2) education levels, (3) health literacy levels, (4) ethnicity and (5) attitude. These five factors, maybe adding to what many health care professional’s term, ‘The digital divide’. More so, in America, this digital divide is creating a society where access to health information is becoming more and more difficult for those sub-populations who fit into one or more of the five categories outlined above. Unless interactive technologies address these factors, it would seem that health care efforts in the future will only be affordable and accessible to those users who are young, white, educated, and are termed as part of the middle to upper class population of the western world.

To address such concerns, health websites are being developed which are easy to use and are suitable for all individuals, regardless of their age, gender, socio-economic status, disabilities, health literacy levels, language and ethnicity. Inclusions already operating in parts of the world are touch screen monitors, voice activated prompts, and programs which tailor responses depending on the users literacy levels, disability, culture and age. With all these technological advances, many argue that initially there will be a higher up front cost compared to other more traditional educational media, however, this short term costing will be off set by the long-term benefits to the health care system. Health websites that promote self-efficacy and leads to healthier
behaviours, more knowledgeable health consumers, will ultimately promote more appropriate clinical time services, and fewer and shorter visits to the health care providers, ultimately reflecting on our health care costing.

Health information is the lifeblood of health care. GPs and the health consumers need timely and accurate health information. Be it medical records of a patient sought out by a local GP, or the ‘stay at home’, self-diagnosing, internet-health information seeker. Whatever the case, there has been an extraordinary amount of media coverage about health care and the information age (Anderson, 2002). Recent research suggests there is still a large portion of the general population that doesn’t know how to promote and maintain their health (Bard, 2000). People need information if they are to make informed decisions about how to maintain their health. Apart from the many factors influencing health status (genetics, environment, behaviour, and medical care) a key factor is personal behaviour (Patrick & Koss, 2000). An individual’s ability to readily obtain accurate information must be recognized as critical to promoting positive health behaviours. Patrick and Koss (2000) go onto point out that to be most effective health information is best tailored to the interest, health literacy, language, cultural background, emotional state and desires of its users.

With a critical eye, this research has discussed the traditional media – the professional consultation, printed material, video / DVD and telephone – and its observable and measurable qualities against the new media – interactive health websites. In many fields, the traditional media has been found lacking many of the advances that are necessary to keep the health consumer actively engaged, informed and motivated to change and implement positive, sustainable health behaviours. To take the health care system into the 21st century, advances in online health information delivery must take
into account the many sociological and environmental changes that have occurred as a direct result of the WWW. The changing dynamics of the doctor–patient relationship is one aspect of health care delivery that has experienced a great deal of change due to innovative computer technologies and their application to health websites.

3.6 Interactive health websites

Despite the high demand and the available technology capabilities, interactive components have yet to reach their potential. This is not a surprise as the health care industry has long lagged behind other industries in adopting information technologies (Terry, 2001). One of the major reasons the progress has been slow is due to the lack of understanding of how to design health websites that demonstrate high levels of interactivity yet still imparts and instils high levels of trust amongst users and interested GPs. Bard and Sternberg (2002) suggest that understanding how human–computer interaction and usability impacts throughout the website interface, is instrumental to the design, development and deployment of e-health care applications.

Bandura (2001) has indicated that to improve an individual's capability to retain and correctly implement information, an educational medium that promotes active and prolonged engagement will prove a positive influence in this learning curve. Bandura (1989) commented that behaviours can be learned both from observing the actions of others and from observing the outcomes and consequences of those actions. When such a Social Learning Theory, as posited by Bandura (1989, 2001), is applied to interactive health websites, the individual user will become more attentive and will be more inclined to emulate the appropriate health behaviour if a high degree of interactivity is present throughout. By providing practical demonstrations throughout
health websites (e.g., insulin injections), which allow users to become actively engaged within and throughout the cyber-environment, a user can implement the technology to specifically generate health scenarios, answers, diagnosis, feedback and simulations which are personally tailored to meet the individual’s health needs at a particular time. These few points alone make interactive health websites a more desirable alternative to other traditional forms of health information dissemination.

With the advances in computer technology and interactive components developing at an exponential rate, one can only guess as to what the future holds for this computer medium. It would be safe to say that individual health professionals, decision makers, and health economists see the financial and health benefits to this technology approach to health care. A more concerted effort to expand and develop interactive components will produce cyber-environments that are even more impressive. The Screen Captures (3.10 - 3.15) display below are typical health websites with an array of interactive components throughout. Displayed throughout these websites are examples of interactive components. A brief description is embedded in the Screen Capture, outlining the unique Interactive capabilities and how such technology can lend itself to improving health outcomes of particular individuals and / or populations.
Screen Capture 3.10 -- accessed 9/2006

Screen Capture 3.11 -- accessed 9/2006
I suffer from APD. I wake up exhausted and very tense every morning because of a restless sleep. I find sleeping tablets don’t really help. Valium is great but can’t be on it forever! Can you suggest something that helps relieve anxiety and tension. I can’t function like a ‘normal’ person because I am always so tense, depressed and tired. Thank you

What would be a good alternative to taking atenolol for palpitations? It’s making my asthma very bad.

Welcome to the Eating Disorders Chat Rooms

Welcome! This is the new Eating Disorders Centre web portal for our online community. To navigate back to our main site please click here.

Please note that it is mandatory to read the Chat Room Rules before participating in online chats or forums. The rules are detailed in the FAQ page.

We hope you enjoy your stay!

Why are you here today?

- I have an eating disorder
- I am in recovery
- I am recovered
- Family member/friend has an eating disorder
- Not sure if I have an eating disorder
- I am a health professional
- Research and information
- I stumbled in

Sunday night chat - March 13th

8:30pm EST
Post byalling on Sunday, March 13 @ 09:56:20 EST (32 views)

Hi all,

END will be holding a regular Sunday night...
common cause of dementia occurring in patients of age is Alzheimer's disease. This video animation shows how an abnormal tau protein in Alzheimer's patients can cause the microtubule structures to collapse.

Alzheimer's Disease
The most common cause of dementia occurring in patients over 45 yrs of age is Alzheimer's disease. This video animation shows how an abnormal tau protein in Alzheimer's patients can cause the microtubule structures to collapse.

Angioplasty
Percutaneous Transluminal Coronary Angioplasty (PTCA) - often abbreviated to angioplasty - is a procedure to reopen a narrowed coronary artery. Watch how this procedure opens arteries.

Back Pain
See how muscle spasms and Disc Prolapse can cause back pain. Disc Prolapse happens when the soft inner material of the vertebral disc bulges or bursts through the outer lining of cartilage and puts pressure on the spinal nerve.

Breast Reduction

HealthScout – 3D animation, multimodality components - http://www.healthscout.com

3.7 Conclusion

Chapter 3 has presented three types of health websites (e-knowledge, e-professional and e-business). It has been indicated that health websites can be placed into one of three types of categorises. The categorisation process is dependent on understanding the intended orientation and target population. Chapter 3 has also presented considerations which are necessary for heightening the human–computer interaction; in terms of the conceptualisation, design and evaluation of health websites.

Moreover, attention was directed towards highlighting the benefits of current interactive technologies, associated with health websites, and their abilities to not only personalize health information and subsequently tailor health information to an individual's needs, but also to expand the user's potential engagement throughout the interface. Furthermore, such interactive technologies, as those discussed throughout chapter 3, limit the issues of isolation and remoteness often experienced by populations living in rural settings or felt by the elderly and disabled.

Chapter 4 will highlight current evaluation criteria and various checklists / frameworks which assist in determining levels of reliability, interactivity and user control components associated with health websites. Specific Screen Captures will be presented in an attempt to highlight the various reliability criteria and interactive technology components that are available and presented throughout current health websites. Chapter 4 will also present how interactive technologies are much more capable of tailoring health messages to an individual's needs, interests, and preferences than are other mediums.
CHAPTER FOUR

..... EVALUATING HEALTH WEBSITES
4.0 Evaluation criteria for health websites

Much of the research surrounding how individuals evaluate the reliability of online health information they are accessing, was highlighted in an article by Dutta-Bergman (2003). Individual web-based evaluation behaviour is categorised into goal-directed and experiential styles based on differences in consumer motivation (Dutta-Bergman, 2003). In short, an individual’s evaluation style of health information can be collectively divided into two distinct routes to information processing, these being; Browsing (surfing) or searching. Browsing (surfing) is characterised by its exploratory nature and the absence of planning, goals, or objectives, as opposed to searching that is goal directed and driven by a problem or a specific information need. Nicholas, et al., (2004) further suggests that individuals seeking information engaged in a characteristic behaviour called ‘bouncing’ or ‘flicking’. Bouncing behaviour which is similar to Surfing, is where users seldom penetrate a site deeply, tend to visit numerous sites for any given information need, and seldom return to a site once visited. Nicholas (2004) explains this phenomenon as a method of evaluation.

Dutta-Bergman (2003) adds that browsing (surfing), with its experimental orientation, involves peripheral processing whereas searching, with its focus on goal-directed action, involves central processing. The latter of these two routes involves a deeper and more effort-intensive processing, leading to persuasion as a result of the diligent consideration of relevant argument-based information (Petty, 2000). Cline and Haynes (2001) view such individual Internet evaluation techniques as ‘information completeness’. They maintain that information completeness plays a pivotal role in efforts to monitor information on health-related website. Making completeness evaluations is critical in the process of making health decision based on that information.
There have been many evaluation criteria formulated to measure the levels of public opinion associated with the effectiveness of messaging and retrieval from such traditional mediums as television and the printed media. Specific criteria have been developed so as to evaluate these mediums and their effectiveness for entertaining and informing the public. Alexander and Tate (2000) have adopted such criteria and have adapted them in an attempt to evaluate web-based information. More importantly in relation to this study, these same evaluative criteria that have been applied to the more traditional media messages, can also serve as a useful starting point for developing methods for evaluating a health website's reliability, interactivity and usability levels. Eight specific criteria (reliability components) are identified as being: (1) authority, (2) accuracy, (3) objectivity, (4) currency, (5) intended audience, (6) coverage, (7) confidentiality and (8) justifiability play a central role in the evaluation process.

Alexander and Tate's (2000) criterion addresses the many components necessary to measure a website's reliability with regards to health information dissemination on the WWW. Further criteria will be drawn upon which will address the levels of four types of interactive components, which are identified as being: (1) multimodality, (2) networkability, (3) temporal flexibility and (4) message tailoring capabilities. Further search of the literature has uncovered a third criterion for assessing websites; this being usability components, which are identified as being: (1) health literacy, (2) interface engagement and (3) educational. Used in conjunction with one another, a detailed checklist can be formulated to analyse the level of reliability of a health website as well as help web designers understand and heighten the interactive components and user friendly nature of these websites.
Further to the above criteria, several other factors must be taken into consideration when attempting to evaluate health websites. These standards have played important roles in the evaluation process of traditional mediums (television, printed material, radio). They include standards and guidelines, regulations, and our own sensory perception. Many information providers adhere to a well-established set of industry standards and conventions regarding the content and presentation of their materials. Information providers are also obliged to comply with various governmental regulations that affect the content and format of their messages. The placement of various distinguishable disclaimers indicating the authenticity of the material and the 'non-profit' intent, are only two of the many regulations and expectations necessary for traditional mediums to include so as to obtain credibility. However, since the web is such a new medium, many standards, conventions and regulations commonly found in traditional media are largely absent (Alexander & Tate, 2000). Lacking many of these traditional formalities, which at times can become a little muddy in its general guidelines and expectations, how can a web user evaluate the quality of health information on the Internet?

With this question in mind, it is intended that this research will offer a model of evaluation that will assist users of the WWW in selecting the most credible and reliable health websites for an intended purpose. From a user's perspective, 'reliability components' (authority, accuracy, objectivity, currency, intended audience, coverage, confidentiality and justifiability) need to be presented and critiqued so as to determine their levels of usefulness in the process of health website analysis and evaluation. This research will present tools that will help users examine all aspects of a health website so as to determine its relative usefulness and trustworthiness. Users of the WWW must approach the plethora of health websites
with the skills of a good consumer to see if the product offered is indeed what it
purports to be, to see if the site will fulfil the user's need, to see which of the sites
available is the 'best' in a given situation so that the user will be able count on the
information or services offered (Holt, 1999). Furthermore, discussions dealing with
the interactive components (multimodality, networkability, temporal flexibility and
message tailoring capabilities) necessary for designing effective health websites will
be presented with the intent of creating a valuable source of information for current or
future web developers.

A great many of the health websites which are able to be retrieved through the
WWW, show limited tools for indicating the level of reliability and the type of
interactive components. With this point in mind, much of the supporting literature
proposes the following questions, these being: (1) How do health professionals ensure
that the information generated, via the Internet, is presented in such away that
promotes confidence and maintains active engagement amongst the intended target
population? (2) What element of a health website design enhances the interactivity,
usefulness and authority of a site? (3) What elements of a website cheapen or weaken
the interactive components of the site?

Just as a health consumer needs to know what elements of a health website indicates
reliability and usefulness, a designer needs to know what users will respond to,
promote interactive engagement and ultimately encourage positive health habits as
they make vital choices from the incredible variety of sites that compete for their
attention. This chapter will now discuss and present specific Screen Captures that
allow for a more detailed critique and illustration of various health websites that
exhibit reliability, interactivity and usability features throughout their web interface.
4.1  ‘Built-in’ evaluation tools and mechanisms

Health websites do possess a number and type of evaluation tools. ‘Built-in’ evaluation mechanisms (see Screen Capture 4.1) are included and designed so as to allow those individuals who access a site the ability to provide timely and accurate feedback to the web designers and health professionals responsible for the web page (Zimmerman, 2000). This is vital information, as it can provide both formative and summative evaluation of the website which then can be applied to the site so as to improve the reliability, interactive and usability components of the website. ‘Built-in’ evaluation technologies or feedback capabilities can be designed and delivered throughout the website in a number of ways. The inclusion of such evaluation and feedback facilities such as: (a) email capacity, (b) chat rooms, (c) help buttons, (d) questionnaires, and (e) support numbers can all be positive inclusions to help content developers improve the delivery and accuracy of online health information. Screen Capture 4.1 demonstrates these ‘built-in’ evaluation technologies available.


4.2  What is current in an attempt to evaluate health websites?

Due to the exponential growth of online health information there has been an expressed concern from within the health industry, that there exists a need to develop specific regulatory codes of conduct, industry self-regulation and evaluation tools in
an attempt to create quality assurance as to the level and type of health information which is currently being presented to the public via the WWW. The pervasiveness of the Internet and the WWW in health and healthcare raises multiple concerns about privacy, confidentiality, quality assurance, professionalism, liability, and responsible medical practice (Baur, 2000). Furthermore, there is growing concern amongst health care professionals as to the inaccuracies of health related information that is openly being disseminated to the general public. With more than 70,000 websites which are health related and within excess of 50 million people actively seeking health information online, there is a concern as to the likely consequences for the health care system (Cline, 2001).

In relation to the current online health information trends Cline (2001) suggests that increasingly critics question the quality of online health information - research indicates that much is inaccurate. From such expressed concerns about the reliability of online health information, currently a popular trend is for the inclusion of a third party to evaluate and direct consumers to quality health sites. These third parties include organisations, institutions and individual experts already in the business of evaluating, crediting or endorsing information (Eysenbach & Jadad, 2000). Other organisations have developed tools that begin from the basic concept of an agreed set of criteria for good practice in the dissemination of health related information between the web developers and the concerned organisations. This collaboration brings about Codes of Conduct and filtering tools to help guide the user toward more quality information (Wilson, 2002).

Out of such concerns for increasing the reliability of online health, a number of agencies have presented frameworks for increasing the credibility and trustworthiness
of health information presented on the Internet. These groups' purpose is to aggregate quality sources, through portals, to guide consumers to reliable health information and expertise (Good, 2005). Between July 1996 and May 2000, four separate groups released guidelines, policies, or codes of conduct or ethics for health websites, these being:

- The Health on the Net (HON) code of conduct appeared in July 1996 (www.hon.ch/HONcode/Conduct.html),
- Guidelines for medical and health information sites on the Internet, by the American Medical Association (AMA), in March 2000 (www.ama-assn.org/about/guidelines.htm),
- Ethical principles for offering Internet health services to consumers, from Health Internet Ethics (Hi-Ethics), in May 2000 (www.hiethics.org/Principles/index.asp) and
- The international e-health code of ethics, by the e-health ethics initiative, also in May 2000 (http://www.ihealthcoalition.org).

There are a number of unique technology components that each evaluation site possess which helps individuals apply the criteria to search through the enormous amount of health information offered on the web so as to determine the quality of the information presented. One particular feature is displayed throughout the HONcode website. Those health professionals or industries wishing to gain HON approval may do so by submitting their website to HONcode. The site is then processed and checked against a number of evaluation criteria where recommendations and feedback are given back to the web designers and developers so as to bring the web page up to a credible standard. Once the 'seal of approval' is given by HONcode the health website is entered into a data base where other creditable web pages are stored.
and accessible by the general public via the WWW. Individuals may download HON's toolbar that will display whether or not the web page they are viewing has been accredited by HONcode. Screen Captures 4.2, demonstrates this facility, which is a unique and attempts to create a reliable online experience.

Many organisations and health institutions have developed and are currently implementing evaluation criteria for health websites. A thorough search across the breadth of current evaluation criteria methods has revealed that the most frequently cited criteria were those dealing with design, aesthetics and content of site. Other
evaluation criteria which have been determined as useful in determining the
credibility of a health website are disclosure statements (author), objectivity
(sponsors), web developers, information currency, authority of source, and ease of
use (Baur, 2000). From an extensive search of evaluation and interactive design
criteria, it has been determined, and already discussed throughout Chapter. 3, that the
most relevant and up to date criteria for evaluating and designing health websites fall
under three collective headings; these being: (1) Reliability (authority, accuracy,
objectivity, currency, coverage, intended audience, confidentiality, and justifiability),
(2) Interactive (multimodality, networkability, temporal flexibility and message
tailoring capabilities) and (3) Usability (health literacy, interface engagement,
educational) components. These three components, and their associated sub-
components, collectively form frameworks for the design, evaluation and adoption of
effective health websites. Furthermore, results from a number of studies have
suggested that many authors agree on these key criteria for evaluating health related
websites, and that efforts to develop further consensus criteria may be helpful (Eng,
1999). However, little literature exists as to the increased health promoting
capabilities these three components create when combined and working seamlessly
throughout a web interface.

The next step for web designers and IT professionals is to identify and assess a clear
simple set of evaluation criteria that the general public can readily access, use and
most importantly understand. The disenfranchise of some patients because of
their low literacy skills, the difficulty some patients have in navigating health
websites, the quality of information throughout the health domain (including the
cultural overlay of interactive exchanges); and ultimately the effect of low literacy on
health outcomes are all vital points to give consideration to when developing tools
and mechanisms for the public to use so that they may correctly evaluate health web
sites. Hence, developers of online health information need to modify sites to
incorporate ‘user-friendly’ evaluation criteria and measurable qualities of a site’s
credibility and information accuracies. Likewise, GPs need to be cautious in
recommending and using sites with no reported evaluation efforts.

The future challenges which exists for web designers and health professionals is to
find the right balance between the information which is presented to the public,
patient understanding of health information and the sufficient transparency of
frameworks without overwhelming the consumer. It is clear to all stakeholders that
the inclusions of these frameworks are necessary so as to ensure that they contribute
to the improved quality and credibility of online health information. However, there
are a number of serious issues surrounding such an undertaking and must be
addressed by all stakeholders if actual quality improvements are ever to be made.
Unless frameworks are implemented and monitored effectively, communication
heightened to the consumer and the development of a general consensus guideline, it
is predicted that not even the most valiant attempt to create effective design and
evaluation criteria will ever reach fruition (Anderson, Rainey & Eysenbach, 2003).

Baur (2000) makes comment on such a task by commenting that there does not have
to be a stringent ‘model of best fit’, but rather states that consensus [guidelines] does
not necessarily mean the merging of all frameworks into one, but it does mean
forging agreement on what website developers and users need to do and how the
information will be described and made actionable. Understandably, there is a great
deal of confusion which surrounds such an endeavour. This is partly brought about
through the WWW being such a new technological frontier, which in turn, has created some new and compelling quality design and assurance questions.

Research to date does outline a number of other core criteria which need to be addressed to increase quality frameworks for the design and evaluation of health websites. In short, these criteria pertain to the (1) understanding of language from a consumer's point of view (as previously discussed), (2) commitments to privacy protection, and (3) educational activities for the public, mediators, and consumer advocates which will create informed web designers and users. These criteria and categories outlined will create and ultimately form a number of differing views and ideology, however, in time, a balanced approach needs to be sought that will lead to and create enhanced user trust and clear substantial assurances (Baur, 2000).

Furthermore, Reeves (1999) comments on the importance of including a detailed evaluation criteria by stating that evaluation may be used for a variety of functions such as needs assessment, refining goals, improving products or programs or estimating costs. Such web evaluation and categorisation techniques, as displayed in Appendix 12 (Measurement Scale), are vital and important to any website, in so much as determining the reliability, worth, progression and determining the future directions and possible outcomes of the undertaking.

Deering (2000) comments on such a directional approach to evaluation and design frameworks by stating that good-faith efforts will not be sufficient to protect users. Similarly, Baur (2000) asserts that the presence of seals of approval and certifications can mislead consumers and provide a false sense of security without rigorous verification. Even though verification of disclosed information may be difficult in some circumstances, it is critical that the private sector develops clear and verifiable
criteria, realistic mechanisms to enforce adherence to standards, and specific sanctions for violators. Health consumers will then benefit when websites dedicate themselves to providing clear, understandable information about a site's operations that does not overwhelm users. Then, health consumers will be able to assure themselves that they have found a reliable, safe place on the WWW to help them with their health concerns.

4.3 The need for specific health website evaluation criteria

One of the factors that have contributed to the explosive popularity of the web is the ease with which almost anyone can become a web publisher. It has been estimated that 30 million new websites are created every day on the WWW (Hunington, 2004). Hunington (2004) further asserts that there is a healthy dose of scepticism when it comes to the quality of information on health-related sites and nearly half of all respondents (48% [n = 1,300]) reported that they could believe 'some' of the information found on the Internet.

A search throughout the WWW, presented 29 published rating tools and 100 journal articles that identified explicit criteria for assessing and evaluating the reliability of health websites. Due to information already known about users and the Internet, there is still evidence that health consumers use arbitrary search strategies, often use sites unknown to them, have low awareness of specific health or medical sources (Warner & Procaccino, 2004), have difficulty managing the amount of online health information available (Gray, Lein, Cantrill & Noyce, 2002), neglect authority (Eysenbach & Kohler, 2002), and depending on their expertise, rarely verify web-based information (Flanagin & Metzger, 2000). Furthermore, Eysenbach and Kohle, (2002) indicate that individuals assess the credibility of a health website by
determining the sites primary look, professional design, scientific or official touch, language and ease of use. Deering and Eng (1999) suggest that the most frequently sited criteria were those dealing with content, design and aesthetics of site. Other important criteria include disclosure of authors, sponsors, or developers, currency of information, authority of source and ease of use. Eysenbach and Kohler (2002) further indicate that the five most common criteria for the evaluation of health websites are accuracy, authority, bias, currency and coverage. To help illustrate these reliability criteria and associated concepts, various health website (e-knowledge, e-professional and e-business) will be presented further in this chapter and discussions directed around numerous annotated Screen Captures.

Health websites, perhaps more than any other medium, contain inherent dangers (in terms of inaccurate information) and regardless of the many evaluation techniques employed, there cannot be any absolute guarantees that information that seems to satisfy the criteria is always accurate and trustworthy. It is not the intention of this research to be the arbiter of what is a ‘good’ or ‘bad’ health website. In fact, without knowing the purpose for which information will be used, this judgment cannot be made. Instead, this research seeks to provide GPs and online health information seekers with a method to help them think critically about the health information they locate and recommend and to make their own judgments about whether the information is suitable for their needs. There may be occasions when certain criteria discussed, such as the need for indicating an author’s qualifications to write about a topic, will not be important to the user. If a user has sufficient expertise in a health area to judge the information quality of a website directly, the page may be of value even without a listing of the author’s credentials. Moreover, if someone is merely seeking a broad definition of a particular disease, the absence of an author’s name and
qualifications may not be critical. However, in many situations, it is important to try to ascertain whether health website information is reliable. Because of this, the information presented throughout this chapter will empower and educate both health website users and web authors who will find the tools and techniques presented throughout this research to be a useful resource.

4.4 Determining a reliable and interactive health website

4.4.1 Reliability Component #1 - Authority

Eysenbach and Kohle (2002) define authority as the extent to which material is the creation of a person or organization that is recognized as having definitive knowledge of a given subject area. In relation to a health website, authority is understood as coming from recognized health professionals (GPs, academics or accredited individuals) or institutions (hospitals, universities or accredited health centres) that publish health related material that is based on sound, scientific evidence rather than hearsay.

On the WWW the search for clues with which to adequately evaluate the authority of work can be quite difficult. There is no guarantee an author's name will be given, or that his or her qualifications will be provided. Also, if an author's name is given on a page, it should not be automatically assumed that this person is the actual author. In addition, it is often difficult to verify who, if anyone has ultimate responsibility for publishing the material. To determine and increase the levels of authority throughout a health website, specific additions to the page (see Screen Captures 4.3 & 4.4) should be sought and implemented; these being: (a) the authors name and his / her credentials related to the subject area, (b) specific links to this author; be it personal email, web page or other significant research, (c) name and accreditation of
institutions or governing organizations responsible for content and editing and (d) examining the publisher’s/web host’s reputation.

Screen Capture 4.3 – example of health website displaying authority - accessed 9/2006
Active Patients

Screen Capture 4.4 – example of health website displaying authority - accessed 9/2006
Childhood Obesity
4.4.2 Reliability Component #2 - Accuracy

Eysenbach and Kohle (2002) define accuracy as being the extent to which information is reliable and free from errors. Traditionally media has utilized a number of checks and balances to help assure the accuracy of content. These include: (a) the use of editors and fact checkers, (b) a peer review process which monitors accuracy, (c) style manuals to create uniformity of language and format, and (d) the listing of sources for factual information. As stated previously, one of the benefits of the WWW is that people can easily make their works public, independent of the traditional publishing or broadcasting process. Another major advantage of the WWW is its timeliness, as Internet material can be published almost instantaneously. However, the steps that contribute to the accuracy of traditional media are frequently condensed or even eliminated on the WWW. To increase the levels of accuracy throughout a health website, specific additions (see Screen Captures 4.5) should be implemented, these being: (a) listing of creditable source/s used in presenting research information, (b) information presented is free from grammatical errors, and (c) information is not hearsay or premature in assumptions.
4.4.3 Reliability Component #3 - Objectivity

Eysenbach and Kohler (2002) define objectivity as the extent to which material expresses facts or information without distortion by personal feelings or other biases. No presentation of information can ever be considered totally free of bias, because everyone has a motive for conveying a message. However, it is often important to try to assess the health information provider's objectivity. Knowing the intent of the institution, organization or person for providing the information can shed light on any biases that might be present in the material. It would be easy to evaluate the objectivity of information originating from the Australian Medical Association or the Tobacco Lobby. However, for health consumers who are not familiar with a source's objective, unless the material states its point of view, it can be very difficult, even in print sources, to evaluate the objectivity of its contents.

Many profit and non-profit organizations publish health websites that encourage and attract particular sponsorship deals from interested parties. In the case of health websites; pharmaceutical companies and other health related institutions or organizations, which have a vested interest in the information displayed throughout a health website, may pay for advertising space on this particular page. A good example of this sponsorship - website relationship is the case of Lance Armstrong and his fight against testicular cancer. Pharmaceutical companies saw financial benefit for aligning themselves with helping Lance Armstrong combat and finally win his battle. In return for sponsorship money, Lance's homepage gave testimony to the drugs he used to ultimately regain his health and Tour de France title. Such a scenario can mean that certain drugs and health information are encouraged over others due to the financial returns associated with drug companies. This information may not necessarily be the best or the most affordable, but rather encouraged due to
other hidden motives. The repercussions from such practices for the average consumer or health information seeker, is knowing, whether or not the information portrayed, throughout a health website, is being disseminated due to vested commercial interests.

It is also important to know what kind of organization is providing the information. Some of the types of organizations providing information on the WWW include the following:

(1) Advocacy Groups: when an advocacy group offers information on the WWW for free, users should assume the information will be biased in a certain direction to support the organisation's goals. Even if the organization provides information from a reputable journal or other outside sources, users can assume they will not find both sides of the issue represented.

(2) Non-profit Organisations: even when information appears to be provided by a source such as a non-profit organization, users must be aware of potential conflicts of interest that might arise. For example, when a piece of research is presented on a non-profit information health website, a corporate sponsor such as a pharmaceutical company may have directly supported it. If this is the case, the organisation needs to make this relationship clear so that the reader can understand that there may be a possible conflict of interest.

(3) Profit Organisations (e-business): when a business offers information on its own website, the questions that will need to be asked are somewhat different. Some information, such as software documentation and product pricing, will be objective. However, users must not assume that all the information will be objective, because the organisation’s goal is to promote its own products and services.
Hence, the WWW has introduced several new twists to traditional advertising and sponsorship. The multimedia nature of the WWW, in addition to innovations such as hypertext links, frames, banners and cookies, has encouraged the formation of a wide array of alliances among advertisers, sponsors, and information providers. However, just because a health website includes advertising does not necessarily mean that the information contained at the website is not objective. Similarly, an absence of advertising does not guarantee that the material at the site is without bias. To determine the level of objectivity throughout a health website, specific additions (see Screen Captures 4.6) should be implemented, these being: (a) the purpose of the individual or group presenting the information is clearly stated, i.e. profit or non-profit, and (b) the potential influence exerted by advertisers or sponsors on the informational content of the material displayed.

Screen Capture 4.6 - example of health website displaying objectivity – accessed 9 / 2006
MyDr/Heart Disease
4.4.4 Reliability Component #4 - Currency

Warner and Procaccino (2004) define currency as the extent to which material can be identified as up to date. To evaluate the currency of any print source, it is important to know when the material was first published. Throughout print sources, this information can usually be determined from the publication and copyright dates. Other methods of determining currency are to check statistical information. For example, written material may quote that the work cited is dated ‘2006’, but the statistical data presented may have been collected several years earlier to publication. Furthermore, any reputable source of information will readily display the dates of publication, copy right details and dates of statistical data.

There are no clear guidelines when it comes to placing details of copy write and publication on health websites. The benefit of the WWW is that information can be updated frequently as opposed to a hard copy. Inclusions which indicate ‘currency’
can be a facility which indicates when the website was last updated or revised to include the most current and up to date information. To determine the level of currency throughout a health website, specific additions (see Screen Captures 4.7) should be implemented, these being: (a) dates as to the latest revisions to the information displayed, (b) statements indicating dates pertaining to the website's construction, publication and information development, and (c) copyright dates and details displayed.
4.4.5 Reliability Components # 5 & 6 – Coverage and Intended Audience

Warner and Procaccino (2004) define coverage and intended audience as the range of topics included in a work and the depth to which those topics are addressed; where as intended audience can be defined as the group of people for whom material was created. In the printed form, ‘coverage’ is often displayed through the inclusion of such information directories as; table of contents, index and explanatory prefaces which help readers quickly determine the depth and level of information contained within the book and to whom it is aimed at. Due to websites often lacking the equivalent to a preface or introduction, the coverage and intended audience of the material is often not readily apparent. ‘Bouncing’ or ‘surfing’ throughout websites is often a tedious process; it is usually only if a website includes an index or site map that the range of topics and the depth to which they are covered can be readily determined.
To determine the level of coverage and intended audience throughout a health website, specific additions (see Screen Captures 4.8) should be implemented, these being: (a) a disclosure indicating the depth and level of the information, (b) intended use and application of information, and (c) a statement for whom the information is meant to address.

The information you will see is not intended to be medical advice. It is general health information and does not take into account your particular health status nor is it a substitute for personal medical care. Drug information will not describe every adverse effect or every possible interaction between the drugs you may be taking.

Neither University of Cincinnati (NetWellness) nor any party involved in creating, producing or delivering this web site shall be liable for any damages arising out of access to or use of this web site, or any errors or omissions in the content thereof.

Physical activity is known to be an important factor in the development of a child's motor skills, enhanced self-esteem and the reduction of health risk factors in later life.

Aussie Fit Kids is a group exercise programme specifically designed for children with weight issues. The aim is to improve physical fitness and coordination skill in a fun and non-threatening environment.

Aussie Fit Kids is run by a physiotherapist who assesses each child individually prior to their attendance. The assessment involves an informal interview and a physical assessment of flexibility, stability and coordination.

Qualified instructors lead the classes

The classes are for children from 5-12 years and consist of small groups of 10 or less to provide plenty of individual attention.

Basic nutrition and healthy lifestyle information is provided.

Lisa Ross started Aussie Fit Kids in October 2000 after a growing awareness of the increasing weight problems in young children.
4.4.6  Reliability Components # 7 & 8 – Confidentiality and Justifiability

Warner and Procaccino (2004) define confidentiality as data relating to individual patients and visitors to a health website, including their identity is respected by this website’s host. The website owners undertake to honour or exceed the legal requirements of health information privacy that apply in the country and state where the website and mirror sites are located. Patients have a right to privacy that should not be infringed without express informed consent. Identifying patient information should not be published in print or online descriptions, photographs, or pedigrees (illustrations of how a disease is expressed within an extended family for purposes of determining possible inheritance) unless the information is essential for scientific purposes and the patient (or parent or guardian) gives express informed consent for publication. Identifying details should be omitted if they are not essential, but patient data should never be altered or falsified in an attempt to attain anonymity. Complete anonymity is difficult to achieve, and informed consent should be obtained if there is any possibility as to whether identifiable information may be disclosed. When express informed consent has been obtained, it should be indicated in the posted website’s content.

Justifiability can be defined as any claim/s relating to the benefits / performance of a specific treatment, commercial product or service will be supported by appropriate balanced / scientific evidence (Warner & Procaccino, 2004). Throughout a health website, specific attention should be given in determining whether or not the claims are scientifically evidence based information and data. Specific statements and acknowledgments should be clearly stated by the website’s host. Again, this maybe difficult to ascertain, and will require deeper evaluation skills by the online health information seeker. By tracing the author and his / her authority and academic
affiliations and connections and website browser will be able to determine the level of scientific evidence and data. To determine the level of confidentiality and justifiability of a health website, specific additions (see Screen Capture 4.9) should be implemented, these being: (a) statement/s outlining principles for privacy and confidentiality, (b) the ability to express informed consent of health consumer, (c) expressed informed consent has been obtained, it should be indicated in the posted website’s content and (d) statements indicating that claims are scientifically, evidence based information and data.


This section has presented components that are important to understand when trying to determine the levels of reliability of a health website and the information displayed throughout. This research section has also stressed the importance of understanding the influence these components might have on the user’s engagement throughout the website. Ciolek (1998) states that the reliability and trustworthiness of information at
a website are not so much the result of the financial backing for the site, or the degree of web page design but rather a function of the site owner's professionalism and integrity. Therefore, in assessing the reliability of a health website, it is not sufficient to just determine the level and depth of content, or who are the web designers, advertisers and sponsors, it is more important to assess the trustworthiness and authority of the person, organization, or company responsible for the information at the site and their intentions for the information dissemination.

In the section that follows, the key attributes will be discussed of Interactive Components that are expected to make a significant impact on health promotion efforts. The list of components that will be presented is not meant to be exhaustive; it is only a sample of important features that based on current research and understanding, are expected to make a significant impact on the promotion of an individual's health. The interactive components to be discussed include: (1) multimodality, (2) networkability, (3) temporal flexibility and (4) message tailoring capabilities.

4.4.7 Interactive Components - Interactivity

Warner and Procaccino (2004) define interactivity as the number and forms of input and output, the level of responsiveness to ... user actions and states, and the range of interactive experiences (including applications) offered by the system. Furthermore, interactivity comprises of two dimensions: responsiveness and user control. One of the most important components of interactive technology is its unique ability to allow for feedback from participants to occur. Whereas feedback is often used interchangeably with interactivity, this quality alone enhances user control throughout a synchronous environment. Interactions that occur in real time are perceived as more
'responsive' and more interactive than time-delayed ones. Thus, interactive technologies responsive to users' actions are likely to be associated with positive outcomes.

It is of fundamental importance to health care delivery to conceptualize interactivity as a particular case of feedback that occurs in real time, within an environment through which learners communicate synchronously, as in chat rooms or within an online forum discussion. In both cases interaction between participants is simultaneous and the exchange of information is not delayed or relayed at a later time. This interactive quality allows for individuals to receive relevant and timely health information that can be implemented whilst the individual is displaying a 'readiness to learn'. The delaying of any information will limit such chances of creating and sustaining positive behavioural changes. In other words, the greater the amount of time required for contingent responses to user actions, the less the interactivity of the system. In short, a health website which provides information and feedback in real time either through links to other interfaces, facilities which display synchronous capabilities (email, chat rooms, and forums) or the ability to transmit individual assessments and suggestions back to the health consumer, have a far better chance of maintaining and increasing personal engagement within the cyber environment. To heighten potential levels of interactivity, a number of inclusions (see Screen Captures 4.10 & 4.11) should be implemented, these being; (a) feedback functions which allow for information exchange to be undertaken in real time (synchronously), (b) links to other cyber environments which provide information portals, assessment and suggestions, and (c) information is current and up to date, indicating real time information.
4.10.1 Feedback functions which allow for information exchange to be undertaken in real time (synchronously).

4.11.1 Links to other environments which provide information portals, assessment and suggestions, and (e) information is current and up to date, indicating real time information.

4.4.8 Interactive Component #1 - Multimodality

Multimodality is the integration of such sensory modalities as text, pictures, video, and various combinations, into a single modular unit (Warner & Procaccino, 2004). The integration of such components into one medium is collectively termed, multimodal versatility. There are a number of advantages by implementing such sensory modalities which no other traditional medium can deliver with equal success. Multimodality components have the capability of enhancing or decreasing the
prominence of visual or auditory stimuli; changing size of pictures, text and language, as can the presence or intensity of sound. The benefits of such modality, for the elderly, visually / hearing impaired or language barriers, is of tremendous advantage. This property allows for the manipulation of both formal features and content has important implications for learning. Multimodalities also allow users to toggle between features and to change one to another without altering the original properties. Although this capability remains largely underutilized, it is possible, for example, to transform keyboard commands directly into sound (a property that has tremendous potential for the blind), or to input pictures, digitise, and subsequently alter them -- all without changing the original stimulus.

Pictures and sound can present material in novel ways through dramatisation, role-playing, or simulation of sensory-rich environments to elicit the user's attention initially. Once attention has been elicited, opportunities then open up for presenting cognitively demanding material. Social cognitive theorists, such as Bandura (1986) suggest that the acquisition of behavioural skills is also related to model characteristics. Attractive models slightly higher in social prestige than the observer are much more likely to be emulated than those either lacking or much superior in social prestige. In addition, models perceived similar (in demographics, for example) are likely to be more successful in enhancing people's self-efficacy to enact the same behaviour.

In other words, because of the multimodal capabilities of interactive technologies, not only can successful models be depicted in an interesting and realistic manner, but, also with proper design, model characteristics can be manipulated and matched with those of the user for optimal effect. Levels of multimodalities throughout a health
website can be displayed (see Screen Captures 4.12 - 4.15) as the following: (a) the capability of enhancing or decreasing the prominence of visual or auditory stimuli; changing size of pictures, text and language, as can the presence or intensity of sound, (b) pictures and sound can present material in novel ways through dramatization, role-playing, or simulation of sensory-rich environments to elicit the user's attention initially and c) models depicted in an interesting and realistic manner, with proper design so that model characteristics can be manipulated and matched with those of the user.

### Interactive Tools - Health and Nutrition Quizzes - Microsoft Internet Explorer

- BMI Calculator
- Select Calories and a Meal
- Home
- Interactive Tools
- Health and Nutrition Quizzes
- Are You A Super Shopper?
- Are You A Chocoholic?
- Calcium And Osteoporosis Quiz
- Are You A Tough Shopper or A Soft Touch?
- Body Mass Index
- Waist Hip Ratio
- Child's Body Mass Index
- Child's Adult Height

### Menu Planner - Microsoft Internet Explorer

- National Heart, Lung, and Blood Institute
- Select Calories and a Meal
- Meal Menu
- Number of daily planned calories: 1200
- Select Meat: 2 oz.
- Total Calories: 1200
- Total Calories Used: 1235
- Calories Remaining: 25
- Total Fat (gms): 20.5
- Total Carbohydrates (gms): 226

Angina is pain in the chest and surrounding areas of the body that occurs when the heart does not get enough oxygen. Angina is also called angina pectoris. "Pectoris" is Latin for "chest".
Wallace and Alden (1999) define networkability the connections that computer users are now able to make with other users and service providers. With an enormous amount of service providers flooding the market, online delivery is within the grasp of the majority of the population. ABS (2003) statistics indicate that the number of Australians accessing the Internet have grown beyond most people's expectations. In 2002, 58% of Australian adults accessed the Internet, rising from 13% of adults in 1998. Access to the Internet at home has shown particularly strong growth during this period, from 13% of adults in 1998 to 43% of adults in 2002. This strong growth in usage has been due, in part, to the subsequent decline in prices for services associated with computer and Internet technology. If current trends continue in Australia, it is envisaged that the majority of households will display some form of Internet access and usage.

Although in America the exact number of Internet users is difficult to ascertain, estimates range from about 20 to 30 million current users, a rate that is doubling every year (Elmer-Dewitt, Jackson, & Ratan, 1994). Because of this unprecedented networkability growth of the online world, it has now become possible to communicate with others regardless of geographic distances, stay in touch with the latest innovations in science and medicine, and acquire specialized information with relative ease. Coupled with improved, more affordable telecommunication, this growth, by most estimates, will greatly increase the potential role of computers in health care delivery, management, and education (Crawford, 1996).

The increased networkability between the health consumer and GP has created new cyber environments that enhance and promote individual self-efficacy. Once users of interactive technologies are connected to computer networks, feedback (defined
broadly as the input users receive based on actions they perform) can be achieved on a regular basis. Feedback, in turn, is related to behaviour because it is a powerful source of self-efficacy (Ross, 1995, Wallace & Alden, 1999). Furthermore, providers throughout an integrated, networked system can access and update patients' health records, as well as specialists, in urban areas, can review rural patients' medical progress, thus providing essential services to an otherwise minority population.

As computers make major inroads throughout homes, concerns about the disparity in access across ethnic lines and minority groups are also mounting. It has been strongly indicated that a growing 'digital divide' is opening, and that the gap is widening for individuals who fall into a minority group, be it through ethnic background, age or disability. Hence, online health information is likely to miss those who need it the most. There are, however, throughout America in particular, significant changes in the horizon. For example, in late 1999, LatinoNet was founded by several non-profit organisations to link community groups nationwide via America Online (Minority Markets ALERT, 1995). Similarly, Australia has identified with addressing the pressing health care issues surrounding its own indigenous groups. Specific health websites are being increasingly designed to educate individuals who wish to work with Aboriginal and Torres Strait Islander's as well as providing access and relevant information, feedback and support to indigenous people themselves. Through increased networkability, health consumers are able to benefit from providers, other patients, or other caregivers. From providers, they can receive updates on their progress, as well as information about the latest technological breakthroughs in medicine. Networkability further provides opportunities for receiving social support from others undergoing similar health conditions through either the use of chat groups or an integrated online network. Interactive components are helpful in this
regard, particularly when the health condition is of such low prevalence in the population that geographical distances would make social support difficult to find. Similarly, patients are able to receive information about others' experiences with medical options and consequences.

Networkability through interactive technology holds potential for lessening the gaps which exist between users and providers of medical information and treatment. Creative Interactivity can promote self-efficiency and encourage individuals to correct and sustain habits which will improve their immediate and long term health. An increased feeling of social support can be increased through the implementation and adoption of such interactive tools as chat rooms, forums, feedback facilities and need sensitive information. These 'new health media tools' promise customized, coordinated, and participatory care. These promises can be judged according to whether they help achieve universal access to health services and information. They can be evaluated according to how they improve the quality of the service delivery and how comprehensive, timely, and well distributed the decision support and educational services are. To heighten potential levels of networkability, a number of inclusions (Screen Captures 4.16 - 4.18) should be implemented, these being; (a) tools which increase the users and providers ability to communicate asynchronous with one another through email, chat rooms, forums, listservs and discussion boards and (b) information is 'need sensitive', customized and coordinated in nature and is aimed at addressing minority groups, remote locations and underserved populations.
Screen Capture 4.16 - example of health website displaying aspects of networkability – accessed 9/2006 - www.americaniatino.net/
Apart from chat rooms in which you can communicate with people in real time, we have Message Boards which provide you with the opportunity to discuss issues relating to medical management with other users of our website. This arrangement may prove particularly helpful, as you are able to share experiences and learn of options for support groups and services. We are able to open new message boards for discussions on specific medical topics and areas of interest that you indicate in our forum. This would be helpful, as it allows for more focused and detailed discussions on specific medical conditions or topics.

CHAMPS, which stands for Community Health Adolescent Murraylands Peer Support, is a project for young people aged between 13 and 18 in the Murraylands Region of South Australia. CHAMPS holds youth forums twice each school term to informally discuss youth issues in the area. Thirty young people from different cultural and social backgrounds throughout the region attend the forum. Issues like mental health and peer support are discussed.

Aims

CHAMPS seeks to address social justice issues and foster practices of inclusion both of and by young people. Social justice issues pertinent to the Murraylands rural area include isolation, indigenous equity, racism, classism, learning disabilities, and heterosexism. Further important to it are issues of location, the acknowledgement and validation of the normalcy, and the cultural diversity of the village.

Welcome to Greater Health.

Greater Health (The Greater Green Triangle University Department of Rural Health) is a three-way partnership between Flinders University, Deakin University and the Australian Government's Department of Health and Ageing. It brings together major academic institutions, management agencies and industry groups in an effort to promote excellence in rural and remote health education, training and research, and to ensure practical outcomes and long-term benefits for the communities of the Greater Green Triangle region.

The Department comprises a dispersed network of innovative multidisciplinary teaching and research sites embedded in the health services of south west Victoria and south east South Australia. It focuses on the recruitment and retention of health professionals, improved student experience, increased training options, promotion of a public health focus.
4.4.10 Interactive Component #3 - Temporal Flexibility

Warner and Procaccino (2004) define temporal flexibility as being asynchronicity in nature, allowing users to interact with the content as the content is made available, or to postpone the interaction as desired. Temporal flexibility increases the user's ability to choose when to attend the health information in a sequence and context determined by them. Once the health information has been stored, users can control for themselves the pace at which it is presented.

The central theme surrounding temporal flexibility is its ability to increase user control and manipulation of the text. Health websites which provide the user with a sense of control as to the organisation of health text information will ultimately increase the chances of choosing and ultimately implementing positive health choices. Furthermore, there is a strong body of literature to suggest that providing individuals with choices enhances their sense of control. Perceived control in turn is associated with positive outcomes, including higher levels of enjoyment, healthier behaviours and greater learning. With the presence of choice and an added sense of control, it can be hypothesized that involvement throughout the health cyber-domain will be relatively high.

In short, temporal flexibility qualities throughout a health website have the unique ability to promote prolonged engagement. This is achieved through the perceived sense of control over the text health information displayed which can be derived through asynchronous technologies. What is unique about this function is the multitude of possibilities they offer the user once the message has been retained. To heighten potential levels of temporal flexibility, a number of inclusions (see Screen Capture 4.19) should be implemented, these being; (a) a perceived sense of user
control throughout the interface, and (b) text and functions which allow for asynchronicity of information.


4.4.11 Interactive Component #4 - Message Tailoring Capabilities

Message tailoring capabilities can be defined as health information that can be crafted to suit preferences and characteristics of targeted individuals (Warner & Procaccino, 2004). Interactive technologies facilitate and improve on the sender's segmentation efforts. The flood of health information available via the WWW places a greater burden on individuals to act as their own gatekeepers. To combat this problem, many programmers and search engines have begun to install agents that select information according to criteria predetermined by users such as keywords, urgency of message, source of origin, and so forth. Thus, interactive technologies can promote effective Message Tailoring at both the sender and receiver ends of the communication.
process. From an e-commerce / e-business perspective (B2B, B2C), tailoring is becoming a major necessity in promoting increased customers. The more relevant the information that is presented to a customer, the more likely you will be able to prompt a decision during that web visit. Email is no different. The better you can tailor your message to the customer, the more relevant your email is to that recipient, the more likely they will be to read it, and the more likely they will be to act on the information you’ve provided. (http://www.strongmail.com/solutions/email-customization/email-marketing.php - accessed 10/2006).

In short, the more narrowly a health message is designed to suit the health consumers’ characteristics, the more likely it is to promote learning (Greenfield, Kaplan, Ware, Yano, & Frank, 1999). Conversely, improvements in individuals' health decisions are likely to be minimal as long as messages are impersonal (Dede & Fontana, 2000). In a study by Doshi (2003), pertaining to physical activity websites, it was concluded that many health websites provide little tailoring capabilities, hence indicating that this technology is not being implemented and utilised to its full potential. Doshi (2003) further asserts that overall, Physical Activity Websites provided little assessment, feedback, or individually tailored assistance for users. They were unable to substantially tailor the on-line experience for users at different stages of change or different demographic characteristics.

Audience segmentation can be achieved in a number of ways. Firstly, messages can be tailored to residents of particular geographical locations. Information about the availability of (health) services can be segmented by state, city, or even post code, as is already done by many commercial enterprises. Secondly, demographic characteristics can be used to segment audiences and tailor messages (Williams & Flora, 1995). Breast cancer screening, for example, may be of more interest to older
women than to others. In this group, messages can be written for more narrowly defined subgroups based for example, on health literacy levels, prior knowledge, or prior condition. A third method of segmentation is through the psychobehavioural profile of the audience. Rensnicow (2003) suggests that the transtheoretical model efforts to change addictive behaviours are more likely to succeed when the target audience is segmented according to its stage of change. Those classified as precontemplators for smoking cessation, for example, require a different strategy than those at the action stage, who have already undertaken cessation efforts (Velicer, Hughes, Fava, & Prochaska, 1995).

A distinctive feature of health websites which possess interactive technologies is their ability to form unique combinations of various attributes for optimal benefit and effectiveness. Although television may contribute to the learning process by modelling the desired behaviour, it is a poor medium for providing feedback. Similarly, newspapers may enhance the processing of complex information, but they are ineffective tools for promoting observational learning. Interactive Technologies can combine relevant modality features (text, graphics, video, sound and language) into an integrated unit. The extent to which individuals use interactive technologies for their health and well-being is yet to be known. However, what can be predicted is that utilization rates will likely be determined by the creativity with which health care delivery and health professionals attempt to incorporate and take advantage of the various attributes of Interactive Technologies that promote learning and behaviour change.

To heighten potential levels of message tailoring capabilities, a number of inclusions should be implemented, these being; (a) search engines and facilities which select
information according to criteria predetermined by users such as keywords, urgency of message, source of origin, and so forth.

4.5 A critique of 'reliable' and 'interactive' health websites

An attempt has been made throughout this chapter to demonstrate features which heighten the levels of reliability, interactivity and usability components throughout a health website. The determining of a site's reliability, levels of interactivity and usability will be brought about through the application of a Measurement Scale (see appendix 12 - reliability / interactivity / usability ranking scale). This Measurement Scale has been developed through an extensive search of the most current and most widely used criteria to improve and measure the quality of health information on the Internet. These frameworks are collectively under three components; these being: (1) Reliability, (2) Interactive and (3) User control. Within the proceeding pages elaborations of each will be given, in an attempt to highlight how they may add to evaluating and measuring the three mentioned criteria.

Reliability components are made up of eight criteria, these being: authority, accuracy, objectivity, currency, coverage, intended audience, confidentiality and justifiability. There is one overriding rational for including these eight criteria, this being, the collective strength these eight criteria possess in their ability to ensure and promote effective evaluation of a health website's reliability and trustworthiness. Taking on such an approach will ultimately reduce learner anxiety and will allow information seekers and health professionals alike, the ability to judge what is relevant, important and most of all, creditable online health information.
The rationale behind the selection of the four interactive components (multimodality, networkability, temporal flexibility and message tailoring capabilities) is due to the importance of interactivity to enhance user engagement throughout the interface. One of the most important reasons for evaluating and promoting these interactive components is that it encourages deeper processing of learning material. Interactivity makes users reflect on the content of instruction thereby encouraging the integration of knowledge and the elaboration of new information with pre-existing knowledge (Stemler, 1999). Thus, by incorporating interactive components throughout the interface the chances of promoting deeper processing which will ultimately result in greater comprehension and retention of information and positive health behaviours will be heightened.

The rational behind the selection of the three usability components (health literacy, interface engagement and educational) is due to the importance of content flow and access throughout the health website. The navigation throughout any website should be cohesive and well structured so as to limit and minimize the amount of energy and effort users expend trying to make links between information, text and interactive modular units. Hannafin and Peck (1999) maintain that this element of website design should be given absolute prominence. In relation to learning and information sequencing they conclude that page flow (or information flow) is critical to the ease with which learning will occur. Information that moves logically and smoothly from frame to frame and from section to section will likely maintain user attention effectively.

A critical challenge facing web designers and health professionals alike, is how to develop a web presence that is not only compelling to the user, but also establishes
trust. Users’ lack of trust still constitutes a major psychological barrier to the adoption of new forms of online services and health information (Egger, 2000). Active health information seekers evaluate the usefulness and trustworthiness of a web provider when they first interact with the web site user interface. Nielsen (2000) asserts that, usability, which is measured by the ease, efficiency and pleasantness with which the user is able to learn, navigate and experience the user interface, is one of the most important requirements when developing a website interface.

Prior to the development and design of a health websites’, a critical effort should be made with regards to determining the category as to the intended purpose and plan for the health website (e-knowledge, e-professional or e-business). This first step is vital to help instructional website designers to accurately capture this information and represent it throughout the website. Further to establishing the intended purposes and category (see Appendices 10 & 11) of the website, the levels of interactivity and associated components need to be outlined; in terms of their reach and cost effectiveness as compared to other health promoting mediums. The intended learning objectives of the website should frequently be used as criteria to evaluate the outcomes and purpose so as to help format future designs and development. Built-in, progressive formative and summative evaluation tools (see Appendix 13) need to be developed so as to help with direction and future developments. This evaluation process (formative & summative) holds tremendous weight in justifying selection and types of components throughout a health website.

To help illustrate the three components (reliability, interactive and usability); specific Screen Captures will be presented, highlighting the application of such
components and their levels throughout each health website. Although each component, and its application to a website has been discussed previously in this chapter, it is this illustration of health websites which is presented to provide a better understanding of what makes a reliable and interactive health website.

A Measurement Scale (see Appendix 12) has been designed from the current literature surrounding tools and methods for evaluating health websites. Definitions are provided together with their associated qualities and criteria for measuring the level of each component as displayed throughout a health website. This tool will be used to determine and measure the varying levels of reliability and interactive components, along with the level of user control that are evident and 'felt' when applied to a health websites. User control is an important beach mark to determine, as websites which actively keep an individual engaged within the health domain, for prolonged periods of time, will ultimately enhance learning, encourage and promote a level of positive behavioural change. A reputable health organisation's website (The National Heart Foundation of Australia) will be critiqued (see Table 4.1); with the intent of applying the Measurement Scale (see Appendix 12) to outline the website’s levels of reliability, interactivity and usability components.

4.6 The National Heart Foundation of Australia

The National Heart Foundation of Australia (see Screen Capture 4.20) has developed a health website which scores very highly, in so far as it’s reliability components. The interface can be categorized as an ‘information’ health website even though there is a portion of the website which does contain professional information, the majority of the health information has been presented and displayed for the general user, displaying an appropriate health literacy level. The
interface displays and contains, throughout the domain, a large amount of information pertaining to the management and prevention of heart disease. In terms of being a 'reactive' health website it is very efficient, not only displaying information, but also allowing for announcements about the latest news, events and development of the company. Much of the information is presented in PDF format, making it easy for the general user to read and download. There is a vast amount of information, ranging from the easy to read and understand through to the more professionally orientated in which health professional can obtain. In terms of information presentation and dissemination, the Health Foundation's website contains relevant, authoritative and up to date information about heart disease. Possible inclusions which would increase the level of reliability would be to add or make clearer the following web design items: (1) Web host information (authority), (2) Policies relating to editorial and advertising (accuracy), (3) Displaying sponsors and association / influences (objectivity), (4) The intended audience and level of literacy needed (intended audience), and (5) Procedures and systems to ensure privacy and protection (confidentiality).
Heart Foundation Position on Very Low Carbohydrate Diets (April 2004)

The Heart Foundation's position statement on very low carbohydrate diets (VLCDs) is intended for health professionals, allied health professionals, and the general public. It provides guidance for health professionals on the potential benefits and risks of VLCDs for heart disease prevention and management. The statement also addresses the importance of a diversified and balanced diet to achieve optimal health outcomes.

Support Resources for Cardiac Rehabilitation
Nutrition Education Sessions (March 2004)

The Heart Foundation's Position Statement on Very Low Carbohydrate Diets (April 2004) is an important resource for health professionals and the general public. It provides guidance on the potential benefits and risks of very low carbohydrate diets for heart disease prevention and management. The statement also emphasizes the importance of a diversified and balanced diet to achieve optimal health outcomes.

4.20.1 Information presented is not interactive in nature. Very informative in terms of articles and latest research relating to the prevention and diagnosis of heart disease.

4.20.2 Feedback facility, allowing for interested users to contact Heart Foundation.

4.20.3 Information is delivered via scroll down. Information portals offer information on PDF files. Information that is obtainable by the public is the latest research and most up to date facts with regards to heart health, prevention and care.
Table 4.1: Application of Measurement Scale - National Heart Foundation

<table>
<thead>
<tr>
<th>Health Website</th>
<th>Reliability / Interactive</th>
<th>Reliability</th>
<th>Interactivity</th>
<th>User Control</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Heart Foundation</td>
<td>User Scale</td>
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<tr>
<td></td>
<td>Authority</td>
<td>*</td>
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<tr>
<td></td>
<td>Accuracy</td>
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<td></td>
<td>Objectivity</td>
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<td>Currency</td>
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<td>Coverage</td>
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<td>Intended Audience</td>
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<td>Total Reliability Components</td>
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<td>18/19</td>
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<tr>
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<td></td>
<td>Temporal Flexibility</td>
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<td></td>
<td>Message Tailoring Cap.</td>
<td>*</td>
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<tr>
<td>Total Interactive Components</td>
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<td></td>
<td></td>
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<td>7/9</td>
</tr>
<tr>
<td></td>
<td>Health Literacy</td>
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<tr>
<td>Total User Control</td>
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<td>7/8</td>
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<tr>
<td>TOTAL</td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Reliability :</td>
<td>18 / 19</td>
<td>high</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interactivity :</td>
<td>7 / 9</td>
<td>moderate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>User Control :</td>
<td>7 / 8</td>
<td>moderate</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Category :</td>
<td>e-knowledge:</td>
<td>high</td>
<td>e-business:</td>
<td>nil</td>
<td>e-professional:</td>
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</table>
CATEGORISING HEALTH WEBSITES:
as applied to National Heart Foundation

<table>
<thead>
<tr>
<th>HEALTH LITERACY LEVEL NEEDED</th>
<th>Mod</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTERACTIVITY</td>
<td>Low</td>
</tr>
<tr>
<td>'Built-in' EVALUATION</td>
<td>Mod</td>
</tr>
<tr>
<td>e-knowledge category</td>
<td>High</td>
</tr>
<tr>
<td>e-business category</td>
<td>Nil</td>
</tr>
<tr>
<td>e-professional category</td>
<td>Low</td>
</tr>
</tbody>
</table>

The Heart Foundation’s website scored relatively low, insofar as it’s interactive components. As already mentioned, the interface is more ‘reactive’ than ‘interactive’ in its nature. Multimodality components are demonstrated through the design page demonstrating clear pictures, fresh colour and sensory pleasing modular units. The demonstrated interactive capability of the website is its ability to email and search. Both these asynchronous and synchronous inclusions allows for both direct, indirect feedback and recommendations to be undertaken by the user. There is no avenue for users to effectively interact throughout the domain, limiting the experience and message tailoring information delivery potential.

Recommendations for interactive component inclusions that will heighten the educational experience are very much dependent and determined by the organisations intended purpose for the website. Little is achieved by including interactive and multimodality components if the sole purpose for the interface is to inform the general public about events, prevention and management of heart
disease. Even though research does suggest that interactivity and tailoring health messages do increase health promoting behaviours, it must be determined whether or not the organisations in the questions have the financial and technical backing and infrastructure to accommodate such interactive components.

User control is relatively high and the experience does encourage the user to stay engaged throughout the interface. ‘Toggling’ between pages is free, with little delay and an expectable level of speed. The ability to quickly and effectively move between pages, information and download files are important elements which will increase the levels of user engagement and hence heighten the educational experience. In short, the National Heart Foundation (see Screen Capture 4.20) has designed and developed a very informative and engaging interface. It does lack interactive capabilities but as already discussed, this facet of ‘health technology’ is very much dependent on the stance of the organisation and its technology ideology.

4.7 Conclusion

Chapter 4 has highlighted current evaluation criteria and various checklists / frameworks which can be implemented in an attempt to determine levels of reliability, interactivity and usability components throughout a health websites. A Measurement Scale has been developed with the intent of determining the type and degree of the three components positioned throughout a health website. The National Heart Foundation’s website was chosen and the Measurement Scale was applied. From such a process, recommendations were made, insofar as future considerations that will improve the National Heart Foundation’s website. Furthermore, specific Screen Captures were presented throughout Chapter 4 in an attempt to highlight components throughout other current health websites. Such a diagrammatical approach to this chapter has given visual highlights to the
application of all three components. Chapter 4 also presented how interactive technologies are much more capable of tailoring health messages to an individual's needs, interests, and preferences than are other medium, thus increasing the health promoting capabilities of a health website.

Chapter 5 will address the data collection methods and analysis. Attention is directed towards presenting the protocol for the pilot and major quantitative (survey) instruments, outlining participant recruitment processes and considerations. Furthermore, discussions will outline the quantitative and qualitative approach used, outlining the methods that have been implemented to ensure the validity and reliability of the findings.
CHAPTER FIVE

5.

...DATA COLLECTION & ANALYSIS
5.0 Introduction

This chapter outlines the methods utilised to acquire and analyse the research data. Data collection focused on GPs throughout the Gold Coast region. This study employs a mixed research approach, combining elements of both quantitative (surveys) and qualitative - (interviews) methods to collecting and analysing data. Fetterman (1989) suggests that a mixed methods approach to data collection strengthens the research design approach to data collection. Patton (2002) reinforces such a dual research design by stating that the mix of quantitative and qualitative methods provide for both depth and breadth within the data collected, as well as cross-verification amongst methods. Merriam (1998) suggests quantitative methods supported by qualitative methods can make the research design more rigorous. It is for these reasons a mixed methods approach has been employed for this research.

5.1 Quantitative data collection method

The survey instrument constructed for this research was based on the following, 1) information obtained from literature in the areas of GPs and Internet use and health website recommendation, 2) the evaluation of both traditional and modern forms of data collection methods, and 3) barriers that may impede the collection of data given the research participants under investigation.

The survey instrument consisted of 32 questions (see Appendix 8) and was designed so as to allow participants to indicate the most important response to a single question and also to measure the proportions (0%, 1%–20%, 21%–40%, 41%–60%, 61%–80%, over 80%) of patients and websites associated with GPs’ website recommendations. The survey instrument was mailed to 250 of the 410 GPs (61%) practising on Queensland’s Gold Coast. Of the 250 GPs contacted, 108 (43%)
returned a completed survey; 72 (66%) were male and 36 (33%). Fifty-nine percent (64 / 108) reported recommending websites and 44 / 108 (41%) reported not recommending websites. This research indicates that more than 50% of Gold Coast GPs have recommended health websites to their patients. Participants for this study were randomly chosen from an online telephone directory (http://www.yellowpages.com.au) and the survey was conducted between 9 October and 11 December 2006.

Within this database (yellowpages.com), GPs are listed under a number of categories; ranging from general practitioner to specialist. An equal number of males and females were contacted; however, there was no indication as to the GPs age or years of experience. Therefore, all posted surveys gave each participating GP the opportunity to detail their personal history, in terms of: 1) gender, 2) age and 3) number of years practicing medicine (< 10 years, > 10 years experience). GPs were contacted via a pre-paid return mail out. The intent of the survey was to assess GPs' opinions, beliefs, influences, and attitudes about health website recommendation. Survey questions were ‘grounded’ in issues arising from preliminary analysis of the literature, a pilot study and interviews with key stakeholders (GPs, academics, health professionals, Royal Australian College of General Practitioners representatives). Ethics approval for the study was obtained from the Griffith University Human Research Ethics Committee.

5.2 Quantitative data analysis

The survey was designed to incorporate the main aims and objectives of the study. There are two identified aims to this research, each a theory which needed further exploration to uncover the ‘true meanings’ or ‘happenings’ associated with general
practitioners and website recommendation. Furthermore, this initial survey instrument (quantitative – see Appendix 8) informed the proceeding interviews (qualitative – see Appendix 9), whereupon questions were designed and shaped so as to ‘tease out’ further information from the participants about relevant trends and events associated with this study. Data was analysed using SPSS software (SPSS Inc, Chicago, Ill, USA). Throughout this process, a number of key issues emerged which were then further explored in the interview process. Participants for the interviews were selected from the profile that developed as a result of the surveys.

The primary aim of this research was concerned with uncovering the influences which either directly or indirectly motivates Gold Coast GPs to recommend particular health websites to the health consumer. A secondary aim of this research was to explore what Gold Coast GPs understood in relation to the levels of reliability, interactivity and usability components throughout the health websites they are interacting with and recommending. To assist in such a research endeavor, four specific objectives were used as the guiding focus throughout the research. The survey was constructed around these aims and objectives. Furthermore, data collected from the survey will be presented in a format which will address each of the stated research aims and objectives (as identified in chapter 1).

5.3 Qualitative data collection method

Dezin and Lincoln (1994) define qualitative research as an interpretive multi-method approach to the study of people in their natural surroundings. Qualitative research is further defined by Creswell (1994) as being an inquiry process of understanding, a social or human, based on building a complex, wholistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting.
According to Burns (1997), an interview is a verbal exchange wherein the interviewer attempts to access the opinions or beliefs of the informant. Burns suggests there are several disadvantages to a structured interview format. First, the researcher has no flexibility to determine beliefs, feelings, attitudes, and perceptions of the respondent beyond that answered according to the pre-determined response categories. Second, in using a structured interview, the interviewer must become a neutral standardised medium wherein questions are presented without bias or subjectivity. As a result, the method fails to acknowledge the inherent humanness of the interviewer. Finally, the detachment and impersonal approach required can prevent trust and rapport from developing between the interviewer and the respondent.

Due to these factors, it was decided that the sequence of the interviews (see Appendix 9) would follow a combination of the Stewart and Cash (1994) topical semi-structured sequence method and the Judd, Smith and Kidder (1991) funnel principle. Stewart and Cash (1994) defined a topical sequence as a technique that uses the natural discussion of interviews to develop themes. This sequence gives the interviewer the freedom to probe answers and adapt to any response the participant may give. The funnel principle, according to Judd (1991), advocates that the interview should start with general questions and issues. An example of this presented itself when, 'limited time' (in terms of assessing the reliability of the website) was indicated as a major reason for not recommending websites to patients. A further question was proposed, being, 'What are some of the issues associated with limited time'? The initial questions should be easy and unchallenging for the participant. As the interview progresses the questions focus on more specific issues. To assist the interviewer, each question contains a series of probes to aid the researcher in focusing on specific themes within the question; as such the 'funnel principle' was also applied
when probing for a deeper understanding of the causes and outcomes of the research questions.

The benefits from this ‘funnel’ approach were highlighted in an interview with a GP. The interview began with the interviewer initiating conversation about the participant’s website recommendation trends in order to address a particular theme. This led to the interviewer asking a general question such as: “Why don’t you recommend websites to your patients?” This would then lead to a question requiring more specific information that would elicit more detail on a particular theme, e.g., What do you think could be done to help both future and present doctors adopt the practice of website recommendation? By utilising this approach the participant felt at ease and provided the interviewer with a detailed individual perspective.

Judd (1991), however, suggested the major disadvantage of open-ended semi-structured interviews is that the researcher is vulnerable to the interpretations and subjective insights of the informant. As a result, the researcher may be drawn into the informant’s world view. According to Burns (1997), this problem of validity is acknowledged as inconsequential if the informant’s behaviour is congruent with their perception of reality – as was the case in this research.

A semi-structured interview method is associated with a Grounded Theory techniques, where the researcher constructs ‘meanings’ from the development of themes / categories generated from the interview responses of the participants. This approach has importance for this research as it allowed for the presentation of the ‘happenings’ associated with GPs and health website recommendations. Furthermore, Grounded Theory techniques were particularly suited to this task as it offered a
systematic approach to collecting, organising and analysing data from the initial empirical data. Specific attention was directed towards uncovering GPs' beliefs, attitudes and opinions associated with their patterns of use pertaining to website recommendations to the health consumer. The researcher was also interested as to the influences that motivate – directly or indirectly – GPs to actively recommend health websites to the health consumer.

Participants for the interviews were generated from the initial survey. GPs were given the opportunity to communicate to the researcher if they wished to be involved in a second round of research (interviews). A total of 15 (8 males, 7 females) GPs volunteered to be interviewed, with each interview in total ranging from 30-40 minutes in duration. All interviews were carried out in person and interviewees demonstrated a willingness and openness in their responses to the questions posed. All participants agreed to this process once it was established that confidentiality would be maintained, and tapes would be erased after transcription.

The questions for the interviews were developed from the initial survey. The interview questions allowed the researcher to probe deeper into the 'meaning' behind the generated empirical data. A semi-structured interview protocol (see Appendix 9) was designed to ensure that a consistent core of questions was asked to all participants. During the course of the interview, checks for understanding were made through restating the information and by clarifying questions. All interviews were audio taped and later transcribe, allowing for the coding of thematic categories. Note taking was permitted in interviews that were not audio taped. Audio taping of certain interviews was not permitted because of the discussion of highly sensitive material. Each interviewee was identified by a number from 1-15 and labelled as a
‘participant’. This approach was taken to preserve confidentiality – an issue discussed later in the chapter.

Thomas and Nelson (1990) referred to the obvious advantages associated with the audio taping of interviews for future analysis. They suggested it allows the researcher to concentrate more fully on the interview procedure and communication process. Attention can then be directed solely to the content of the interview providing increased time to dedicate towards developing and maintaining genuine rapport with the respondents. Hammersley and Atkinson (1983) also suggested audio taping of interviews as advantageous to both the interviewer and interviewee. Reasons for this included the potential for the gathering of a more complete and detailed record of the content of the conversation, and the interviewer being more able to devote concerted attention to the interviewee without hasty note taking which may detract from the atmosphere and leave the respondent feeling distanced. Additionally, Hammersley and Atkinson indicated that note taking leads to the loss of much detailed verbal information that contributes to the content of the conversation and total content of responses.

5.4 Qualitative data analysis

Contained within this section, are discussions and elaborations as to the way in which themes have been generated from the collected data, and the organisational strategies employed to identify and code the information. Once recognition of a specific pattern of meaning was achieved, the commonalities that made up that pattern were analysed and an attempt was made to derive the underpinning meaning. It is the interpretation of this meaning that provided the framework within which similar explicating examples and themes were grouped. These examples and themes then became
recognitional symbols or presentations that allowed the person/s to be clearly represented in the context of the event.

5.4.1 **Open Coding of interview data**

In order to analyse interview data the technique of open coding was applied (Polgar & Thomas, 1991). While there is an abundance of literature published on qualitative research (e.g., Burns, 1997, Glaser & Strauss, 1967, Miles & Huberman, 1994, Sarantakos, 1998, Strauss, 1987, Strauss & Corbin, 1990), and researchers advocate different approaches to coding, they employ a number of common steps. Initially, the researcher should study his or her transcripts in order to have a close familiarity with the material. It is during this process that all the concepts, themes, and ideas are noted to form major categories. For example, as the interviews in this research were concerned with understanding the influences which directly / indirectly affect a GP’s website recommendation trends. The initial coding of the categories included factors related to this. These included: (1) Limited time - constraints and work pressures; (2) Prefer to personally discuss – a collaborative approach to health care; (3) Reliability issues- lack of trust concerning online health information; (4) Biased information- influenced by Pharmaceutical Companies; (5) Helps to educate patient - more knowledgeable about their condition; (6) Enhances the doctor – patient relationship - allowing patients to feel more involved in their own health care; (7) Age appropriate technology - confidence levels of patients; (8) Treatment orientated - specificity of information.

Strauss and Corbin (1990) then recommended that axial coding be undertaken. This involves employing a set of procedures whereby data are put back together in new ways after open coding, by making a connection between categories. This results in a
cumulative knowledge about relationships between those categories and can subsequently lead to the development of sub-categories being created from the initial categories. The researcher therefore established files for each of the new sub-categories. From the first eight categories / codes, eight sub-categories were created, these being: (1) Fewer female GPs than male GPs recommend health websites; (2) Age and years of experience of GPs effect Internet prescription trends; (3) Patients more knowledgeable / cyberchondriacs; (4) 'Sweeteners' by pharmaceutical companies; (5) A high influence by pharmaceutical companies on the Internet; (6) A lack of knowledge pertaining to reliability issues – issues of trust; (7) Limited knowledge pertaining to interactivity and usability levels; (8) A need to include within medical schools - website usage for GPs. This process further added to the conceptual model as proposed by Burns (1997).

The researcher then made multiple copies of each segment of data, and a copy was filed under all categories and sub-categories to which it was relevant. With this system, when it was time for detailed analysis of a particular category or sub-category, all relevant data was readily available and there was no need to sift through the running record to find the relevant data segments. An additional advantage is that all items relevant to the same category or sub-category can be put side by side and compared.

5.4.2 Theoretical Sensitivity

Research procedures, data analysis and the construction of the interview questions were strongly affected through the development of 'theoretical sensitivity', both prior and throughout this study. Theoretical sensitivity has been developed throughout this study by two sources. Initially, sensitivity was established three fold, including; (1)
literature, (2) professional experience and (3) personal experience in the area of study.

Moreover, theoretical sensitivity was acquired during the research process through continual interactions with the data - through the collection and analyses of the data. Strauss (1999) comments further on the ingredients necessary to ensure a balance is maintained between that which is created by the researcher and the real. Balance can be maintained by; (a) asking, what is really going on here? (b) maintaining an attitude of scepticism towards categories or hypotheses brought to or arising early in the research, validating them repeatedly with the data themselves; and (c) by following the data collection and analytic procedures (Strauss, 1999). Theoretical frameworks about concepts and their relationships were systematically disentangled throughout this study. This increasing sensitivity to concepts, their meanings, and relationships, is why it is so important to interweave data selection with data analysis. Each feeds into the other, thereby increasing insight and recognition of the parameters of the evolving theory (Strauss, 1999).

The application of such data collection methods employed throughout this study, has allowed for the development of a rich background of information and insight into the past, present and possible future directions of website recommendations by GPs. It has also uncovered the emerging influences of such a practice on global pharmaceutical companies, medical school academic environments, associated curriculum and continuing medical education (CME). Hence, background of experience and knowledge by the researcher has created an awareness and understanding of certain actions and trends within the field of study.
The selection and coding of categories throughout this study involved thematic categorisation. This is a procedure that has often been criticised for its potential as a source of bias. The meaning that the researcher imposes on the text will reflect, to an immeasurable extent, his/her view of the world. It is influenced by the knowledge based he/she has accumulated from past experiences of being-in-the-world, and is translated in the context of past and current understanding the researcher holds of the situation. For this reason, the deciphering of textual meaning for the purpose of coding requires lucid guidelines. These guidelines have been identified previously in the chapter, outlining protocols for implementing and conducting both the survey and interview processes. Without such guidelines, coding becomes an arbitrary process rather than central to full and meaningful interpretation (Strauss, 1999).

Analysis of the empirical data laid the foundations for the construction of the interview questions. The shaping of the interview instrument commenced with the identification of emerging issues and themes from the initial empirical data. Themes that were discovered not only had commonalities across subjects, but also natural variation in the data. Matrixes were devised to assist in organising and sorting the considerable quantity of data into themes. Identification of main themes involved tabulating the frequency with which certain themes mentioned by the participants throughout the interview and observational processes. From these themes various issues presented themselves and were seen as necessary components that warranted further exploration so as to better understand the meaning/s behind participants' answers.

Categories and sub-categories were generated by identifying words or phrases in the participant's vocabulary that captured the meaning of each incident. Theoretical
saturation was achieved in a number of categories as no new information was forthcoming and responses had become redundant. As a result of this process, a number of general categories were able to be distinguished from the data. Data presentation will represent both why GPs 'don't' and 'do' recommend websites to the health consumer. The order of the presented categories further represents the degree of importance to each question, the first being the most important and most frequently stated by participants. These categories and sub-categories also presented some compelling and interesting issues which were further investigated in more depth, so as to develop a deeper understanding as to why participants indicated these as the most important reasons. Questions throughout the interview process were designed so as to allow participants the chance to elaborate and give their personal insight into why they feel such statistical trends emerged from the empirical data.

Finally, selective coding, which is the process of selecting a core category and systematically relating it to the initial categories and sub-categories in order to validate the relationships that exist between them, was then undertaken (Miles & Huberman, 1994). This refinement process of linking the existing categories and sub-categories can therefore be geared towards generating precise themes that can form the structure for discussing the interview data – as is done in chapter 7 of this thesis.

5.4.3 Validation Procedures

Validity is one part of what Kavale and Forness (1996) calls the 'scientific holy trinity' of validity, reliability and generalization. This study will use aspects of all three types of validity mentioned by Kavale and Forness (1996). Choosing a single conception of validity would be too dogmatic for a theoretical framework based on great suspicion of singular, universal theories and accounts. Furthermore, Fraenkel
and Wallace (2000) term validity, as used in research, as the appropriateness, meaningfulness and usefulness of any inferences a researcher draws based on data obtained through the use of an instrument.

Validity can be divided into two parts; these being: external and internal in nature. For the sake of this research, external validity will be defined as the ability of the results of the study to be generalized to the target population (Fraenkel & Wallace, 2000). External validity was ensured by collecting a sample group that displayed a wide diversity of characteristics, in terms of age, gender, years of experience and region of participants. Fraenkel and Wallace (2000) refer to internal validity as making judgments on the adequacy of an instrument as it is to be used in a particular study. To test the survey instrument for internal validity, a continuous ‘peer review’ process (including experts and ethics committee members) was undertaken prior, during and whilst the instrument was implemented within the field of research. Comments on content validity were used to eliminate, add, and modify elements of the survey / interview instruments. The instrument was then ready for piloting.

Modernist conceptions of validity have been as a measure of the research results’ proximity to ‘the truth’. Something is considered ‘valid’ if it correctly captures the ‘truth’ it studied. However, post-modern thought has called into question the existence of a universal and objective ‘reality’, hence troubling the modernist conception of validity as a measure of approximation of “the real”. Kavale and Forness (1996) identify three frames for approaching and achieving validity and reality as: 1) quality of craftsmanship / control on the part of the researcher, 2) as a dialogical negotiation (communicative validity), and 3) according to ‘pragmatic’ standards for ideas in action.
The first case, ‘quality craftsmanship / control’ calls for quality control throughout the stages of knowledge production (Kavale & Forness, 1996). This process involves the researcher undertaking a cyclic procedure, which involves the consistent revisiting of the literature, checking, questioning and theorise based on criteria of ‘quality’. This particular methodological process holds with earlier sited works of Strauss and Corbin (1994), insofar as their approach to data collection through a Grounded Theory application. They see methodology as one that grounds methods in an ever-spinning circle of analysis and that data collection can be achieved through practitioners respond[ing] to and change[ing] with the times. In respects to the study of GPs and health website recommendation, this specific process holds significance, as to ensure that surveys and interview questions are drawn and developed from constant consultation with key stakeholders, responsible theorise based on the generated data and, the review of current and relevant literature surrounding GPs and Internet use. This particular process of ‘revisiting’ and ‘reflecting’ throughout the journey assists the shaping of the research tools and adds considerable strength to the validity of this study.

The second approach, ‘communicative validity’, sees validity as the result of communication and negotiation among those who have an interest in the knowledge claims. This has been emphasized as an important criterion throughout the development of a research framework and meeting ethical expectations when it comes to human participants. Furthermore, participants and key stakeholders will be shown data and the interpretations of such data, and asked to comment on the researcher’s transcription as well as the preliminary analysis of the data meaning so as to ensure that communication was constant. A number of considerations to ensure
communication and negotiation have been further outlined throughout sections relating to the methodology.

The third, 'pragmatic' stance focuses on the relevance of the interpretations for instigating change (Kavale & Forness, 1996). As opposed to communicative validity (the second type mentioned), pragmatic validity represents a stronger knowledge claim than a mere agreement through dialogue since it rests upon observations and interpretations with a commitment to act on the interpretations (Kavale, 1996). It is envisaged that through such research findings a greater understanding of how and in particular why, GPs recommend certain health websites to the health consumer. Furthermore, it is the intent of this research to disseminate such educational information and knowledge back to relevant and interested parties, such as participating GPs, The Division of General Practitioners, staff members of Griffith University Medical School and the research team.

Kavale and Forness (1996) further defines two types of pragmatic validity according to whether a knowledge statement is accompanied by action or whether interventions based on the researcher's interpretations may instigate actual changes in behaviour. Pragmatic validation is further seen as elevating issues of ethics, power and truth to the forefront of research concerns, recognizing 'truth' as whatever helps realize desires by enabling appropriate action to meet them. Issues of power, truth, ethic, and the construction of knowledge don't just inhabit the foreground of the research picture; they frame it and fill it (Kavale & Forness, 1996). Such attention to achieving / outlining 'pragmatic validity' provokes and calls for critical reflection and proposals for action-based change from the research findings. In relation to this research, change or provoked investigation into the realm of GPs and their health website
recommendations to patients, could be a very real outcome of such a study. Through unearthing the unexpected or more significantly, revealing the 'experiences', this may place GPs, patients and health consumer 'watchdogs' at significant cross roads, insofar as to what road to journey down and what will be the future consequences of such choices and actions.

5.4.4 Access and Procedural Issues

5.4.4.1 Gaining Entry

Hamersley and Atkinson (1983) suggested appropriate tactics for gaining entry to a setting, including, knowing whom to approach and how. Such knowledge is based upon some prior information about the temporal work rhythms that exist and the power alignments within the participants' culture. The researcher needs to gather information in order to present himself or herself to the right person at the right time to gain authorisation to carry out an inquiry in a setting. When multiple entries are required (as in the interview situation) to meet the purpose of the research, the researcher should establish credibility and enter into positive relationships.

Initial contact with GPs was gained through a returned, prepaid survey (see Appendix 6). Participants contact details were obtained from an online directory. This initial contact was determined as the best way of contacting participants from the Royal College of General Practitioners (RCGP). This contact was a useful one and was highlighted within the survey introductory letter as it gave credibility. According to Loftland (1984), the use of a contact or acquaintance to gain entry is not unusual amongst field workers. It seems quite typical for outside researchers to gain access to settings or persons through contacts they have already established. They case about
among their friends, acquaintances, colleagues, and the like for someone who is already favourably regarded by the person with access control.

5.4.4.2 Gatekeepers

Approaching the researcher's personal contact initially started the process of getting direction and contacts for the research. This initial contact was with the RCGP staff. After a brief discussion, concerning the purpose of the research, the researcher introduced the study to other appropriate individuals – Gold Coast GPs. As this was an individual survey, it was viewed that each participant acted as their own gatekeeper. However, the researcher's attention was directed towards making contacts with a chief gatekeeper. These were indicated as being the medical clinic's managers who were responsible for organising external requests for the GPs, as in the case of completing surveys.

Given the nature of the research, it was recommended by the RCGP that the researcher safeguard the confidentiality of the participants. This would require establishing a research agreement and building trust with participants. Throughout the data collection and follow-up procedures participants' anonymity was protected and assured inline with Griffith University policy guidelines.

5.4.4.3 Research Agreement

The research agreement was primarily developed as a mechanism to provide guidelines in relation to the dissemination of information. In the researcher's initial survey it was decided that a confidentiality agreement be established between the researcher, the participants and the RCGP. A confidentiality agreement was presented to the RCGP.
The RCGP was concerned that any information that was provided to the researcher was only viewed by those directly associated with the research and was to be used for academic purposes only. The information given was sensitive and had been developed in order to provide a more insightful understanding associated with the phenomena.

Finally, there was a verbal research agreement in relation to confidentiality. This was due to the fact that information given by individuals may vary and as such have potential to cause conflict between participants. To overcome this before each survey and interview, participants were reminded that the interview was being conducted in complete confidentiality. Each individual, as previously indicated, was arbitrarily assigned a label so that participants were listed as 'Participant # 1', 'Participant # 2', and so on. The rationale for confidentiality and negotiation of accounts is based on an ethical consideration of respect for persons who have guaranteed an intrusion into their world, and access to their opinions in regards to the research issues.

5.4.4.4 Preserving Anonymity of Participants

Maintaining anonymity was a consideration throughout the entire research project rather than only in the write-up. This required the researcher to use various procedures to help preserve anonymity. First, as previously mentioned in this chapter, each interviewee was identified by a number and labelled as a participant. Second, the researcher was the only person who had access to the bulk of the data during the fieldwork stage. Fieldwork notes were not presented to anyone, but treated as highly confidential. Survey storage adhered strictly to University guidelines. Returned surveys were securely locked within a cabinet, accessible only to the researcher. Finally, time itself helped to protect anonymity or at least to make identification more
difficult. Over time, people tend to forget what others have said, even what they themselves said. Having been assured of confidentiality, participants generally felt freer to talk about the questions. This, in turn, leads to the notion of trust.

Ethics approval for this study was obtained from the Griffith University Human Research Ethics Committee (HREC). It was outlined to participants that this study underwent a rigorous process so as to obtain official HREC approval. Strict guidelines were followed (as those mentioned above) so as to ensure security and confidentiality of participants’ information (both surveys and interview audio transcripts).

5.5 Conclusion

Chapter 5 has outlined the data collection methods and analysis techniques that were utilised to acquire data, and to address the research aims and objectives. A cross section of GPs was sought, with attention given to participants’ age, gender and years of experience. One hundred and eight surveys were initially utilised to provide the researcher with a foothold in the world of GPs and website recommendation and provide the basis for further conversation in interviews. Fifteen GPs were interviewed and in each case they had differing stories and histories when it came to website recommendations to the health consumer. In total, 15 interviews were completed, all of which were audio taped, with each interview ranging from 30-40 minutes in duration. Finally, access and procedural issues were reviewed. They included gaining entry; gatekeepers; research agreement and preserving anonymity. Each of these issues was a vital part of the research process, and was appropriately resolved.

Chapter 6 will present the quantitative results and forthcoming discussions. Research findings and data have been analysed and will presented in an attempt to further
understand the changing face and nature of the doctor-patient relationship as a direct result of the increasing trend in health website recommendation by GPs. Specific attention will be directed towards highlighting the empirical data and the relevance this has to the study. Research findings will be discussed in relation to the impact they will have on the future directions of e-health care delivery and the necessary steps to ensure a safer and more reliable cyber environment for the health consumer.
CHAPTER SIX

...QUANTITATIVE RESULTS AND DISCUSSION
6.0 Quantitative survey – Introduction and procedure

A broad definition of quantitative research is presented by Crewswell (1994), who states that quantitative research is an inquiry into an identified problem, based on testing a theory composed of variables, measured with numbers, and analysed using statistical techniques; the goal is to determine whether the predictive generalisations of a theory hold true. The selection of the quantitative research procedure was based upon the problem of interest, resources available, the skills and training of the researcher and the audience for the research. Given these points, a survey instrument, consisting of 32 questions (see Appendix 8), was identified as the most appropriate data collection method. Survey design and implementation was a way of estimating the characteristics of a larger population of interest based on a smaller sample from that population. Furthermore, this initial survey instrument (quantitative) informed the content of the follow-up semi-structured interviews (qualitative - see Appendix 9), whereupon questions were designed and shaped so as to 'tease out' richer data from the participants about relevant trends and events associated with this study.

The primary aim of this research was concerned with uncovering the influences which either directly or indirectly motivates Gold Coast GP to recommend particular health websites to the health consumer. A secondary aim of this research was to explore what Gold Coast GPs understood in relation to the levels of reliability, interactivity and usability components throughout the health websites they are interacting with and recommending.

To assist in such a research endeavour, four specific objectives were used as the guiding focus throughout the research. Furthermore, data collected from the survey
will be presented in a format which will address each of the stated research objectives. These are:

1. To establish the trends related to health website recommendation by GPs throughout the Gold Coast region.

2. To establish GPs' personal information (age, gender, and years of experience) associated with health website recommendations, patient requests / usage throughout the Gold Coast region.

3. To establish and ascertain the level of influence pharmaceutical companies have on GPs' practices pertaining to the recommendation of health websites to the health consumer.

4. To establish GPs' understanding and their conceptualisation pertaining to levels of reliability, interactivity and usability (user control) components associated with the health websites they use and recommend to health consumers.

6.1 Research findings - data presentation

In the following section, data will be presented so as to address each of the studies four objectives.

Objective 1: To establish the prevalence and trends related to health website recommendation by GPs throughout the Gold Coast region.

Objective 2: To establish GPs’ personal information (age, gender, and years of experience) associated with health website recommendations, patient requests / usage throughout the Gold Coast region.
6.1.1 Do recommend health websites

Two hundred and fifty out of four hundred and ten (61%) Gold Coast GPs were contacted. Of these, 108 (43%) returned a completed survey. Of the 108 participating GPs, 64 (59%) reported recommending websites and 44 / 108 (41%) reported not recommending websites (as displayed in Table 6.1). This research indicates that more than 50% of Gold Coast GPs have recommended health websites to their patients.

Table 6.1: Number and percent of participating GPs who recommended websites and number and percent of GPs who did not recommend websites.

<table>
<thead>
<tr>
<th>Recommend</th>
<th>Number of GPs returning completed survey</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did recommend</td>
<td>64</td>
<td>59</td>
</tr>
<tr>
<td>Didn’t recommend</td>
<td>44</td>
<td>41</td>
</tr>
<tr>
<td>Total Participants</td>
<td>108</td>
<td>100</td>
</tr>
</tbody>
</table>

The majority of GPs who did recommend health websites indicated that they recommend websites to 1-20% (67%) of their patients (as displayed in Table 6.2). Other indicators show that 13 (21%) GPs reported that they recommended websites to 21-40% of their patients; and 8 (12%) GPs reported that they recommended websites to 41% or more of their patients.

Table 6.2: Number and percentage of GPs who indicated that they recommend websites to 0%, 1-20%, 21-40%, and more than 41% of their patients.

<table>
<thead>
<tr>
<th>Percentage ranges</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0% of patients</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-20% of patients</td>
<td>43</td>
<td>67</td>
</tr>
<tr>
<td>21-40% of patients</td>
<td>13</td>
<td>21</td>
</tr>
<tr>
<td>41% or more</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Total Participants</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

Of the 72 (67%) participating male GPs, 45 (63%) recommend websites, compared with 19 (53%) of the 36 participating female GPs (as displayed in Table 6.3). Table 6.3 represents that more Gold Coast male GPs than female GPs recommended websites.
Table 6.3: Number and percentage of male and female GPs who did recommend websites.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of participating GPs</th>
<th>Number of GPs recommending websites</th>
<th>Percentage of GPs recommending websites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>72</td>
<td>45</td>
<td>63</td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
<td>19</td>
<td>53</td>
</tr>
<tr>
<td>Total Participants</td>
<td>108</td>
<td>64</td>
<td>59</td>
</tr>
</tbody>
</table>

As displayed in Table 6.4, the main age group that recommends websites is in the 41-50 years (55%, 35/64). There were no GPs in the 20-30 year age group who did recommend websites. In the 31-40 year old age group, 15 (50%) of the 30 participating GPs did recommend websites. 35 (85%) of the 41 participating GPs in the 41-50 year old age group did recommend websites, compared with 10 (40%) of the 25 GPs in the 51-60 year old age group. In the over 60 year old age group, 4 (36%) of the 11 participating GPs did recommend websites.

Table 6.4: Number and percent of participating GPs in each age group who recommended websites to the health consumer.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number of participating GPs</th>
<th>Number of GPs recommending websites</th>
<th>Percentage of GPs recommending websites</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30 years</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>31-40 years</td>
<td>30</td>
<td>15</td>
<td>23</td>
</tr>
<tr>
<td>41-50 years</td>
<td>41</td>
<td>35</td>
<td>55</td>
</tr>
<tr>
<td>51-60 years</td>
<td>25</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Over 60 years</td>
<td>11</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Total Participants</td>
<td>108</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

As shown in Table 6.5, the age group that participating GPs predominantly recommend health websites to are in the 26-45 (69%) year old age range. The majority of GPs (69%, 44/64) reported that they most often recommend websites to health consumers in this age bracket. Of the 64 participating GPs, 1 (2%) GP reported recommending websites to the 10-18 year old age group; 6 (9%) GPs reported recommending websites to the 19-25 year old age group; 11 (17%) GPs reported
recommending websites to the 46-65 year old age group; and 2 (3%) GPs reported recommending websites to the over 66 year old age group.

Table 6.5: Number and percentage of GPs who reported that they most often recommended websites to each age group.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-18 years</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>19-25 years</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>26-45 years</td>
<td>44</td>
<td>69</td>
</tr>
<tr>
<td>46-65 years</td>
<td>11</td>
<td>17</td>
</tr>
<tr>
<td>66+ years</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total Participants</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

As displayed in Table 6.6, the majority of GPs (53%, 34/64) indicated that they recommend websites to 1-20% of their male patients. Of the 64 participating GPs, 3 (5%) GP indicated that they recommended websites to none of their male patients; 19 (30%) GPs indicated that they recommended websites to 21-40% of their male patients; and 8 (12%) GPs indicated that they recommended websites to 41% or more of their male patients.

Table 6.6: Number and percentage of GPs who indicated that they recommend websites to 0%, 1-20%, 21-40%, and more than 41% of their male patients.

<table>
<thead>
<tr>
<th>Percentage ranges</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>None 0% of patients</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>1-20% of patients</td>
<td>34</td>
<td>53</td>
</tr>
<tr>
<td>21-40% of patients</td>
<td>19</td>
<td>30</td>
</tr>
<tr>
<td>41% or more</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Total Participants</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

The majority of GPs (53%, 34/64) indicated that they recommend websites to 1-20% of their female patients and was the same as their male patients (as displayed in Table 6.7). Of the 64 participating GPs, 30 (47%) GPs indicated that they recommended websites to 21-40% of their female patients.
Table 6.7: Number and percentage of GPs who indicated that they recommend websites to 0%, 1-20%, 21-40%, and more than 41% of their female patients.

<table>
<thead>
<tr>
<th>Percentage ranges</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>None 0% of patients</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1-20% of patients</td>
<td>34</td>
<td>53</td>
</tr>
<tr>
<td>21-40% of patients</td>
<td>30</td>
<td>47</td>
</tr>
<tr>
<td>41% or more</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Participants</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

As shown in Table 6.8, forty-seven (73%) of the 64 GPs indicated that 1-20% of their patients request website recommendations from them. Of the 64 participating GPs, 5 (8%) indicated that none of their patients ask them to recommend websites to them; 9 (14%) GPs indicated that 21-40% of their patients ask them to recommend websites to them; and 3 (5%) GPs indicated that 41% or more of their patients ask them to recommend websites to them.

Table 6.8: Number and percentage of GPs who indicated that 0%, 1-20%, 21-40%, and 41% or more of their patients request website recommendations.

<table>
<thead>
<tr>
<th>Percentage ranges</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>None 0% of patients</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>1-20% of patients</td>
<td>47</td>
<td>73</td>
</tr>
<tr>
<td>21-40% of patients</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>41% or more</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Total Participants</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

As displayed in Table 6.9, fifty-one (80%) of participating GPs indicate that 1-20% of their patients bring online health information to them for further discussion and consultation. Of the 64 participating GPs, 3 (5%) indicated that none of their patients brought online medical information to them; 6 (9%) GPs indicated that 21-40% of their patients brought online medical information to them; and 4 (6%) GPs indicated that 41% or more of their patients brought online medical information to them.
Table 6.9: Number and percentage of GPs who indicated that 0%, 1-20%, 21-40%, and 41% or more of their patients brought online medical information to them.

<table>
<thead>
<tr>
<th>Percentage Ranges</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>None 0% of patients</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>1-20% of patients</td>
<td>51</td>
<td>80</td>
</tr>
<tr>
<td>21-40% of patients</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>41% or more</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Total Participants</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

The age group that predominately brought online medical information to them was from the Adults - 26-45 year old age group (as displayed in Table 6.10). Of the 64 participating GPs, 38 (60%) GPs indicated this age group the most. Nine (14%) GPs indicated that the main age group that brought online medical information was the Young Adults - 19-25 year old age group; 17 (27%) GPs indicated that the Middle Aged - 46-65 year old age group was the main age group that brought online medical information to them. No GPs indicated that either the Adolescents - 10-18 year old age group or the Elderly - 65 or older age group brought online medical information to them.

Table 6.10: Number and Percentage of participating GPs who indicated that each of the age groups was the main age group of patients who brought them medical information obtained online.

<table>
<thead>
<tr>
<th>Age groups</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adolescents (10-18 years)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Young Adults (19-25 years)</td>
<td>9</td>
<td>14</td>
</tr>
<tr>
<td>Adults (26-45 years)</td>
<td>38</td>
<td>60</td>
</tr>
<tr>
<td>Middle Aged (46-65 years)</td>
<td>17</td>
<td>27</td>
</tr>
<tr>
<td>Elderly (More than 65 years)</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total Participants</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

As displayed in Table 6.10, the majority of GPs indicated that 1 – 20% of their male patients brought online health information to them the most. Forty-nine (77%) of the 64 participating GPs indicated this. Seven (11%) GPs indicated that none of their male patients brought online medical information to them; 6 (9%) GPs indicated that
21-40% of their male patients brought online medical information to them; and 2 (3%) GPs indicated that 41% or more of their male patients brought online medical information to them.

Table 6.11: Number and percentage of GPs who indicated that 0%, 1-20%, 21-40%, and 41% or more of their male patients brought online medical information to them.

<table>
<thead>
<tr>
<th>Percentage Ranges</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>None 0% of patients</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>1-20% of patients</td>
<td>49</td>
<td>77</td>
</tr>
<tr>
<td>21-40% of patients</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>41% or more</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total Participants</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

As shown in Table 6.12, the majority of GPs (49/64, 77%) indicated that 1-20% of their female patients brought online medical information to them (the same as male patients). Of the 64 participating GPs, 1 (2%) GP indicated that none of their female patients brought online medical information to them; 12 (19%) GPs indicated that 21-40% of their female patients brought online medical information to them; and 2 (3%) GPs indicated that 41% or more of their female patients brought online medical information to them. Thirteen (20%) GPs indicated that their female patients brought online health information to them more than 20% of the time.

Table 6.12: Number and percentage of GPs who indicated that 0%, 1-20%, 21-40%, and 41% or more of their female patients brought online medical information to them.

<table>
<thead>
<tr>
<th>Percentage Ranges</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>None 0% of patients</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>1-20% of patients</td>
<td>49</td>
<td>77</td>
</tr>
<tr>
<td>21-40% of patients</td>
<td>12</td>
<td>19</td>
</tr>
<tr>
<td>41% or more</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total Participants</td>
<td>63</td>
<td>100</td>
</tr>
</tbody>
</table>
6.1.2 Don't recommend health websites

The proportion of participating male and female GPs who did not recommend websites to the health consumer is displayed in Table 6.13. Of the 72 participating male GPs, 27 (38%) did not recommend websites to the health consumer, compared with 17 (47%) of the 36 participating female GPs. In total, 44 (41%) of the 108 participating GPs did not recommend websites to the health consumer. A higher percentage of female (47%) Gold Coast GPs did not recommend websites than male (38%) Gold Coast GPs.

Table 6.13: Number and percentage of participating male and female GPs who did not recommend websites.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of participating GPs</th>
<th>Number of GPs not recommending websites</th>
<th>Percentage of GPs not recommending websites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>72</td>
<td>27</td>
<td>38</td>
</tr>
<tr>
<td>Female</td>
<td>36</td>
<td>17</td>
<td>47</td>
</tr>
<tr>
<td>Total Participants</td>
<td>108</td>
<td>44</td>
<td>41</td>
</tr>
</tbody>
</table>

As shown in Table 6.14, of the 108 participating GPs, 44 (38%) did not recommend websites to the health consumer. The only GP in the 20-30 year age group who participated in this study indicated that he/she did not recommend websites. In the 31-40 year old age group, 12 (40%) of the 30 GPs indicated that they did not recommend websites. 15 (37%) of the 41 participating GPs in the 41-50 year old age group did not recommend websites, compared with 10 (40%) of the 25 GPs in the 51-60 year old age group. In the over 60 year old age group, 6 (54%) of the 11 participating GPs did not recommend websites. The main age groups that did not recommend websites were indicated as being over 60 year olds (54%).
Table 6.14: Number and percent of participating GPs in each age group who did not recommend websites to the health consumer.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Number of participating GPs</th>
<th>Number of GPs not recommending websites</th>
<th>Percentage of GPs not recommending websites</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30 years</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>31-40 years</td>
<td>30</td>
<td>12</td>
<td>40</td>
</tr>
<tr>
<td>41-50 years</td>
<td>41</td>
<td>15</td>
<td>37</td>
</tr>
<tr>
<td>51-60 years</td>
<td>25</td>
<td>10</td>
<td>40</td>
</tr>
<tr>
<td>Over 60 years</td>
<td>11</td>
<td>6</td>
<td>54</td>
</tr>
<tr>
<td>Total Participants</td>
<td>108</td>
<td>44</td>
<td>41</td>
</tr>
</tbody>
</table>

As displayed in Table 6.15 the number of participating GPs in each experience group who did not recommend websites to the health consumer is presented. In the more experienced group (> 10 years) 36 (41%) of the 88 participating GPs did not recommend websites compared with 8 (40%) of the 20 participating GPs in the less experienced group (< 10 years). It is indicated that fewer GPs in the ‘less experienced’ group did not recommend websites than the group which has ‘more experienced’ as a general practitioner.

Table 6.15: Number and percent of participating GPs in each experience group who did not recommend websites to the health consumer.

<table>
<thead>
<tr>
<th>Experience</th>
<th>Number of participating GPs</th>
<th>Number of GPs not recommending websites</th>
<th>Percentage of GPs not recommending websites</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 10 years</td>
<td>88</td>
<td>36</td>
<td>41</td>
</tr>
<tr>
<td>&lt; 10 years</td>
<td>20</td>
<td>8</td>
<td>40</td>
</tr>
<tr>
<td>Total Participants</td>
<td>108</td>
<td>44</td>
<td>41</td>
</tr>
</tbody>
</table>

As shown in Table 6.16, the main reasons why participating GPs chose not to recommend websites to the health consumer is indicated. The four main reasons for not recommending websites are, (1) not having enough time to view and read all the content - 23/44, 52% (2) wanting to personally discuss with the patient health information – 11/44, 25%, (3) 5/44, 11% and (4) biased information displayed – 2/44, 5%. Together these four reasons accounted for 70% of the reasons why GPs choose not to recommend health websites.
Table 6.16: Number and percent of participating GPs who selected each reason as being the main reason they chose not to recommend websites to the health consumer.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number of GPs</th>
<th>% of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>The websites are not generally accredited by a professional organisation</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>I do not have time to view and read all of the content contained within the medical website</td>
<td>23</td>
<td>52</td>
</tr>
<tr>
<td>I don’t know whether or not the content is reliable information</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>I am concerned that my patients may misinterpret the content in the medical websites</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I find that recommending medical websites has a negative impact on the doctor-patient relationship</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>I would prefer to personally discuss with my patients any medical intervention or treatment</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>I am concerned that medical websites may be sponsored by pharmaceutical companies and so may display biased content information</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>Total Participants</td>
<td>44</td>
<td>100</td>
</tr>
</tbody>
</table>

**Objective 3:** To investigate and ascertain the level of influence Pharmaceutical Companies have on GPs practices pertaining to the recommendation of health websites to the health consumer.

As displayed in Table 6.17, forty-seven percent (30/64) of participating GPs (who recommend health websites) thought that up to 20% of the websites they recommended were sponsored by pharmaceutical companies. Of the participating GPs who responded, 26 (41%) GPs thought that none of the recommended websites were pharmaceutically sponsored; 6 (9%) thought that 21-40% of the recommended websites were pharmaceutically sponsored; and 2 GP (3%) thought that over 40% of the websites they recommended were pharmaceutically sponsored.
Table 6.17: Number and percentage of participating GPs who indicated that 0%, 1-20%, 21-40%, and over 40% of the medical websites they recommended were sponsored by pharmaceutical companies.

<table>
<thead>
<tr>
<th>Percentage Ranges</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>26</td>
<td>41</td>
</tr>
<tr>
<td>1-20%</td>
<td>30</td>
<td>47</td>
</tr>
<tr>
<td>21-40%</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Over 40%</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total Participants</td>
<td>64</td>
<td>100</td>
</tr>
</tbody>
</table>

As displayed in Table 6.18, over 70% of the GPs in the age range 31-40 years had been offered incentives to recommend pharmaceutically sponsored websites. Of the participating 68 GPs (all participants were asked to complete associated questions, regardless of answering no to recommending websites), none of the participating GPs in the 20-30 year old age group was offered incentives to recommend pharmaceutically sponsored websites. In the 41-50 year old age group 60% (9) of the GPs had been offered incentives and in the 51-60 year old age group, 56% (10) of the GPs had been offered incentives. Eight (13%) GP in the over 60 year old age group had been offered incentives to recommend websites to their patients.

Table 6.18: Number and percent of participating GPs in each age group who had been offered incentives by pharmaceutical companies to recommend websites.

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number of participating GPs</th>
<th>Number of GPs offered incentives</th>
<th>Percentage of GPs offered incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-30 years</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>31-40 years</td>
<td>26</td>
<td>20</td>
<td>77</td>
</tr>
<tr>
<td>41-50 years</td>
<td>15</td>
<td>9</td>
<td>60</td>
</tr>
<tr>
<td>51-60 years</td>
<td>18</td>
<td>10</td>
<td>56</td>
</tr>
<tr>
<td>Over 60 years</td>
<td>8</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td>Total Participants</td>
<td>68</td>
<td>40</td>
<td>59</td>
</tr>
</tbody>
</table>

As displayed in Table 6.19, more female than male GPs reported being offered incentives by pharmaceutical companies to recommend websites. Of the participating male GPs, 50% (24) had been offered incentives to recommend pharmaceutically sponsored websites, compared to 80% (16) of participating female GPs.
Table 6.19: Number and percentage of male and female participating GPs who had been offered incentives by pharmaceutical companies to recommend websites.

<table>
<thead>
<tr>
<th>Gender</th>
<th>Participating GPs</th>
<th>Number of GPs offered incentives</th>
<th>Percentage of GPs offered incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>48</td>
<td>24</td>
<td>50</td>
</tr>
<tr>
<td>Female</td>
<td>20</td>
<td>16</td>
<td>80</td>
</tr>
<tr>
<td>Total Participants</td>
<td>68</td>
<td>40</td>
<td>59</td>
</tr>
</tbody>
</table>

As indicated by Table 6.20, fifty-seven GPs in the more experienced group 56% (32) had been offered incentives to recommend websites compared with 72% (8) of the 11 GPs in the less experienced group. In total, 40 (59%) of the 68 participating GPs had been offered incentives to recommend websites. More GPs in the less experienced group had been offered incentives by pharmaceutical companies than GPs in the more experienced group. This is interesting because it is the opposite of what you would expect: i.e. GPs who had been practicing for longer would have been more likely to have been offered incentives.

Table 6.20: Number and percentage of GPs in each experience group who had been offered incentives by pharmaceutical companies to recommend websites.

<table>
<thead>
<tr>
<th>Experience</th>
<th>Participating GPs</th>
<th>Number of GPs offered incentives</th>
<th>Percentage of GPs offered incentives</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;10 years</td>
<td>57</td>
<td>32</td>
<td>56</td>
</tr>
<tr>
<td>&lt;10 years</td>
<td>11</td>
<td>8</td>
<td>72</td>
</tr>
<tr>
<td>Total Participants</td>
<td>68</td>
<td>40</td>
<td>59</td>
</tr>
</tbody>
</table>

The most common reasons given by GPs recommending pharmaceutically sponsored websites is displayed in Table 6.21. The top three reasons were: (1) most relevant information -- 24/68, 35%, (2) not having time to view others -- 16/68, 24% and (3) felt content was professionally reviewed -- 10/68, 15%. Together these three reasons accounted for over 70% of the GPs’ reasons for recommending pharmaceutically sponsored websites.
Table 6.21: Number and percent of participating GPs who indicated each reason as their main reason for recommending pharmaceutically sponsored websites to health consumers.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>The website's content is professionally reviewed and quality assured by the pharmaceutical company</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>The website has the most relevant information for my patients</td>
<td>24</td>
<td>35</td>
</tr>
<tr>
<td>I believe the drugs/products they offer are the best on the market</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>The pharmaceutical reps offer me rewards/incentives for using their website</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I do not have the time to view other medical website alternatives</td>
<td>16</td>
<td>24</td>
</tr>
<tr>
<td>The website has been referred to me by my professional peers/colleagues</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>Other</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td><strong>Total Participants</strong></td>
<td><strong>68</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The most common reasons by GPs for not recommending pharmaceutically sponsored websites are displayed in Table 22. The top three reasons were: (1) not having enough time to read the information – 26% (18/68) (2) questioning the motives of pharmaceutical companies – 22% (15/68) and (3) having alternative websites – 21% (14/68). Together these three reasons accounted for over 60% of the GPs’ reasons for not recommending pharmaceutically sponsored websites.
Table 6.22: Number and percent of participating GPs who indicated each reason as their main reason for not recommending pharmaceutically sponsored websites to health consumers.

<table>
<thead>
<tr>
<th>Reasons</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>The website's content is not professionally reviewed and quality assured</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>I question the motives behind pharmaceutically sponsored sites</td>
<td>15</td>
<td>22</td>
</tr>
<tr>
<td>I don't have the time to read all the information on the website</td>
<td>18</td>
<td>26</td>
</tr>
<tr>
<td>I don't know if the website is pharmaceutically sponsored or not</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>I have other alternative websites I recommend</td>
<td>14</td>
<td>21</td>
</tr>
<tr>
<td>It is against my personal principles to recommend pharmaceutically sponsored websites</td>
<td>6</td>
<td>9</td>
</tr>
<tr>
<td>It is against my professional ethics to recommend pharmaceutically sponsored websites</td>
<td>7</td>
<td>10</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total Participants</strong></td>
<td><strong>68</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

The most commonly selected incentives offered to GPs are presented in Table 6.23.

The three reasons were: (1) stationery – 29% (20/68), (2) price incentives of pharmaceutical products – 19% (13/68), and (3) gifts and novelty items – 19% (13/68). Together these three accounted for over 60% of the incentives offered to GPs. These incentives were offered to GPs in an attempt to get them to recommend pharmaceutically sponsored websites to the health consumer.

Table 6.23: Number and percent of participating GPs who selected each incentive category as being the main incentive offered to them by pharmaceutical companies to recommend websites to health consumers.

<table>
<thead>
<tr>
<th>Incentives offered</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entertainment</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Attending local and overseas conferences</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Professional connection and networking</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Subsidised local and overseas holidays</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Price incentives on the purchase of pharmaceutical products</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>Direct financial incentives</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Gifts and novelty items</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>Stationery</td>
<td>20</td>
<td>29</td>
</tr>
<tr>
<td><strong>Total Participants</strong></td>
<td><strong>68</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>
As displayed in Table 6.24, of the 68 participating GPs, 20 (29%) reported that none of the pharmaceutical companies they deal with offer incentives to recommend websites; 3 (44%) GPs reported that 1-20% of the companies they deal with offer them incentives to recommend websites; 10 GPs (15%) reported that 21-40% of the companies they deal with offer them incentives to recommend websites; and 8 GPs (12%) indicated that over 40% of the companies they deal with offer them incentives to recommend websites.

Table 6.24: Number and percentage of participating GPs who indicated that 0%, 1-20%, 21-40%, and over 40% of the pharmaceutical companies they deal with offered them incentives to recommend their websites.

<table>
<thead>
<tr>
<th>Percentage Ranges</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>20</td>
<td>29</td>
</tr>
<tr>
<td>1-20%</td>
<td>30</td>
<td>44</td>
</tr>
<tr>
<td>21-40%</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td>Over 40%</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Total Participants</td>
<td>68</td>
<td>100</td>
</tr>
</tbody>
</table>

**Objective 4:** To investigate GPs understanding and their conceptualisation pertaining to levels of reliability, interactivity and usability (user control) components associated with the health websites they use and recommend to health consumers.

A question was proposed in an attempt to discover what percentage of GPs understand the level of reliability and quality assurance associated with the health websites they recommend to the health consumer. Of the 90 participating GPs who responded to this question, 62 (69%) indicated that they did understand the level of reliability and quality assurance throughout a health website.

In relation to what proportion of the health websites that GPs recommend to the health consumer are personally checked to ensure the quality of information is displayed in Table 6.25. Of the 90 participating GPs, 5 (6%) indicated that they checked none of the websites before recommending; 10 (11%) GPs reported that they
checked 1-20% of the websites before recommending them; 23 (26%) GPs indicated that they checked 21-40% of the websites before recommending them, and 52 GPs (58%) indicated that they checked more than 40% of the websites they recommended. The majority of participating GPs checked over 40% of the websites that they recommended for reliability levels.

Table 6.25: Number and percentage of participating GPs who indicated that they checked the quality of information for 0%, 1-20%, 21-40%, and over 40% of the websites that they recommend.

<table>
<thead>
<tr>
<th>Percentage Ranges</th>
<th>Number of GPs</th>
<th>Percentage of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>1-20%</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>21-40%</td>
<td>23</td>
<td>26</td>
</tr>
<tr>
<td>Over 40%</td>
<td>52</td>
<td>58</td>
</tr>
<tr>
<td>Total Participants</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>

As displayed in Table 6.26, sixty-one percent (55/90) of GPs indicated that the main method they used to assess reliability of websites was to view the content personally.

Table 6.26: Number and percent of participating GPs who indicated that each method of determining reliability was the main method that they used.

<table>
<thead>
<tr>
<th>Method used</th>
<th>Number of GPs</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>I consider websites to be reliable if I have personally reviewed the content</td>
<td>55</td>
<td>61</td>
</tr>
<tr>
<td>I consider websites to be reliable if they are authored by pharmaceutical companies</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>I consider websites to be reliable if they have quality assurance control seals</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>I consider websites to be reliable if they are recommended by the AMA</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>I consider websites to be reliable if they are recommended by my professional peers</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>I consider websites to be reliable if they are authored by a professional GP</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>Total Participants</td>
<td>90</td>
<td>100</td>
</tr>
</tbody>
</table>
As displayed in 6.27, specific reliability components and to what degree do GPs understand with regards to their impact on the reliability of a website are presented. These eight reliability components are: authority, accuracy, objectivity, currency, intended audience, coverage, confidentiality, and justifiability (see Appendix 1 for defining qualities of each reliability component). A higher percentage of GPs indicated an understanding of authority, accuracy, objectivity, and currency, but not of intended audience, coverage, confidentiality or justifiability.

Of the 90 participating GPs, 50 (56%) indicated that they understood authority (or what constituted authority); 54 (60%) indicated that they understood accuracy; 47 (52%) indicated that they understood objectivity; 52 (58%) indicated that they understood currency; 26 (29%) indicated that they understood intended audience; 26 (29%) indicated that they understood coverage; 24 (27%) indicated that they understood confidentiality; and 14 (16%) indicated that they understood justifiability.

Table 6.27: Number and percent of participating GPs who indicated that they understood each specific reliability component.

<table>
<thead>
<tr>
<th>Reliability Component</th>
<th>Number of participating GPs</th>
<th>Number of GPs who indicated an understanding</th>
<th>Percent of GPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Authority</td>
<td>90</td>
<td>50</td>
<td>56</td>
</tr>
<tr>
<td>Accuracy</td>
<td>90</td>
<td>54</td>
<td>60</td>
</tr>
<tr>
<td>Objectivity</td>
<td>90</td>
<td>47</td>
<td>52</td>
</tr>
<tr>
<td>Currency</td>
<td>90</td>
<td>52</td>
<td>58</td>
</tr>
<tr>
<td>Intended Audience</td>
<td>90</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td>Coverage</td>
<td>90</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td>Confidentiality</td>
<td>90</td>
<td>24</td>
<td>27</td>
</tr>
<tr>
<td>Justifiability</td>
<td>90</td>
<td>14</td>
<td>16</td>
</tr>
</tbody>
</table>

The results of GP understanding pertaining to the eight reliability components are presented in Table 6.28. These eight reliability components are: authority, accuracy, objectivity, currency, intended audience, coverage, confidentiality, justifiability (see Appendix 1 for defining qualities of each reliability component). Out of the 90 participating GPs, 60 (67%) were male and 30 (33%) were female. A higher
percentage of male GPs demonstrated the highest overall percentage of reliability component understanding (as displayed in 6.28). Statistics further highlight that GPs who are aged 51 – 60 and who have had 10 years or more experience represented a higher percentage of reliability component understanding.

Table 6.28: Indications of highest percentages related to reliability component understanding indicated by gender, age and years of experience.

<table>
<thead>
<tr>
<th>Components</th>
<th>Number of participants</th>
<th>Indicating an understanding of</th>
<th>Indicating an understanding of</th>
<th>Indicating an understanding of</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>males + females</td>
<td>Highest Indicators by:</td>
<td>Highest Indicators by:</td>
<td>Highest Indicators by:</td>
</tr>
<tr>
<td>Reliability</td>
<td>n = 90 (M = 67%, F = 33%)</td>
<td>Gender (M = n/60, F = n/30)</td>
<td>Age *</td>
<td>Years of experience +</td>
</tr>
<tr>
<td>1. Authority</td>
<td>Males = 60 Females = 30</td>
<td>Males = 39 (65%) Females = 11 (37%)</td>
<td>41 – 50 = 28/35 (80%)</td>
<td>&gt; 10 years = 44/60 (73%)</td>
</tr>
<tr>
<td>2. Accuracy</td>
<td>Males = 60 Females = 30</td>
<td>Males = 40 (67%) Females = 14 (47%)</td>
<td>41 – 50 = 29/35 (83%)</td>
<td>&gt; 10 years = 51/60 (85%)</td>
</tr>
<tr>
<td>3. Objectivity</td>
<td>Males = 60 Females = 30</td>
<td>Males = 33 (55%) Females = 14 (47%)</td>
<td>60+ = 8/12 (67%)</td>
<td>&gt; 10 years = 30/60 (50%)</td>
</tr>
<tr>
<td>4. Currency</td>
<td>Males = 60 Females = 30</td>
<td>Males = 40 (67%) Females = 12 (40%)</td>
<td>51 – 60 = 19/30 (63%)</td>
<td>&gt; 10 years = 45/60 (75%)</td>
</tr>
<tr>
<td>5. Intended Audience</td>
<td>Males = 60 Females = 30</td>
<td>Males = 16 (27%) Females = 10 (33%)</td>
<td>51 – 60 = 19/30 (63%)</td>
<td>&gt; 10 years = 24/60 (40%)</td>
</tr>
<tr>
<td>6. Coverage</td>
<td>Males = 60 Females = 30</td>
<td>Males = 16 (27%) Females = 10 (33%)</td>
<td>51 – 60 = 16/30 (48%)</td>
<td>&gt; 10 years = 19/60 (32%)</td>
</tr>
<tr>
<td>7. Confidentiality</td>
<td>Males = 60 Females = 30</td>
<td>Males = 15 (25%) Females = 9 (30%)</td>
<td>41 – 50 = 11/35 (31%)</td>
<td>&lt; 10 years = 19/30 (63%)</td>
</tr>
<tr>
<td>8. Justifiability</td>
<td>Males = 60 Females = 30</td>
<td>Males = 9 (15%) Females = 5 (17%)</td>
<td>51 – 60 = 8/30 (17%)</td>
<td>&lt; 10 years = 10/30 (33%)</td>
</tr>
</tbody>
</table>

* 21 – 30 (n = 2), 31 – 40 (n = 11), 41 – 50 (n = 35), 51 – 60 (n = 30), 60+ (n = 12)
+ >10 years (n = 60), <10 years (n = 30)

The results of GP understanding pertaining to the four interactive components are presented in Table 6.29. These four interactive components are: multimodality, networkability, temporal flexibility and message tailoring capabilities (see Appendix 2 for defining qualities of each interactive component). Of the 90 participating GPs, 58 (64%) indicated an overall understanding of interactive technology. Table 6.29 represents that a higher percentage of male GPs demonstrated the highest overall percentage of interactive component understanding. Statistics further highlight that
GPs who are aged 41 – 50 and who have had 10 years or more experience represented a higher percentage of interactive component understanding.

Table 6.29: Indications of highest percentages related to interactive component understanding indicated by gender, age and years of experience.

<table>
<thead>
<tr>
<th>Components</th>
<th>Number of participants males + females</th>
<th>Indicating an understanding of component</th>
<th>Indicating an understanding of component</th>
<th>Indicating an understanding of component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(M = 60%, F = 33%)</td>
<td>Highest indicators by:</td>
<td>Highest indicators by:</td>
<td>Highest indicators by:</td>
</tr>
<tr>
<td>Interactivity</td>
<td></td>
<td>Gender (M = 60, F = 30)</td>
<td>Age *</td>
<td>Years of experience +</td>
</tr>
<tr>
<td>1. Multimodality</td>
<td>Males = 60</td>
<td>Males = 14 (23%)</td>
<td>60+ = 5/12 (42%)</td>
<td>&gt; 10 years = 15/60 (25%)</td>
</tr>
<tr>
<td></td>
<td>Females = 30</td>
<td>Females = 4 (13%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Networkability</td>
<td>Males = 60</td>
<td>Males = 17 (28%)</td>
<td>41 – 50 = 14/35 (40%)</td>
<td>&gt; 10 years = 20/60 (33%)</td>
</tr>
<tr>
<td></td>
<td>Females = 30</td>
<td>Females = 9 (30%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Temporal</td>
<td>Males = 60</td>
<td>Males = 8 (13%)</td>
<td>41 – 50 = 8/35 (23%)</td>
<td>&gt; 10 years = 9/60 (15%)</td>
</tr>
<tr>
<td>Flexibility</td>
<td>Females = 30</td>
<td>Females = 2 (10%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Message</td>
<td>Males = 60</td>
<td>Males = 10 (17%)</td>
<td>41 – 50 = 9/35 (26%)</td>
<td>&lt; 10 years = 9/30 (30%)</td>
</tr>
<tr>
<td>Tailoring</td>
<td>Females = 30</td>
<td>Females = 7 (23%)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 21 – 30 (n = 2), 31 – 40 (n = 11), 41 – 50 (n = 35), 51 – 60 (n = 30), 60+ (n = 12)
+ >10 years (n = 60), <10 years (n = 30)

The results of GP understanding pertaining to the three usability components are presented in Table 6.30. These three usability components are: health literacy, navigation and interface engagement – educational. (see Appendix 3 for defining qualities of each usability component). Table 6.30 represents the combination of results in relation to the various indicators searched for by the researcher. Of the 90 participating GPs, 40 (44%) indicated an overall understanding of usability. Table 6.30 represents that a higher percentage of male GPs demonstrated the highest overall percentage of usability component understanding. Statistics further highlight that GPs who are aged 60 + and who have had 10 years or more experience represented a higher percentage of usability component understanding.
Table 6.30: Indications of highest percentages related to usability component understanding indicated by gender, age and years of experience.

<table>
<thead>
<tr>
<th>Components</th>
<th>Number of participants males + females</th>
<th>Indicating an understanding of component</th>
<th>Indicating an understanding of component</th>
<th>Indicating an understanding of component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Highest indicators by:</td>
<td>Highest indicators by:</td>
<td>Highest indicators by:</td>
<td>Highest indicators by:</td>
</tr>
<tr>
<td></td>
<td>males + females</td>
<td>Gender</td>
<td>Age *</td>
<td>Years of experience +</td>
</tr>
<tr>
<td>Usage</td>
<td>n = 90 (M = 67%, F = 33%)</td>
<td>Males = 60</td>
<td>Males = 31 (52%)</td>
<td>Males = 31 (52%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Females = 30</td>
<td>Females = 9 (30%)</td>
<td>Females = 9 (30%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Highest indicators by:</td>
<td>60+ = 10/12</td>
<td>60+ = 10/12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(83%)</td>
<td>(83%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Highest indicators by:</td>
<td>&gt; 10 years = 34/60 (57%)</td>
<td>&gt; 10 years = 34/60 (57%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Health Literacy</td>
<td></td>
<td>Males = 66</td>
<td>Males = 33 (55%)</td>
<td>Males = 33 (55%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Females = 30</td>
<td>Females = 11 (37%)</td>
<td>Females = 11 (37%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Highest indicators by:</td>
<td>51 - 60 = 13/30 (43%)</td>
<td>51 - 60 = 13/30 (43%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Highest indicators by:</td>
<td>&gt; 10 years = 38/60 (63%)</td>
<td>&gt; 10 years = 38/60 (63%)</td>
</tr>
<tr>
<td>2. Navigation</td>
<td></td>
<td>Males = 60</td>
<td>Males = 12 (20%)</td>
<td>Males = 12 (20%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Females = 30</td>
<td>Females = 3 (10%)</td>
<td>Females = 3 (10%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Highest indicators by:</td>
<td>60+ = 5/12</td>
<td>60+ = 5/12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(42%)</td>
<td>(42%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Highest indicators by:</td>
<td>&gt; 10 years = 14/60 (23%)</td>
<td>&gt; 10 years = 14/60 (23%)</td>
</tr>
<tr>
<td>3. Interface</td>
<td></td>
<td>Males = 60</td>
<td>Males = 12 (20%)</td>
<td>Males = 12 (20%)</td>
</tr>
<tr>
<td>Engagement</td>
<td></td>
<td>Females = 30</td>
<td>Females = 3 (10%)</td>
<td>Females = 3 (10%)</td>
</tr>
<tr>
<td>Educational</td>
<td></td>
<td>Highest indicators by:</td>
<td>60+ = 5/12</td>
<td>60+ = 5/12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(42%)</td>
<td>(42%)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Highest indicators by:</td>
<td>&gt; 10 years = 14/60 (23%)</td>
<td>&gt; 10 years = 14/60 (23%)</td>
</tr>
</tbody>
</table>

* 21 - 30 (n = 2), 31 - 40 (n = 11), 41 - 50 (n = 35), 51 - 60 (n = 30), 60+ (n = 12)
+ >10 years (n = 60), <10 years (n = 30)

6.2 Research findings – data discussion

Analysis of the empirical data has presented a profile of Gold Coast GPs who do or do not recommend health websites to the health consumer. The profile gives consideration to three underlying characteristics of the participating GPs, these being; (1) gender, (2) age and (3) years of experience. The following section is an elaboration on these characteristics, presenting associated statistics and how they have interacted with and affected trends associated with a website recommendation. Such elaborations are useful in giving further meaning into the outlined aims and objectives of this study. Furthermore, this initial data will be used further in Chapter 7 to give supporting evidence to the participants’ verbal histories associated with the topic of health website recommendation by Gold Coast GPs.

6.2.1 Data discussion

The Internet is changing the traditional doctor-patient relationship (Eysenbach, 1998). Increasingly, rather than provide information directly to patients, the doctor assists them with health decisions by recommending particular health information.
websites. These recommendations can be thought of as ‘Internet prescriptions’ (Eysenbach, 1998). The implications of recommending online health information is yet to be fully researched, in terms of the economic influences and biased information these health websites may contain. However, increasingly, doctors are adopting the process of recommending or prescribing health websites to educate their patients about particular conditions or diseases, or to help patients cope with their medical conditions. These research statements are supported by the findings throughout this study. In terms of website recommendation trends by Gold Coast GPs, it has been clearly indicated that 59% of participating GPs recommend health websites to their patients during consultations. Sixty-three percent of male GPs, those aged 41 – 50 and those who have been practising for < 10 years are more inclined to recommend a health website.

Decco (2003) suggests that many GPs are reluctant to recommend websites to patients as they remain sceptical about the advantages of using the Internet more actively and are concerned that their patients may turn to websites for information instead of consulting a health professional about potentially serious health conditions. Some doctors who are willing to recommend health websites to patients would only do so if the websites are guaranteed to contain quality content, but many doctors do not have the time or technical expertise for this analysis (Kassirer, 2000; Hart, 2004). GPs frequently express concerns about the validity and accuracy of health information found on the Internet (Akerkar et al., 2004). These research statements are similarly supported by the findings throughout this study. It was indicated in this study that 41% of Gold Coast GPs, who do not recommend websites. Reasons identified in this study were: (1) Limited time to view websites (52%), (2) Prefer to
personally discuss (25%), (3) Reliability issues (11%), and (4) Biased information (5%).

6.2.2 Findings of GPs who do recommend websites

Of the 250 GPs contacted, 108 (43%) returned a completed survey; 72 (67%) were male and 36 (33%) female. The majority of participating GPs were aged 41–50 years (38%, 41/108), and 81% (88/108) had been practising for 10 or more years. Fifty-nine per cent (64/108) of the surveyed GPs reported recommending health websites to their patients during consultations. Of the male GPs, 63% (45/72) indicated that they actively recommend websites, compared with 53% (19/36) of female GPs. The majority of GPs (55%, 35/64) who recommended websites were 41–50 years old, compared with 31% (20/64) of GPs aged 51–60 years. The top four reasons why surveyed GPs (of both sexes) recommend health websites are presented in Table 6.31 and are identified as: (1) Helps to educate patient (63%), (2) Enhances the doctor-patient relationship (26%), (3) Age-appropriate technology (6%) and (4) Treatment orientated (5%). Kosterich (2007) indicates that these results, found throughout this study, are supported and reflected by findings from the International Society for Research on Internet Interventions (2007) which conducted successful trials on the effectiveness of Internet programs for a number of health problems including depression, eating disorders and image dissatisfaction (see Appendix 14).
Table 6.31: General practitioners who do recommend websites - reasons and issues.

<table>
<thead>
<tr>
<th>Reason for recommending</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Helps to educate patient</td>
<td>40</td>
<td>63</td>
</tr>
<tr>
<td>Enhances the doctor–patient relationship</td>
<td>17</td>
<td>26</td>
</tr>
<tr>
<td>Age-appropriate technology *</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Treatment orientated †</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

**Issues for which GPs recommend health websites to patients**

<table>
<thead>
<tr>
<th>Specific diseases</th>
<th>33</th>
<th>51</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention of disease</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>Diet and food intake</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Alternate medicine</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>

**Issues for which the patient brought health website information for discussion**

<table>
<thead>
<tr>
<th>Specific diseases</th>
<th>41</th>
<th>64</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alternate medicine</td>
<td>7</td>
<td>11</td>
</tr>
<tr>
<td>Pharmaceutical drug treatment</td>
<td>5</td>
<td>8</td>
</tr>
<tr>
<td>Prevention of disease</td>
<td>4</td>
<td>6</td>
</tr>
</tbody>
</table>

* The GP's perception that the patient has access to and can use computer technology and the Internet.
† A website recommendation complements the GP's specific medical treatment for the patient.

Thirty-four of the 64 GPs (53%), who indicated that they recommended websites, reported that they recommended websites to 1%–20% of their patients. The majority of GPs (69%) who recommended websites reported that they most often recommended websites to patients aged 26–45 years. Furthermore, the majority of GPs indicated that they recommended websites to 1%–20% of their male patients (53%), and 21%–40% of their female patients (47%). The top four issues for which GPs recommended health websites are presented in table 6.31. These are presented as being: (1) Specific Diseases (51%), (2) Prevention of disease (16%), (3) Diet and food intake (12%) and (4) Alternate medicine (4%).

Seventy-three per cent of the 64 GPs indicated that 1%–20% of their patients asked them to recommend websites. Similarly, 51 GPs (80%) indicated that 1%–20% of their patients brought online health information to them for discussion; this was most often patients aged 26–45 years (59%). Seventy-seven percent of GPs indicated that
1%-20% of their male patients brought online health information to them, while 73% indicated the same proportion for female patients. Eighteen percent of GPs indicated that 21%-40% of their female patients brought online health information to them, while 3% reported that more than 40% of female patients did this. The top four issues for which patients brought health website information to GPs for discussion are presented in table 6.31. These are presented as being: (1) Specific Diseases (64%), (2) Alternate medicine (11%), (3) Pharmaceutical drug treatment (8%) and (4) Prevention of diseases (6%).

These recommendation trends, as demonstrated by participating Gold Coast GPs, align themselves with Hardt and Negri’s (2000) ideology of information delivery in an increasingly global economy. Traditional methods of health/medical information dissemination by the GP to the patient are increasingly being replaced with new forms of information delivery, through what this study has referred to as the ‘Internet Prescription’. Hardt and Negri (2000) postulate that today’s information and communication have come to play a foundational role in capital production and that communication networks, such as the WWW and the Internet, have become the most active terrain of mergers and competition for the most powerful TNCs (pharmaceutical companies). The increasing trends associated with online health information access and delivery by both GPs and health consumers alike, have given rise to competition among global pharmaceutical companies to establish and consolidate quasi-monopolies over new continents of productive networks. These new global networks must be constructed and policed in such a way as to guarantee control, order and profit (Hardt & Negri, 2000).
Informationlation of health services and products have far reaching implications for the global health consumer. Hardt and Negri propose that such profit maximising strategies from dominate North American TNCs – pharmaceutical companies, will continue to develop subordinate economies that will remain inferior in the global health system. In other words, the health consumer will remain largely the passive recipient of ‘controlled’ information, services and products by global pharmaceutical companies.

Hardt and Negri (2000) posit that the rising dominance of service production and the informationlisation of such have made possible a de-territorialisation of information, services and production. Communication and control can be exercised efficiently at a distance and in some cases immaterial products can be transported across the world with minimal delay and expense (Hart & Negri, 2000). Such a decentralisation and global dispersal of productive processes and sites provokes a corresponding centralisation of the control over online health information dissemination and production. Information networks have released global pharmaceutical companies from their territorial constraints insofar as putting them in direct contact with the health consumer and GP regardless of the geographical distance and barriers between them. Such networks will overcome entirely the barriers to circulate and allow ideal ‘friction-free’ capitalism and market control to emerge (Hardt & Negri, 2000).

6.2.4 Findings of GPs who do not recommend websites

Forty-one per cent of the surveyed GPs indicated that they did not recommend websites to their patients. Of these, 38% were male, compared with 47% female. Fifty-two per cent of GPs who do not recommend websites are over 60 years of age. Forty-one per cent of the GPs practising for 10 years or more do not recommend websites, compared with 40% of GPs with < 10 years experience. The top four
reasons why surveyed GPs do not recommend health websites are presented in Table 6.32. These were identified as being: (1) Limited time to view websites (52%), (2) Prefer to personally discuss (25%), (3) Reliability issues (11%) and (4) Biased information (5%).

Table 6.32: General practitioners who do not recommend websites ($n = 44$)

<table>
<thead>
<tr>
<th>Reason for not recommending</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited time to view websites</td>
<td>23</td>
<td>52</td>
</tr>
<tr>
<td>Prefer to personally discuss</td>
<td>11</td>
<td>25</td>
</tr>
<tr>
<td>Reliability issues</td>
<td>5</td>
<td>11</td>
</tr>
<tr>
<td>Biased information</td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

6.2.5 Reliability, interactivity and usability components associated with health websites

The introduction of the computer, and subsequently, the Internet and WWW, into healthcare and medical education has fundamentally changed the description and manipulation of health knowledge and has become the ‘lens’ through which disease and treatment are now viewed. Challenges, from a public health promotion perspective, are associated with a GP’s and health consumer’s ability to successfully evaluate the plethora of online health information. The evaluation process would need to assess any or all of the following: information quality – accuracy and authority of content is of particular relevance; usability issues, such as navigation; site facilities, such as multimodalities, networkability etc; relevance of the material and media to a particular target user group. Physicians need critical appraisal skills to evaluate and determine that the online health information found by a patient is relevant to that patient’s condition and that the website is reliable and user friendly (Silberg, 1997).

There is a growing consensus amongst physicians and health consumers regarding the need to develop and implement critical criteria for the evaluation of health websites.
There is a noticeable absence of any framework that helps guide the conceptualization, design, implementation and evaluation of health websites to allow active users the ability to determine the website's levels of reliability, interactivity and user control (Tilson et al., 2000). Both the empirical and qualitative data generated from this study supports such a research statement. This study has indicated that a number of participating GPs have indicated that they lack the general education associated with understanding the basic reliability, interactive and usability components included throughout health websites they interact with and recommend to their patients. In response to such a research gap and limited understandings, this study has directed specific attention towards the current literature surrounding a number of components, these being; (1) Eight reliability components (authority, accuracy, objectivity, currency, intended audience, coverage, confidentiality, justifiability), (2) Four interactive components (multimodality, networkability, temporal flexibility, message tailoring capabilities) and (3) Three usability components (health literacy, navigation, educational).

Research surrounding reliability, interactivity and usability components suggest that when all are seamless and working together, interactivity, user engagement and connectedness are heightened throughout the health domain, resulting in an increased health promoting capability. Such reliability, interactivity and usability components bring about a number of outcome commonalities, these being; (1) an increase in self-efficacy, (2) the ability to communicate and control information either synchronously or asynchronously, (3) the ability to manipulate text, and (4) the ability to narrow / segment information for a particular audience, target group or individual.
6.3 Conclusion

In relation to this study, of the 90 participating GPs, 67% were male and 33% were female. Male GPs, who are aged 41 - 50, and who have had 10 years or more experience, demonstrated the highest overall percentage of component understanding. A higher percentage of female GPs indicated a better understanding in such reliability components as; intended audience, coverage, confidentiality and justifiability, and in such interactivity components as; networkability and message tailoring capabilities. This study indicates that Gold Coast GPs demonstrate a range of understandings pertaining to a health website’s level of reliability, interactivity and usability components.

Chapter 7 will highlight how the follow-up interviews were structured and implemented in an attempt to further ‘tease out’ information generated from the empirical data. From the data a number of issues and questions emerged which warranted further exploration. In the proceeding pages, discussions will be focussed on presenting a summary and an overall profile of Gold Coast GPs and their associated user trends, influences, motives and understandings associated with the Internet prescription.
CHAPTER SEVEN

...QUALITATIVE RESULTS AND DISCUSSION

217
7.0 Qualitative interviews – introduction and procedure

After conducting the initial survey, further data was collected through semi-structured interviews (see Appendix 9). These interviews served to provide participants opportunities to expand on the responses from the initial surveys. The interview questions were designed to provide a more in-depth understanding of issues associated with the research topic.

7.1 Research findings - data presentation and analysis

The presentation of research data is important as it allows readers to fully enter into the world of those who have been interviewed. Poor presentation by the researcher may lead to a lack of understanding on behalf of the reader. Therefore, research findings will be presented in such a way as to allow for easier reading by those wishing to gain insight into the research. This will be achieved through presenting individual categories and sub-categories and discussing in depth their relationship to the phenomena of influences which motivate website recommendation by the GP.

7.2 Don't recommend health websites to the health consumer

7.2.1. Limited Time – time constraints and increasing work pressures

The most frequently stated reason for GPs not recommending websites to their patients was indicated by GP as having 'limited time' (52%, 23/44) to view websites in an attempt to determine the suitability of the website’s content. It was frequently stated and represented throughout the initial survey that this was the major reason for why GPs do not recommend websites. Further investigations obtained via the interview process, revealed that because they were unable to view the website’s content, GPs were reluctant to recommend out of fear that patients may misinterpret the information. The issue of 'time constraints and increasing work pressures' were
indicated as the major reasons as to why GPs don’t have the time to view a website’s content in an attempt to determine its suitability and reliability for a patient.

One example of where a participant expressed an explicit view, as to the ‘limited time’ experienced by GPs, was demonstrated when participant # 5 was asked the question relating to why choose not to recommend health websites to patients. Participant # 5’s response was,

_The number 1 reason for me, and a number of my colleges, is the standalone fact that we do not have the time to view websites. A GP has an enormous amount of pressure on them to see patients. We are working long hours and have many other considerations we must attend to. Recommending a website is one of those luxuries I don’t have the time for...or given much consideration to. I am very reluctant even when patients ask me to [recommend]. I don’t trust the information on the WWW. If I can’t fully read all the information on the site I would not feel comfortable in recommending it to them. Another point is that the websites are continually changing...I don’t have the time to view them every week to ensure that they are reliable source of information. There are concerns that doctors maybe held liable if we recommend a website which is interpreted incorrectly by the patient or has false information. There is a duty of care GPs must consider when using the WWW and the Internet in health care delivery._

Sometimes the concept of ‘limited time’ was less explicit and little concern was demonstrated by a GP as to the reliability of information patients were accessing. Participant # 9 communicated that they didn’t explicitly recommend a website, but rather encouraged a search by the patient,
I haven't recommended a specific website, apart from asking people to use Google and put a name in to do some further research into their own health condition. I really don't have the time....work pressures are building all the time. Expectations on GPs are increasing and the amount of paper work we get is enormous. I don't recommend a website as such but encourage my patients to be more proactive in their own health care. I think that this process helps them answer some of their questions. I always encourage my patients to bring web information to me for further discussion.

Further exploration established that participant # 1 expressed the view that 'limited time' was at a higher level of importance, in terms as to why they did not recommend websites. To some extent this participant's view demonstrates the traditional style of thinking when it comes to health care delivery.

Mainly I don't recommend websites because I haven't read the website and that I don't know what is on the site, in terms of the content. Because of my professional commitments and committees I am on I don't have the time to find appropriate websites which will adequately address all of my patient's needs and questions about their health conditions. I am also concerned about the level of reliability throughout health websites and therefore tend to steer away from recommending them. I also feel that there is a lot of misinformation and again, I don't have the time to personally view and read to ensure that the material and content on the website is valid information. The pressure on GPs is increasing.

Additional to the idea of exploring the issue of 'limited time' there were other factors that tended to influence GPs with regards to the website recommendation. Whether
they existed separately or in association with others, these influences affected the
general practitioners level of autonomy during interviews. One such influence was
the traditional concept of the doctor – patient relationship, insofar as preferring to
personally discuss the patients’ health conditions rather than recommend a website to
them.

7.2.2. Prefer to personally discuss – a collaborative approach to health care
An emerging category, both throughout the initial survey and the interview process
was attention to the traditional health care delivery method (i.e. face-to-face
consultation). In the initial survey, 25% of participants indicated that they preferred to
personally discuss with their patients rather than refer them onto a website to answer
their questions. Upon closer scrutiny, it was indicated that the act of a face-to-face
consultations was viewed as an important element for not only future GPs but also for
those who have been working in health care for many years. Further exploration into
this issue (prefer to personally discuss) revealed that some GPs preferred the
traditional consultation method over the more modern, e-health care delivery. The
reason for this was made very clear by participant # 6, who states,

*I personally view the onset of the Internet as creating a very different
relationship with our patients. I see that it may lead to a very impersonal
relationship, and as such I don’t recommend websites. I find that my
patients respond a lot better to a face-to-face consultation with me rather
than searching through web pages to find answers to their health concerns.
The Internet is creating a very impersonal approach to health care
delivery. If anything it should only be used as a supplementary tool. I see
personal discussions with patients as a way of creating a positive form of
doctor – patient collaboration. I prefer to personally discuss with my
patients their condition and questions, [in terms] of treatments, education and drug therapies.

More explicitly, participant # 15 saw the act of personally discussing health care as a prime opportunity to create a more collaborative approach to the doctor – patient relationship. The following was indicated by participant # 15, who states,

*I have been a practising GP for over 20 years. I would prefer to personally discuss with my patients their health conditions, rather than recommend a website. I deal with a lot of elderly patients who have little knowledge about the Internet and find new technology a little disconcerting. I would think that doctors would only recommend websites as a means of supplementing the information they have given their patients. Just recommending a website is inappropriate...for me anyway. A personal, one-on-one consultation, gives a more collaborative approach to health care delivery than an Internet website.*

7.2.3. Reliability issues – lack of trust concerning online health information

A category which underpins this study is the concept of ‘reliability’ associated with health websites. One major aim and objective of this study was to determine what Gold Coast GPs constitute and understand in relation to the term ‘reliability’, and how it relates to the websites they are interacting with and recommending. ‘Reliability’ can be defined as information which is from a credible and authentic source. In relation to websites and to a larger extent this study, ‘reliability’ has eight reliability components which need to be considered (as presented in Table 6.28). A reoccurring theme that emerged, in relation to why GPs don’t recommend health websites, was pertaining to ‘reliability issues’. It was indicated that 11% (5/44) of participating GPs did not recommend health websites due to this reason.
Participant # 8 indicated a great deal of concern over the growing trend of a website recommendation and associated reliability issues by stating,

*There is so much misinformation out there on the WWW. I actually tell my patients that they need to be extremely careful when accessing online health information. I continually tell them that the majority of online health information is not from a credible or reliable source. On many occasions there is no way of telling if it is reliable medical information. I would prefer them to bring the information to me and I can determine whether or not the information is from a reliable source. I have viewed a number of websites with the intention of recommending them to my patients, but always find a number of contentious issues in relation to the information contained throughout the website. Websites have many layers and I don't have the time to read all the pages.*

For those participants who don’t recommend health websites, the issue of trust associated with online health information was evident throughout the majority of the recorded interviews. When the issue of ‘reliability’ was explored in more depth, many GPs who indicated that they don’t recommend health websites stated similarly to that of participant # 2, who stated,

*Information that is found on the Internet can be very dangerous. Patients at times misinterpret the information much to their own detriment. On a number of occasions I have had patients come to me who have followed online health information which has resulted in making their condition worse. I am not saying that all websites are unreliable but more to the point, that health websites should be viewed with a degree of caution. Reliability issues surrounding health websites does not create a great deal of trust in*
Reliability issues tied in closely with the next major category, that is, biased information presented on health websites. GPs expressed a concern as to growing biased information (from pharmaceutical companies) found on the WWW and the Internet.

7.2.4. Biased information – influenced by pharmaceutical companies

Another category which relates closely with the concept of ‘reliability issues’, is the idea of ‘biased information’. Biased information came to be seen as online health information which has been influenced by pharmaceutical companies in terms of promoting a particular drug or treatment option. A number of participants had similar responses. Participant #14, in particular, stated,

I don’t recommend a website primarily because I don’t know the sponsorship and the ‘behind the scenes’ marketing tactics undertaken by drug companies. Many patients come to me asking for particular drugs for their condition that they have read about on the Internet. They can become quite upset when I prescribe them another similar, generic drug. Drug companies are infiltrating the WWW and associated web pages with biased information... I can’t prove this but it is a strong suspicion of mine. As such I don’t recommend any web pages to my patients.

In another, similar statement by a GP, it was indicated that ‘biased information’ was a primary concern. Participant #5 remarks,

Much of the information I read from the Internet has some form of sponsorship, either directly or indirectly. What I mean by this is that
websites need money to operate and as such they approach or are created by a company that wishes to market their products...in this case pharmaceutical drugs. The Internet...in my opinion.... Is another tool for large drug companies to peddle their products. I notice that there is an increasing amount of drug sponsored and biased information filtering through into doctor’s offices, surgeries and our general emails. Drug companies are definitely using every possible means to promote their products. I am yet to find any website which does not have an ulterior motive behind it. As a matter of personal ethics, myself and my professional peers choose not to recommend websites due to the influence of pharmaceutical companies.

The issue of ‘biased information’ was evident throughout another GP’s statement. Participant # 3 was recorded as saying,

"Today many GPs take incentives from pharmaceutical companies. This practice still exists...although regulations have been put in place to tighten this up. On occasions I have been offered incentives to recommend websites to my patients but I am somewhat hesitant because of the level of biased information displayed...it really comes down to the GPs moral stance on the situation....do they really feel the products they are using are the best or have they been encouraged by pharmaceutical companies to prescribe these drugs to the health consumer?"

Comments, such as those above, support Hardt and Negri’s (2000) contention that TNCs, such as global pharmaceutical companies, are using the WWW and the Internet to control the knowledge of the health consumer. Hardt and Negri propose that communication technologies are increasingly changing the social landscape and information dissemination. Hardt and Negri refer to modern forms of communication...
as 'capitalist technologies', with their main aim to control society and global health markets.

Global pharmaceutical companies (TNCs) have realised that communication technologies increase global market opportunities. The increasing use and ease of access to online health information by the GP and health consumer, has opened up new means and opportunities for global pharmaceutical companies to market their information, products and services. Hardt and Negri (2000) argue that information and communication technologies have created *immaterial labor* – that is, labor that produces an immaterial good, such as a service, a cultural product, knowledge, or communication. Such labouring practices tend toward the model of information and communication technologies (Hardt & Negri, 2000). Negri (2004) maintains that the transition from material to immaterial production means that the main instrument of production is the worker’s brain. Through the advances of modern communication networks, it is more real to claim that capitalism now have the means to own the ‘brains’ of the multitude (the health consumer), and consequently, influencing the website recommendations from GP to the health consumer.

7.3 **Do recommend health websites to the health consumer**

7.3.1 *Helps to educate patient - more knowledgeable about their condition.*

One category which is supported by the literature and has been found to be a primary reason as to why Gold Coast GPs (63%, 40/64) do recommend health websites was that of doctors believing the act of an Internet prescription would help educate their patients. This category was also supported by the initial survey instrument and was indicated by participating GPs as the number one reason for why they recommended websites to the health consumer. Through further questioning, a number of
participating GPs indicated that when websites are used correctly, in a controlled fashion, they can be a source of additional, supplementary information. When explored further, the reason for recommending websites to educate the patient was made clearer. Participant # 10 added,

I have a number of websites I recommend to my patients. They are related to a number of common health conditions that patients come to me about. They are a good source of additional information which patients can read in their own time and have hyper links to other similar sites. I have had some positive feedback in relation to a website recommendation, in terms of patients feeling more knowledgeable about their condition. The consultation time is shorter and they get more information.

Another GP expressed a very positive attitude towards the act of recommending a health website to patients. Participant # 11 stated,

At first I was a little hesitant to recommend anything from the Internet. But once I got time to view a number of reputable sites, I found that the websites could be a valuable source of health information. The more knowledgeable a patient is about their health condition the more empowered they feel. Some of my patients want me to recommend to them a website which will give them further information about their health condition......education, treatment or prevention.

One GP made a very insightful comment in relation to the issue of patient education and website recommendation. Participant # 8 stated,

Knowledge is power. This is particularly true when it comes to informing patients about their medical conditions. Patients are becoming more
knowledgeable about their own health and how to manage their own health care. The WWW is responsible for this. As a result, GPs need to change their practices when dealing with their patients. Patients are coming to the surgery more knowledgeable...I have been in practice for over 20 years and have noticed a sharp incline as to the number of patients bringing online health information to me for consultation.

7.3.2 Enhances the doctor–patient relationship - allowing patients to feel more involved in their own health care

Much of this study has been directed towards uncovering the influences which directly or indirectly motivate Gold Coast GPs to recommend a health website to the health consumer. One major category that has emerged throughout the literature and has been a guiding aim and objective throughout this study is the level to which an Internet Prescription may or may not enhance the doctor–patient relationship. Furthermore, questions arise as to whether or not this act will eventually affect the traditional doctor–patient relationship. Twenty-six per cent (17/44) of GPs studied, who stated that they do recommend websites, strongly indicated that they felt website recommending significantly and positively influenced their relationship with their patients. This was stated by one GP, who was very passionate about such an approach to modern health care delivery. When questioned in more depth, as to how this practice influences the doctor–patient relationship. Participant # 7 stated,

I see a website recommendation as an important addition to my approach to health care delivery. I use this technology as a way of allowing my patients to feel more involved in their own health care. I have been doing this practice over the last few years and have found that it has only enhanced the relationship I have with my patients. Not only do I recommend particular websites but I also encourage my patients to search
Similarly, other GPs indicated that they have recommended a website in a direct attempt to promote or enhance the doctor-patient relationship. One particular GP was recorded as saying,

*There are so many benefits to sharing health information with the patient. In my opinion a more informed [knowledgeable] patient is someone who will take greater responsibility for their own and that of others' health conditions. There are many websites which help engage the patients and offer a great deal of relevant information. I don't think that health websites should be avoided but rather they should be used to educate our patients.*

(Participant #3)

Of those GPs who did recommend health websites, it was similarly shared, in terms of the ideas surrounding this approach to health care delivery. Both the supporting literature, the initial survey (quantitative) and the follow up interviews (qualitative) indicated that the act of an Internet prescription is in fact enhancing the relationship between GPs and their patients. The increased access to health information, which was once inaccessible, has created an ‘empowered’ patient, upon which, many institutions now refer to patients as the ‘health consumer’.

This study has highlighted that the doctor-patient relationship is undergoing considerable change as a direct result of the WWW and the increased access to online health information. As has been identified previously in this chapter, the increasing marketisation of medicine and the consequent emphasis on ‘consumerism’ have the potential to undermine conventional notions of expertise. Specifically, there is a new
emphasis on choice, autonomy and decision-making on the part of patients, who it could be argued, are better educated than their counterparts in previous generations and who have far greater access to medical knowledge and information via the Internet and the WWW. Buetow (1998) further conceptualises this movement, from paternalistic to consumerist expert—lay relationship (see table 7.1), and credits it to the evolving importance of the Internet throughout modern day health care delivery.

Table 7.1: Paternalism and Consumerism in Expert—Lay Relationships.

<table>
<thead>
<tr>
<th>Role of</th>
<th>PATERNALISM</th>
<th>CONSUMERISM</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient</td>
<td>Passive:</td>
<td>Active:</td>
</tr>
<tr>
<td></td>
<td>• Accept the superior knowledge and skill of the doctor.</td>
<td>• Communicate preferred interventions to the doctor.</td>
</tr>
<tr>
<td></td>
<td>• Follow doctors’ orders.</td>
<td>• Make and take responsibility for decisions.</td>
</tr>
<tr>
<td>Doctor</td>
<td>Active:</td>
<td>Passive:</td>
</tr>
<tr>
<td></td>
<td>• Draw upon knowledge and use skills to act in the patient’s best interests.</td>
<td>• Provide the patient with information.</td>
</tr>
<tr>
<td></td>
<td>• Make and take responsibility for decisions.</td>
<td>• Accept the patient’s right to autonomy and implement patient’s preferred interventions.</td>
</tr>
</tbody>
</table>

Furthermore, it is widely accepted that as a direct result of the increased accessibility of online health information, consumers are becoming more demanding, insofar as expecting high quality of care, information and treatment they are given. The literature has indicated that many GPs are finding this changing dynamics as confronting and impinging on their traditional position as ‘givers’ of knowledge. However, a number of GPs indicated that they supported this shifting trend in the doctor—patient relationship. Participant #2 indicated this by stating,

_The Internet is changing the doctor—patient relationship....to what extent_

_I don’t know. From my experience I have noticed, especially over the last_
few years, a noticeable increase in the number of patients bringing information to me they have taken from the Internet. Likewise they seem to be more knowledgeable about a broad range of health conditions. I can imagine that many doctors would find this confronting...let's face it we can't be experts in every area of health care and treatment. I can imagine many of the older doctors may find it difficult to change with the times..with using the Internet. I have been immersed in the WWW and the Internet for years so it is not such a contentious issue for me.

7.3.3 Age appropriate technology – confidence levels of the patients

Another category that emerged and subsequently tied in with the above concepts was that of ‘age appropriate technology’. Confidence levels surrounding the use of the Internet (technology) by patients, was indicated as one of the major reason as to why GPs do recommend websites (6%, 4/64). When recommending websites to patients, GPs indicated that they had to consider whether or not their patients would be able to search and adequately use the WWW and the Internet. When exploring this issue in more depth it was discovered that a patients ‘confidence levels’ surrounding Internet access and use played a major part in whether or not a GP would recommend a website to a particular age group. Participant # 5 indicated that this was foremost in his mind, by stating,

Many of my patients would not be able access and to a much larger extent be confident or be able to use the Internet. As I deal with a large majority of elderly patients they are somewhat hesitant or don't have access to the technology. Many lack the confidence when it comes to IT. They have not grown up with the Internet and to a greater extent don't see the necessity for it. However, those individuals who I feel do have access [to technology] I have no issue with recommending to them a website or
encouraging them to do a Google search of their health condition...for example, just this morning I wrote down the term 'Cystic Fibrosis' for a patient and wanted her do some further research. I can imagine I will have some questions to answer next time I see her...but she is an intelligent person and will find the information useful.

Likewise, issues surrounding patient confidence and being able to use the WWW and the Internet emerged as an important point for another Gold Coast GP. It was stated by participant # 4,

I only recommend a website to a patient if I feel they will benefit from it. A patient’s ability to access a computer plays a major part in whether or not I recommend a website. Some people don’t have computers in their home and have no interest in accessing the WWW. Many of the elderly patients also lack the ability or confidence when it comes to computers. A great deal of anxiety surrounds the idea of modern technology for many patients in certain age brackets. Many would prefer the old fashioned approach to health care...personal consultation or phone.

7.3.4 Treatment orientated – specificity of information

Participants (5%, 3/64) also indicated that they recommended a website based on the type of treatment they offer. No elaborations were given as to the particular treatments. However, participants indicated that the websites they recommended supplemented their clinical treatment options / procedures to their patients. There were similar statements, by a number of participants, with regards to this issue. One GP indicated the following,

I recommend websites to my patients because my medical treatment lends itself to these selected sites. I find the information on these sites relevant,
timely and specific. I continually keep an eye on the information...in
respects to the updates. I only use these sites as a supplementary source of
information to what I have discussed with them. (Participant # 6)

Likewise, participant # 7 remarked,

*I find that some of the websites offer my patients a lot more information
than I can give them on their health topic in one consultation. I like to
recommend these websites because they have similar and very specific
treatment processes that I use and I encourage patients to do some further
research. The websites I use and recommend are information and
treatment specific. This approach saves my patients having to filter
through a great deal of unnecessary information.*

There were a number of other smaller sub-categories that developed throughout the
interview and data analysis process. These sub-categories emerged as a result of
interview questions that were aimed at further understanding the categories which
emerged from the initial survey. These are relevant to the study and will now be
discussed.

7.4 Sub-categories

7.4.1 Fewer female GPs than male GPs recommend health websites.

The data generated from the initial survey indicated that fewer female GPs, compared
to that of male GPs, were recommending health websites to their patients. Of the 72
(67%) participating male GPs, 45 (63%) recommended websites, compared with 19
(53%) of the 36 participating female GPs. Furthermore, of the 72 participating male
GPs, 38% did not recommend websites to the health consumer, compared with 47 %
of the 36 participating female GPs. Forty-one per cent of participating GPs did not
recommend websites to the health consumer. These gender issues warranted further exploration as it presented itself as an important concept for future e-health care throughout the Gold Coast.

An interview question was presented to both male and female GPs asking what their thoughts were in relation to the data indicating that fewer female GPs were recommending websites compared to that of their male counterparts. The questioning technique involved probing for the 'whys' and 'why nots' in relation to this pattern. This particular trend is also expressed throughout the current literature surrounding website recommendation. Sherman (2000) and Odell (2000) have suggested that female GPs tended to be more anxious toward Internet use than did male subjects. Interestingly, however, this research found that female patients are more inclined than male patients to bring online health information to their GPs for discussion. This user trend was indicated by a number of participants, with one GP commenting,

Over the years I have not given a great deal of thought towards the Internet and the role it can play in health care. I suppose this has resulted in me not recommending websites to my patients. I am hesitant to do so...as the practice is relatively new I don't know much about the pros and cons of it. I imagine that there are many doctors who do it [recommend websites] but I need to look into it a lot more before I would be happy in doing it [recommended websites]. (Participant # 6)

The hesitation to recommend websites, by female GPs, due to not fully understanding the practice of an Internet prescription, was one of the main reasons one male GP indicated as a possible reason behind the female–male divide, as he states,
My wife is a doctor and we have had a few discussions about patients and the Internet. [Name deleted] is very analytical and views many innovations with a degree of uncertainty. She would prefer to watch and listen before she makes any decision....i guess this applies to recommending a website to a patient of hers. I think it is a female thing....perhaps caution is a gender thing? (Participant # 1)

Similarly, participant # 13 remarked,

I have no problem with the concept of recommending websites to patients. I have noticed a growing number of patients bringing online health information to me for discussion and for my opinion. I don't recommend websites but I am willing to discuss any information patients bring to me. This is not saying that I am not open to the idea of recommending [website].....and possibly in the future I will. I guess there are a few more questions I have in relation to it [website recommendation] before I feel 100% comfortable with recommending a site to a patient. For me there are many more questions than answer.

The above participants closing statement was yet another interesting comment. In a recent study by Decco (2003), it was indicated that female physicians were less likely to recommend a website to a patient than a male physician in the initial Awareness and Information Stages of 'The Concerns Based Adoption Model' (CBAM). This classic 'resistance' profile demonstrated by female GPs warrants a further study in an attempt to develop strategies which will encourage adoption of the innovation by female GPs.
7.4.2 Age and years of experience of GPs affect Internet prescription trends

The data generated from the initial survey indicates that the age and years of experience of a GP affected Internet Prescription trends. Statistics from this study highlighted that the main age group recommending websites were in the 41-50 (55%) year olds. It was further indicated that 40% GPs in the ‘more experienced’ (> 10 years experience) group recommended websites which was fewer than the group which has ‘less experience’ (60%) (< 10 years experience) as a GP. Further questions were designed in an attempt to shed light onto these statistical trends and uncover what are the reasons behind such occurrences.

Research by Sternberg (2002) has indicated that many older generations view computer technology with a degree of uncertainty and apprehension, resulting in many ‘pockets’ within certain professions becoming reluctant or slow to adopt innovative approaches to emerging technologies. This user trend by Gold Coast GPs, portrayed throughout this study, is reflective of a younger generation that has been immersed within such technologies as the Internet and the WWW for many years. The challenge exists for older generations who have yet to fully embrace e-health technologies and don’t see the positive attributes such practices can promote throughout modern day healthcare delivery. Another crucial reason as to resistance trends has been suggested by Bard (2000) and Sternberg (2002). They posit that one of the reasons the progress has been slow is due to the lack of understanding of how to design, implement, and evaluate e-health websites that impart trust to health consumers and GPs. Understanding how human-computer interaction usability impacts the website interface is instrumental to the design, development and deployment of e-health care application (Sternberg, 2002).
Understanding how human-computer interaction may assist modern health care is another issue that was investigated, in terms of what participants understood in relation to e-health care and the future impacts this will have on them. It was noted by participant # 9,

*It is true that the older generation of doctors will view any innovation with a degree of apprehension. I do and a number of other doctors my age and experience in the profession do as well.....I suppose it is about changing mind sets and perceptions associated with website recommendation. How this can be done?.....i would imagine educating the GPs...we have a number of conferences and forums that you would be welcomed to attend to discuss such a topic. Some form of focus group could prove a valuable way of getting doctors talking amongst themselves.*

A number of interview participants, who were aged 51 – 60 and who had more than 10 years experience, were questioned about such a trend. One GP commented in relation to this user trend,

*I have been a doctor for 15 years and in the medical area for another 5...so all up around 20 years experience. It is only recently that I have seen a change in medicine and technology. What I mean by this is that the two are becoming increasingly linked. It is the way of the future. I do have some reservations when it comes to the Internet and health care. The speed at which technology is progressing, it is hard to keep up with all the advancements in our profession. I guess younger generations have grown up with it...school, private lives. Difficult for older doctors to see the benefits considering we have been doing the same thing for 15 – 20 years.* (Participant # 4)
A recent survey by The Royal Society of Medicine (RSM) (June, 2003) highlighted this point by surveying GPs between the ages of 30 – 60. Results from the RSM survey, indicated that the older a GP was (over 60 years of age) the lower the levels of confidence indicated when using the Internet as part of their health care delivery. These findings were also mirrored throughout this study. It has been identified in this study that younger male GPs recommended health websites more often when compared to older GPs. Findings from RSM (June, 2003) included the following statistics dealing with confidence levels and web literacy and are highlighted in Table 7.2.

Table 7.2: Statistics dealing with confidence levels and web literacy of GPs.

<table>
<thead>
<tr>
<th>WHO ARE THE WEB USERS WHO CLAIM TO BE ‘CONFIDENT’?</th>
<th>Age</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>over 60s</td>
<td>40</td>
<td></td>
</tr>
<tr>
<td>those in fifties</td>
<td>59</td>
<td></td>
</tr>
<tr>
<td>those in forties</td>
<td>62</td>
<td></td>
</tr>
<tr>
<td>those in thirties</td>
<td>76</td>
<td></td>
</tr>
<tr>
<td>under thirties</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>WHO IS ACTUALLY ‘WEBLITERATE’?</th>
<th>over 60s</th>
<th>36</th>
</tr>
</thead>
<tbody>
<tr>
<td>those in fifties</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>those in forties</td>
<td>53</td>
<td></td>
</tr>
<tr>
<td>those in thirties</td>
<td>66</td>
<td></td>
</tr>
<tr>
<td>under thirties</td>
<td>70</td>
<td></td>
</tr>
</tbody>
</table>

Such low confidence levels, surrounding IT, as portrayed by older GPs, has possibly been accentuated by many patients challenging the traditional doctor – patient relationship. Research has suggested that patients are becoming more knowledgeable
as a direct result of easily accessible online health information. This was identified as another sub-category which was explored in more depth.

7.4.3 Patients more knowledgeable / cyberchondriacs.

Of the 59% of participating GPs who recommend websites, 80% indicated that 1-20% of their patients brought online medical information to them; 9% of GPs indicated that 21-40% of their patients brought online medical information to them; and 3% of GPs indicated that 41% or more of their patients brought online medical information to them. It was further indicated that the age group that brought online medical information to them was from the 26-45 (60%) year old age group. Moreover, female patients requested more often that their GP recommend to them a website than male patients did. However, from such trends two sub-categories were closely related and were indications of how the Internet is creating an increase in a patient’s knowledge and furthermore, what many professionals indicate as creating a form of ‘cyberchondria’. When this issue was explored in more depth it was stated by one GP that,

The WWW has certainly made patients more knowledgeable about their diseases. The depth of information out in cyberspace is amazing...everything...every disease imaginable can be found. Some of these diseases I haven’t even heard of...they [patients] bring in this new found knowledge and information...sometimes I think they enjoy testing me out. There are many positive aspects of so much easily accessible information, however I have concerns about some patients who have developed a form of cyberchondria...they read information then they think they have it...so to much information in the wrong hands can be negative.(Participant # 15)
When participating GPs were asked as to what ways do they think the WWW and the Internet is creating a patient who is more prone to cyberchondria, a similar statement to the one made above was suggested,

*People come in knowing a lot more about their problem or assume they know a lot more about it. There is a lot of misinformation when people think they know what they are talking about due to them looking up information on the internet and think they have a disease but actual don’t. So it can be confusing for patient...particularly for those patients who don’t have ...how can I say this?...the intellect to understand fully.*

( Participant # 2)

Pharmaceutical companies have been quick to capitalise on the far reaching capabilities of the WWW and the Internet. Health consumers now have an unlimited amount of health information at their finger tips due to such modern communication technologies as the WWW and the Internet. Another off set of these technologies is the exploitive potential they present. Moreover, this study is concerned with uncovering the covert operations / relationships which exist between pharmaceutical companies and GPs. The following statements present interesting insights and elaborations into the recommendation of health websites, GPs and pharmaceutical companies.

### 7.4.4 'Sweeteners' by pharmaceutical companies

The initial survey indicated that 44% of GPs reported that 1-20% of the companies they deal with offer them incentives to recommend sponsored websites; 15% of GPs reported that 21-40% of the companies they deal with offer them incentives to recommend websites; and 12% of GPs indicated that over 40% of the companies they
deal with offer them incentives to recommend websites. In total, 54% of Gold Coast GPs have been offered incentives to recommend health websites to the health consumer by pharmaceutical companies and their representatives. The age group which reported the highest incidences of incentives being offered to them were in the 31-40 year old age group (60%). It was further indicated that more female (80%) than male GPs (50%) reported being offered incentives by pharmaceutical companies to recommend websites. Of the participating male GPs, 50% had been offered incentives to recommend pharmaceutically sponsored websites, compared to 80% of participating female GPs. The most common incentives offered to GPs were, (1) Stationery (29%), (2) Price incentives of pharmaceutical products (19%), and (3) Gifts and novelty items (19%). Together these accounted for over 60% of the incentives offered to GPs.

Participating GPs were asked a number of sensitive questions relating to website recommendations and the influence of pharmaceutical companies on their recommendation / prescribing habits. Participating GPs were asked the following direct questions:

- How much influence do you think pharmaceutical companies are having over the prescribing habits of doctors?
- To your knowledge how much influence do you think pharmaceutical companies are having throughout the WWW and the Internet?
- Why are more female GPs being targeted by pharmaceutical companies?
- Why are the younger (31 -- 40) GPs being targeted by pharmaceutical companies?
In relation to these questions, one GP indicates the following,

That is something that I am worried about. Pharmaceutical companies can make themselves very popular with doctors by giving ‘sweeteners’ so that they will stick to one particular drug. What I do is always put the generic name of the drug and don’t care what the actual company calls it. I am also worried about what influence pharmaceutical companies can have on particular websites. If they are paying for the website they are going to be biased towards their drugs. I think this is definitely affecting the prescribing habits of doctors. I don’t know why more females are being targeted or to that matter why younger doctors are being target by Pharm Reps...perhaps they [reps] feel they [GPs] are easier to win over. Or perhaps they give more of their time? (Participant # 1)

Another GP was very clear in his attack against the influence pharmaceutical companies are having on the prescribing habits of GPs. Participant # 5 states,

The Pharmaceutical Reps are very aggressive in their sales and push their products. The market is very competitive so I guess they use want ever means necessary to make a sale. The Internet allows drug companies another avenue for promoting their drugs and products. I continually receive emails and pop ups advertising drugs. I get approached all the time and offered many different types of incentives..the main ones, as you pointed out, are the discounts and free stationery. I can’t say that this directly affects my prescribing habits but I can imagine that subconsciously it may. As for the females and younger doctors.....perhaps drug companies have targeted them because they are more inclined to listen to them [reps] and a little more approachable.
Some GPs became quite indifferent when asked such questions related to the possible influence drug companies have on their prescribing habits. Throughout the initial survey, there were a number of participating GPs who wrote on the survey that they felt such questions and assumptions were very insulting. The questions that received such responses were directly related to pharmaceutical companies and their influence over GPs through the giving of incentives, or as one physician called them - 'sweeteners'. One participant indicated that she did not receive any incentives from pharmaceutical companies and resented the assumption that it was a common practice throughout the medical industry.

*I think that your question about pharmaceutical companies influencing GPs is an over exaggeration...and to be honest a little insulting. I have never been offered any type of incentive to change drugs or recommend a particular website to my patients by either my peers or drug reps. I am not saying it doesn't go on...but in my experience I have not encountered it. I know that it use to be a problem and has been cleaned up a lot.*

(Participant # 2)

Many of the participants did indicate that they have experienced quite the opposite, in terms of the incentives offered to them to prescribe particular drugs and websites to their patients. One GP clearly indicated his experiences by stating,

*You will find that doctors will never have to pay for any stationery in their office. When you add this up over the years this is quite a saving for any surgery. I must admit I take these gifts but they don't necessarily influence my prescribing habits. It is a wide spread practice [shows me his pens and note pads which are clearly sponsored by pharmaceutical companies]...that is giving gifts to get doctors to use and recommend*
particular drugs to patients. I have been offered other ...more lucrative
gifts to have me prescribe particular drugs and websites. (Participant # 7)

Some other interesting data obtained was that a number of GPs sent back the initial survey with pharmaceutical sponsored sticking note pads, with the following statements written on them. The reason for such an answer or method of answering is not fully understood. These included,

"Sorry not interested" – DRUG COMPANY –

"Please don't send anymore questionnaires" – DRUG COMPANY –

One practicing GP was so concerned with the degree of difficulty that his patients were experiencing, when attempting to locate and read appropriate health information online, that he has developed his own ‘Internet Medical Directory’. On this directory he has user friendly, health literacy appropriate information that can be given to the patients. This program is currently being marketed and sold throughout Australia to practicing GPs. However, it was noted and discussions evolved around the fact that each page had a specific drug company's advertisement on it. When questioned further, the developer of the initiative commented,

*I don't think I want to do your questionnaire. I do approach drug companies and ask them whether or not they would like to sponsor a page. This program is currently being marketed throughout Australia and hopefully will be in every doctor's surgery. It helps me with giving patients information that is easy to read and take home. Much of the information on the Internet is not appropriate for my patients as they can't understand the language and as such they misunderstand what they have and what they have to do with it. This product that I am developing will allow patients and doctors to control the information more.*
7.4.5 A high influence by pharmaceutical companies on the Internet.

The most common two reasons given by GPs, as being the main reasons they recommended pharmaceutically sponsored websites, were (1) Relevant information (35%) and (2) Not having time to view other websites (24%). Together these reasons accounted for 60% of the reasons why GPs knowingly recommend websites which are pharmaceutically sponsored. Furthermore, it was reported that 44% of GPs reported that 1-20% of the companies they deal with offer them incentives to recommend websites; 15% of GPs reported that 21-40% of the companies they deal with offer them incentives to recommend websites; and 12% of GPs indicated that over 40% of the companies they deal with offer them incentives to recommend websites. Collectively, 54% of GPs on the Gold Coast have indicated that they get offered incentives by pharmaceutical companies to recommend their health websites to the health consumer.

This study has been concerned with investigating the influence pharmaceutical companies are having on the WWW and to a much larger extent health websites. The level of their influence throughout these websites is not entirely understood, but recent research and the current literature does indicate that large, global pharmaceutical companies are infiltrating and using the WWW from everything ranging from research, information dissemination and marketing of their products. This ‘Pharmaceutical Value Chain’ is underpinned by the WWW and the Internet and influences and impacts on GPs and the health consumer alike. The perceived extent to which pharmaceutical companies are influencing websites was indicated by one participating GP when he commented,

*I would be fairly certain that pharmaceutical companies have a direct influence throughout the majority of health websites on the WWW.* The
information that the patient and the doctors are getting from the Internet can have a direct influence on what patients want, in terms of treatment and particular drugs. Doctors many times feel under pressure to fulfil the patient's demands even if they know of better, more cost effective drugs on the market. Yes...I have experienced patients who have been influenced by what they read on websites... and drug companies know this and market very aggressively through the WWW.

GPs also indicated an awareness of the impact the Internet is having on patients and the easier availability of drugs via the WWW. Two GPs were recorded as stating similar statements surrounding this point. With regards to online pharmacies, one GP commented,

*It is a concern of many GPs that the Internet is encouraging many patients to access drugs more easily. To a large degree many patients are taking online health information, diagnosing themselves, then purchasing drugs over the Internet. These online pharmacies can deliver all types of drugs directly to the consumer's door...it is a concern as many patients may misdiagnose themselves...take excessive doses of drugs...or the wrong type. Pharmaceutical companies are largely responsible for this growing trend.*

(Participant #15)

An interesting statement was made by one GP. Participant # 11 indicated,

*Pharmaceutical companies are large marketing machines....and as such operate and exist on selling their products. The Internet is another way they market their drugs and to a large extent it is more time effective and a lot more cost effective to use this rather than the traditional method of Pharmaceutical Reps. I think we will see even more aggressive sales and marketing tactics [by drug companies] throughout the Internet as it*
becomes a more excepted practice of recommending websites to our patients. I imagine that all information we receive is some how controlled and manipulated by drug companies...I know that they influence a lot of the information patients bring to me off the Internet...to an extent it is a concern...but what can you do...in terms of recommending websites that are reliable?

In relation to this last statement, "What can you do?" a question was initiated to explore this aspect. The specific question which was asked to participating GPs was:

- What do you think could be done to help both future and present doctors adopt the practice of a website recommendation?

One GP stated a possible avenue, but still there is room for further exploration into this question. He states,

*You must develop trust with the doctors. Trust that the websites are valid and number two that the websites are up to date – current in terms of their information. If things are not updated a great deal of misinformation about treatment and drug therapy can be potential harmful to the patient. I don't know what makes a reliable website but it must be validated by a proven expert. How would you do this? This aspect would be difficult to achieve. It must be a proven, current website...there are other words to describe this which I don't know. (Participant #1)*

Comments by the above participants have given interesting insights into the level of direct influence pharmaceutical companies are attempting to have on GPs. New communication technologies have the ability to by pass traditional forms of communication and marketing (letters, face-to face consultations) and have made it possible to access GPs through their personal computer networks (email, chat rooms).
For global pharmaceutical companies to survive they need to provide services and control information at the heart of economic production (Hardt & Negri, 2000). Control of nodal points (health websites) of knowledge/information dissemination is an ever increasing priority for global pharmaceutical companies. At the heart of knowledge-intensive organisations (pharmaceutical companies) is the WWW and the Internet and as the data suggests, GPs are frequently being offered 'sweeteners' in an attempt to encourage them to recommend websites to their patients.

Modern communication technologies have made it possible to informationalise the economy (Hardt & Negri, 2000) and that the economy, as Poster (2001) claims is creating a form of capitalism which is taking a linguistic turn. Information and commodities that were once tangible (health information) and subject to market boundaries, time and geographical distribution now have the ability to be distributed throughout the entire globe. Capitalism in its purest sense, strives to create a global market, whereupon, no one can exist outside this market (Hardt & Negri, 2000). Such a global, homogenous market can be subject to exploitation and control from a few TNCs. Data from this study indicates that global pharmaceutical companies are attempting to motivate Gold Coast GPs to recommended websites which contain biased and pharmaceutically sponsored information. This level of influence needs further exploration in an attempt to develop strategies and mechanisms which will increase levels of trust amongst GPs and the health consumer when accessing and recommending health websites.

7.4.6 A lack of knowledge pertaining to reliability issues – issues of trust.

One aspect of this study, which was indicated by many of the participating GPs, was pertaining to the issue of ‘trust’ (in relation to the information on a health website).
When closer probing into this issue was undertaken, it was discovered that many GPs did not understand what constituted a reliable website, and as such this tended to effect whether or not they recommended a website. This study has identified eight reliability components (see Table 7.3) which make a website, or source of information reliable. The eight components were presented to the GPs in an attempt to ascertain what they understood in relation to their application to making a reliable website.

Table 7.3: Defining qualities of each reliability component.

<table>
<thead>
<tr>
<th>Components</th>
<th>Defining qualities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>The quality and level of trustworthiness of information/material found on the website.</td>
</tr>
<tr>
<td>1. Authority</td>
<td>1. The extent to which material is the creation of a person or organization that is recognized as having definitive knowledge of a given subject area.</td>
</tr>
<tr>
<td>2. Accuracy</td>
<td>2. The extent to which information is reliable and free from errors.</td>
</tr>
<tr>
<td>3. Objectivity</td>
<td>3. The extent to which material expresses facts or information without distortion by personal feelings or other biases (sponsorship).</td>
</tr>
<tr>
<td>4. Currency</td>
<td>4. The extent to which material can be identified as up to date.</td>
</tr>
<tr>
<td>5. Coverage</td>
<td>5. The range of topics included in a work and the depth to which those topics are addressed.</td>
</tr>
<tr>
<td>6. Intended Audience</td>
<td>6. The group of people for whom material was created.</td>
</tr>
<tr>
<td>7. Confidentiality</td>
<td>7. Confidentiality of data relating to individual patients and visitors to a health website, including their identity, is respected by this website.</td>
</tr>
<tr>
<td>8. Justifiability</td>
<td>8. Any claims relating to the benefits/performances of a specific treatment, commercial product or service will be supported by appropriate, balanced evidence.</td>
</tr>
</tbody>
</table>

Of the 100 GPs contacted, 90% returned a completed survey (see Table 7.4), 67% were male and 33% were female. Male GPs, who are aged 51 - 60, and who have had 10 years or more experience, demonstrated the highest overall percentage of reliability component understanding. A higher percentage of female GPs indicated a
better understanding in such reliability components as; intended audience, coverage, confidentiality and justifiability. The majority of GPs indicated that the main method they used to assess reliability of websites was to view the content personally.

Table 7.4: Indications of highest percentages related to reliability component understanding indicated by gender, age and years of experience.

<table>
<thead>
<tr>
<th>Components</th>
<th>Number of participants males + females</th>
<th>Indicating an understanding of component Highest indicators by:</th>
<th>Indicating an understanding of component Highest indicators by:</th>
<th>Indicating an understanding of component Highest indicators by:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>n = 90 (M = 67%, F = 33%)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Authority</td>
<td>Males = 60 Females = 30</td>
<td>Males = 39 (65%) Females = 11 (37%)</td>
<td>41 - 50 = 28/35 (80%)</td>
<td>&gt; 10 years = 44/60 (73%)</td>
</tr>
<tr>
<td>2. Accuracy</td>
<td>Males = 60 Females = 30</td>
<td>Males = 40 (67%) Females = 14 (47%)</td>
<td>41 - 50 = 29/35 (83%)</td>
<td>&gt; 10 years = 51/60 (85%)</td>
</tr>
<tr>
<td>3. Objectivity</td>
<td>Males = 60 Females = 30</td>
<td>Males = 33 (55%) Females = 14 (47%)</td>
<td>60+ = 8/12 (67%)</td>
<td>&gt; 10 years = 30/60 (50%)</td>
</tr>
<tr>
<td>4. Currency</td>
<td>Males = 60 Females = 30</td>
<td>Males = 40 (67%) Females = 12 (40%)</td>
<td>51 - 60 = 19/30 (63%)</td>
<td>&gt; 10 years = 45/60 (75%)</td>
</tr>
<tr>
<td>5. Intended</td>
<td>Males = 60 Females = 30</td>
<td>Males = 16 (27%) Females = 10 (33%)</td>
<td>51 - 60 = 19/30 (63%)</td>
<td>&gt; 10 years = 24/60 (40%)</td>
</tr>
<tr>
<td>Audience</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Coverage</td>
<td>Males = 60 Females = 30</td>
<td>Males = 16 (27%) Females = 10 (33%)</td>
<td>51 - 60 = 16/30 (48%)</td>
<td>&gt; 10 years = 19/60 (32%)</td>
</tr>
<tr>
<td>7. Confidentiali</td>
<td>Males = 60 Females = 30</td>
<td>Males = 15 (25%) Females = 9 (30%)</td>
<td>41 - 50 = 11/35 (31%)</td>
<td>&lt; 10 years = 19/30 (63%)</td>
</tr>
<tr>
<td>ty</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Justifiability</td>
<td>Males = 60 Females = 30</td>
<td>Males = 9 (15%) Females = 5 (17%)</td>
<td>51 - 60 = 5/30 (17%)</td>
<td>&lt; 10 years = 10/30 (33%)</td>
</tr>
<tr>
<td>* 21 – 30 (n = 2), 31 – 40 (n = 11), 41 – 50 (n = 35), 51 – 60 (n = 30), 60+ (n = 12)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>+ &gt;10 years (n = 60), &lt;10 years (n = 30)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In an attempt to shed new light onto these issues, specific questions were designed to further uncover the meaning/s behind these statistical trends. Questions included,

- It has been indicated that more male GPs than female GPs understand authority, accuracy, objectivity, and currency. Whereas more female GPs understood intended audience, coverage, confidentiality, and justifiability when compared to their male counterparts. Why do you think this trend has emerged throughout the data?
• It has also been indicated throughout the data that those GPs who are older with more experience indicated that they understood the majority of the reliability components as compared to the younger, less experienced GPs. Why do you think this trend has emerged throughout the data?

One GP commented in relation to the gender issue, by stating,

*I'm not surprised at your statistics...I think that IT in general attracts more males...they seem to be more interested in it than females. This I think stems across all professions...I don't think the medical profession is any different when it comes to using technology. Perhaps a rethink as to how to get females more interested in IT needs to be considered...especially throughout the medical profession. (Participant # 6)*

Another, more experienced GP commented in relation to the age / experience issue, by stating,

*I understand those reliability components because I would always relate them to printed information...in medical journals, magazines and such. I was always looking for signs that indicated to me how reliable this source of information was. These same reliability components can be applied to websites. We were encouraged to do this...many younger doctors, with less experience don't seem to understand these components and how they can be applied...perhaps medical schools concentrate on other issues? (Participant # 8).*
An expressed need has been voiced by many GPs that there is a desire and a requirement for them to understand what constitutes a reliable and trustworthy website. This was evident and indicated by a number of participants, both throughout the initial survey and the additional interviews. In relation to this sub-category, one GP states,

I don't understand what makes a reliable website...I suppose it is whether or not the content is correct. If there are other things I should be looking for I would not know. I think and would like to know more about this issue as it would help me when recommending a website. All I do is read and check the content of the web page...I personally view the content before recommending a site to my patients. In many cases it is an issue of trust. A lot of information online is not reliable. How this can be policed? ...I'm not sure. (Participant # 10)

Likewise, an expressed concern was indicated by another GP when questioned about understandings pertaining to reliability issues associated with the websites he recommends. Participant # 5 comments,

I would probably recommend websites a lot more if I was certain as to their reliability. I don't...but would like to...know what makes up a creditable website so that I would feel a lot more comfortable about recommending them to my patient. I don't trust the information on a lot of sites..be it because of the incorrect information or it is biased information.

7.4.7 Limited knowledge pertaining to interactivity and usability levels

A secondary aim of this research was to explore what Gold Coast general practitioners understand in relation to the levels of interactivity and usability components throughout the health websites they are interacting with and
recommending. This study has identified four components (see Table 7.5) which make an interactive website. A further three components were identified in relation to the usability of a website. The seven components were presented to the GPs in an attempt to ascertain what they understood in relation to their application to making an interactive and user-friendly health website.

Table 7.5: Defining qualities of each interactive and usability component.

<table>
<thead>
<tr>
<th>Components</th>
<th>Defining qualities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Interactivity</strong></td>
<td></td>
</tr>
<tr>
<td>1. Multimodality</td>
<td>1. The level of such integration modalities as text, pictures, video, and various combinations, into a single modular unit.</td>
</tr>
<tr>
<td>2. Networkability</td>
<td>2. The potential connections that computer users are able to make with other users and service providers.</td>
</tr>
<tr>
<td>3. Temporal Flexibility</td>
<td>3. Asynchronous or synchronous in nature, allowing users to interact with the content as the content is made available or to postpone the interaction as desired.</td>
</tr>
<tr>
<td>4. Message Tailoring Capabilities</td>
<td>4. Information can be crafted to suit preferences and characteristics of targeted individuals.</td>
</tr>
<tr>
<td><strong>Usability</strong></td>
<td></td>
</tr>
<tr>
<td>1. Health Literacy</td>
<td>1. Ease of text understanding by user, in terms of literacy levels and presentation.</td>
</tr>
<tr>
<td>3. Interface engagement Educational</td>
<td>3. The experience within the site encourages prolonged engagement within the domain.</td>
</tr>
</tbody>
</table>

A higher percentage of female GPs indicated a better understanding in such interactive components as; networkability and message tailoring capabilities. Male GPs, who are aged 41 - 50, and who have had 10 years or more experience, demonstrated the highest overall percentage of interactivity component understanding (see Table 7.6). In each usability component displayed, male GPs, aged between 51 - 60 years of age, indicated a better understanding than participating female GPs (see Table 7.7).
Table 7.6: Indications of highest percentages related to interactive component understanding indicated by gender, age and years of experience.

<table>
<thead>
<tr>
<th>Components</th>
<th>Number of participants males + females</th>
<th>Indicating an understanding of component</th>
<th>Indicating an understanding of component</th>
<th>Indicating an understanding of component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Highest indicators by:</td>
<td>Highest indicators by:</td>
<td>Highest indicators by:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender (M = n/60, F = n/30)</td>
<td>Age *</td>
<td>Years of experience +</td>
</tr>
<tr>
<td>Interactivity</td>
<td>n = 90 (M = 67%, F = 33%)</td>
<td>Males = 60 (23%)</td>
<td>Males = 14 (23%)</td>
<td>Males = 14 (23%)</td>
</tr>
<tr>
<td>1. Multimodality</td>
<td>Females = 30</td>
<td>Females = 4 (13%)</td>
<td>Females = 4 (13%)</td>
<td>Females = 4 (13%)</td>
</tr>
<tr>
<td>2. Networkability</td>
<td>Males = 60 (28%)</td>
<td>Males = 17 (28%)</td>
<td>Males = 17 (28%)</td>
<td>Males = 17 (28%)</td>
</tr>
<tr>
<td>3. Temporal Flexibility</td>
<td>Females = 30 (30%)</td>
<td>Females = 9 (30%)</td>
<td>Females = 9 (30%)</td>
<td>Females = 9 (30%)</td>
</tr>
<tr>
<td>4. Message Tailoring</td>
<td>Males = 60 (17%)</td>
<td>Males = 10 (17%)</td>
<td>Males = 10 (17%)</td>
<td>Males = 10 (17%)</td>
</tr>
<tr>
<td></td>
<td>Females = 30 (23%)</td>
<td>Females = 7 (23%)</td>
<td>Females = 7 (23%)</td>
<td>Females = 7 (23%)</td>
</tr>
</tbody>
</table>

Table 7.7: Indications of highest percentages related to usability component understanding indicated by gender, age and years of experience.

<table>
<thead>
<tr>
<th>Components</th>
<th>Number of participants males + females</th>
<th>Indicating an understanding of component</th>
<th>Indicating an understanding of component</th>
<th>Indicating an understanding of component</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Highest indicators by:</td>
<td>Highest indicators by:</td>
<td>Highest indicators by:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gender (M = n/60, F = n/30)</td>
<td>Age *</td>
<td>Years of experience +</td>
</tr>
<tr>
<td>Usability</td>
<td>n = 90 (M = 67%, F = 33%)</td>
<td>Males = 60 (52%)</td>
<td>Males = 31 (52%)</td>
<td>Males = 31 (52%)</td>
</tr>
<tr>
<td>1. Usability</td>
<td>Females = 30</td>
<td>Females = 9 (30%)</td>
<td>Females = 9 (30%)</td>
<td>Females = 9 (30%)</td>
</tr>
<tr>
<td>2. Navigation</td>
<td>Males = 60 (55%)</td>
<td>Males = 33 (55%)</td>
<td>Males = 33 (55%)</td>
<td>Males = 33 (55%)</td>
</tr>
<tr>
<td>3. Interface Engagement Educational</td>
<td>Females = 30 (37%)</td>
<td>Females = 11 (37%)</td>
<td>Females = 11 (37%)</td>
<td>Females = 11 (37%)</td>
</tr>
<tr>
<td></td>
<td>Males = 12 (20%)</td>
<td>Males = 12 (20%)</td>
<td>Males = 12 (20%)</td>
<td>Males = 12 (20%)</td>
</tr>
<tr>
<td></td>
<td>Females = 3 (10%)</td>
<td>Females = 3 (10%)</td>
<td>Females = 3 (10%)</td>
<td>Females = 3 (10%)</td>
</tr>
</tbody>
</table>

* 21 – 30 (n = 2), 31 – 40 (n = 11), 41 – 50 (n = 35), 51 – 60 (n = 30), 60+ (n = 12)
+ >10 years (n = 60), <10 years (n = 30)

Due to the increased trends associated with an Internet prescription much of the literature indicates the necessity for GPs to develop critical appraisal skills associated with website recommendations. These skills include developing an understanding in terms of the health promoting capabilities of websites which have a high degree of Interactivity and are user friendly. Research surrounding such health technology inclusions indicate that individuals who access and use such websites demonstrate a higher degree of self-efficacy associated with their own health behaviours and education. However, this research has uncovered and highlighted that many GPs
possess limited knowledge as to what constitutes levels of Interactivity and Usability, and the benefits such inclusions throughout a website promotes.

Kassirer (2000) maintains that many physician organisations are preparing for the electronic transformation, but most physicians are unprepared, and many are resistant. Similarly, both the initial quantitative survey and subsequent qualitative interviews of this study have indicated that GPs indicated a lack of critical appraisal skills associated with identifying components which increase the interactivity and usability of health websites.

In terms of GP understanding how such inclusions (interactivity and usability components) could promote positive health behaviours in their patients, 'limited knowledge' was indicated by participating GPs as the main reason.

One participating GP indicated her lack of knowledge by stating,

*I really don't have much of an idea about the ins and outs of website technology. One of the reasons I don't recommend websites is that I don't know what the site has on it...in relation to Interactive technology. I think in a lot of cases I would be confusing my patients with too much fancy technology. I would be more inclined to recommend websites which have straightforward information. However, like I said I wouldn't understand the full benefits of Interactivity. I myself don't understand the full extent of the inclusions that you are referring to.* (Participant # 8)
One aspect which is closely linked to 'limited knowledge' surrounding the understanding of interactivity and usability features is the notion of 'confidence' or 'web literacy'. Confidence levels and web literacy was indicated by a number of older GPs as a reason for not understanding what constitutes levels of interactivity and usability technology. A number of participants shared similar experiences associated with 'limited knowledge'. As participant #7 states,

*I do admit I have little confidence using the Internet. I should undertake some form of training to help me up skill in this area. I have little experience or knowledge as to what Interactivity Technology is and what it can do. My knowledge in this area is only extended as far as emailing and basic searches....anything else I wouldn't know about or use.*

However, as previously highlighted, it was found that Gold Coast GPs in the older, more experienced bracket indicated a higher understanding of what constitutes interactivity and usability components associated with health websites they use and recommend. This empirical data generated from the initial survey presented contradictory statistics when compared to that of current global patterns. On exploring this trend further, participant #8 states,

*I have always been interested in IT, the Internet and the WWW. I am always keeping up skilled as to the latest inclusions in software and computer technology. I have seen many fantastic advances over the last 10 years when it comes to interactivity and usability factors associated with websites. I have been particularly impressed with advances associated with health websites. There is not enough education for GPs and the public as to how interactive health*
websites can be very positive in health care and the promotion of health.

7.5 Conclusion

This study has discussed the direct and indirect influences which motivate Gold Coast GPs to recommend health websites to the health consumer. In chapter 7, participants shed light onto the experiences and histories associated with a website recommendation by Gold Coast GPs. Furthermore, data has indicated that participants display a range of understandings pertaining to a health website's level of reliability, interactivity and usability components.

Moreover, the data has shown how pharmaceutical companies are directly attempting to influence a GP's website recommendation habits and trends to the health consumer. Through such marketing tactics, as offering incentives to GPs to recommend particular websites, pharmaceutical companies are attempting to use modern communication technologies (health websites) for the distribution of medical knowledge and health information.

Chapter 8 will restate the research aims, objectives and significance of the study and demonstrate how these have been addressed. Furthermore, chapter 8 will synthesise and draw together the research findings, shedding new light on the growth of the Internet prescription. Attention will directed towards outlining the future implications for an e-health care system which is becoming increasingly controlled by TNCs (global pharmaceutical companies). Recommendations will be made, in terms of creating a safer e-health environment for the 21st Century.
8.0 Introduction

Chapter 8 provides a summary of the research and restates the aims, objectives and significance of the study. It concludes with implications for future research. In reviewing this research project it is useful to return to its original aims and objectives. The general aim of this research was to investigate the influences that directly or indirectly, motivate GPs to recommend health websites to the health consumer. Research was directed at exploring why GPs use and recommend certain health websites over others and the degree to which the WWW and the Internet plays in the process of health care delivery by GPs.

A secondary aim of this research was to explore what GPs understand in relation to what they feel might constitute levels of reliability, interactivity and usability components throughout the health websites they are interacting with and recommending to health consumers. To address each specific aim and significance, attention will be directed towards acknowledging each of the study’s four objectives. This will be achieved through bringing together supporting literature and further presenting the findings from the empirical data and the follow up interviews.

8.1 Review of aims, objectives, hypotheses and significance

This study aimed to identify the influences which directly or indirectly motivated Gold Coast general practitioners to recommend health websites to the health consumer. It had a secondary aim which investigated participants’ understandings associated with a health website’s reliability, interactive and usability components. This study has identified eight major categories and eight sub-categories. These categories and sub-categories have been generated through a mixed method approach (including both quantitative and qualitative data generation).
The categories have been identified as:

*Don’t recommend health websites:*

(1) Limited time – time constraints and work pressures,
(2) Prefer to personally discuss – a collaborative approach to health care,
(3) Reliability issues- lack of trust concerning online health information,
(4) Biased information – influenced by pharmaceutical companies.

*Do recommend health websites:*

(5) Helps to educate patient - more knowledgeable about their condition,
(6) Enhances the doctor–patient relationship – allowing patients to feel more involved in their own health care,
(7) Age appropriate technology – confidence levels of patients,
(8) Treatment orientated – specificity of information.

The sub-categories have been identified as:

(1) Fewer female GPs than male GPs recommend health websites,
(2) Age and years of experience of GPs affect Internet prescription trends,
(3) Patients more knowledgeable / cyberchondriacs,
(4) ‘Sweeteners’ by pharmaceutical companies,
(5) A high influence by pharmaceutical companies on the Internet,
(6) A lack of knowledge pertaining to reliability issues – issues of trust,
(7) Limited knowledge pertaining to interactivity and usability components,
(8) A need to include within medical schools - website usage for GPs.

Literature suggests that the act of an ‘Internet prescription’ or a ‘website recommendation’ by a GP to the health consumer is growing in popularity throughout the world. To date, there is no evidential baseline data that can be used to compare current trends associated with website recommendation by Gold Coast GPs to past practices.
However, comparisons of results can be made to current research findings and relevant literature. Much of the data collected in this study mirrors North American statistics and trends. Although in a much smaller context, it can be inferred that the Gold Coast, and to a larger extent Australia, will follow the practices and trends that are associated with a website recommendation by a GP. This will be predominantly due to the increased number of individuals actively searching for online health information, which in turn is producing higher consumer demands and ultimately changing the dynamics of the traditional doctor – patient relationship.

With such a large amount of health information available on the Internet and WWW, it is changing, and what some may say 'challenging' the traditional doctor–patient relationship. Research findings from this study are typical of global trends associated with the act of recommending a website to the health consumer. Furthermore, this study has indicated that there are Gold Coast GPs that appear to be resistant to such an innovative approach to modern healthcare delivery as an ‘Internet prescription’. It is important for the future professional development of GPs, to indicate some of the more important reasons as to why GPs choose not to recommend health websites to the health consumer.

Findings from this study, which highlight why GPs choose to or not to recommend health websites have been discussed in the preceding pages. The reasons are many and varied, however, a number of commonalities have appeared throughout the literature and throughout the findings of this study. Elaborations will be directed towards specifically addressing the three identified significances of this study, these being; (1) The Internet age and the doctor – patient relationship, (2) Pharmaceutical companies and health websites and (3) Reliability, interactivity and usability components associated with health
websites. These three significances specifically contain and address the major aims and objectives of this study.

8.1.1 The Internet age and the doctor–patient relationship

This section will specifically address the following research hypothesis and objectives.

**Hypothesis 1:** Modern communication technologies (WWW and the Internet) are changing the traditional doctor-patient relationship.

**Objective 1:** To explore the prevalence and trends related to health website recommendation by GPs throughout the Gold Coast region.

**Objective 2:** To explore GP’s personal information (age, gender, and years of experience) associated with health website recommendations, patient requests / usage throughout the Gold Coast region.

According to a Pew (2004), 60 million Americans have used the Internet to seek health or medical information. It is possible that the increasing need for online health information is a result of a recent change in the doctor–patient relationship. The new trend is to empower the patient, a movement away from the older paternalistic relationship to one more patient–centric. Results from this study indicate that Gold Coast GPs are recommending health websites in an attempt to educate the health consumer regarding specific diseases, drugs and healthcare delivery. Quintana et al., (2001) concluded after surveying forty-two patients that consumers want information on education and prevention, for taking care of themselves and for participating in a more informed way of health discussions with their physician. The WWW and the Internet in the form of a health website recommendation is filling this gap.
There are three demographic variables that this study takes into account, these being related to the participating GPs; gender, age and years of experience. Examination of the data has indicated that younger males, with experience of less than 10 years are more inclined to recommend a health website to a patient. In recent research by Hall and Hord (2001) their findings indicate that this trend is largely due to the more experience an individual has with an innovation (as in the case of the Internet and WWW), the more likely he or she is to adopt and implement it. It is widely accepted that younger generations have been immersed in this technology (WWW and the Internet) for a greater period of time and don't view its implementation with resistance, intimidation or scepticism.

This research has indicated that male GPs are more inclined to recommend and understand website components (reliability, interactivity, usability) than female GPs. This gender trend is not surprising since the results of two recent studies on 'Gender and Internet Use' by Sherman (2000) and Odell (2000) revealed that females tended to be more anxious toward Internet use than did male subjects and this may be reflected in the results obtained in this study. Decco (2003) indicates that female physicians were less likely to recommend a website to a patient than a male physician in the initial Awareness and Information Stages of 'The Concerns Based Adoption Model' (CBAM). This 'resistance' profile demonstrated by female GPs warrants a further study in an attempt to develop strategies which will encourage adoption of the innovation by female GPs. Interesting this study indicates that female patients tended to bring online health information to their GP for further consultation and discussions.

Further examination of the data revealed that whilst male GPs were more likely to recommend a health website to a patient, they tended to be more resistant or hesitant to
implementing innovations. Reasons for this may be found when comparisons are made to other technology advances, in terms of how the Internet and WWW are relatively new, and as such are viewed with some scepticism. Many older generations view computer technology with a degree of uncertainty and apprehension, resulting in many 'pockets' within certain professions becoming reluctant or slow to adopt innovative approaches to emerging technologies. This user trend by Gold Coast GPs, portrayed throughout this study, is reflective of a younger generation that has been immersed within such technologies as the Internet and the WWW for many years. The challenge exists for older GPs (i.e. 50 – 64 year olds) who have yet to fully embrace e-health technologies and don’t see the positive attributes such practices can promote throughout healthcare delivery in the 21st century. Another crucial reason as to resistance trends has been suggested by Bard (2000) and Sternberg (2002) who posit that one of the reasons the progress has been slow is due to the lack of understanding of how to design, implement, and evaluate e-health websites that impart trust to health consumers and GPs. Understanding how human-computer interaction usability impacts the website interface is instrumental to the design, development and deployment of e-health care application (Sternberg, 2002).

It is speculated that the act of an 'Internet prescription' will continue to proliferate in the routine doctor – patient relationship. This will be especially true as the WWW and the Internet becomes a more widely accepted component of modern health care delivery. In a broader context, Spender (2000) speaks of the Internet as ushering in a new age and new approach to knowledge dissemination. Spender (2000) asserts that we assume that knowledge exists as an entity: that it is stable enough to be divided into disciplines; that it can be arranged in hierarchical order, and systematically taught. This conceptualisation of knowledge is increasingly inadequate in an electronic age in which knowledge is also
information which flows in cyberspace; it can be public, it resists boundaries, it is almost impossible to rank, and it is available twenty – four hours a day. The increased availability of online health information has collectively been responsible for changing the face of the doctor – patient relationship. The Internet, like other communication technologies, has the ability to compress distances, to refigure time and space, but to a much greater extent than before (Spender, 2000).

8.1.2 Pharmaceutical companies and health websites

This section will specifically address the following research hypothesis and objective.

Hypothesis 2: Modern communication technologies (WWW and the Internet) are being controlled by transnational corporations in an attempt to manipulate General Practitioners and the health consumer.

Objective 3: To investigate and ascertain the level of influence pharmaceutical companies have on GPs practices pertaining to the recommendation of health websites to the health consumer.

Bard (2006) maintains that the GPs of the 21st Century are practising in a world where they are increasingly shifting to the online channel for journals, drug information, medical references, pharmaceutical company updates and news. Research throughout the field of medical science and the WWW indicates that accessing professional and medical related information and knowledge, now ranks as one of the key online activities among general practitioners. Physicians no longer have to sit back and rely on their peers, printed journals, and annual meetings to learn the latest advances in medicine.

As a direct result, pharmaceutical companies have increasingly been looking for opportunities to offer customer service online. In a departure from traditional promotional
and marketing strategies, drug companies have increasingly sought out avenues that engage GPs online and seek to offer the online channel as an alternative to traditional contact channels such as call centres, conferences, meetings and pharmaceutical reps. Literature indicates that the operations necessary for sustaining global pharmaceutical companies throughout the new millennium is very reliant on the WWW and the Internet. This is evident by such researchers as Quyyam (2003) and McAFee (2003), who maintain that technologies displayed throughout the WWW and the Internet are being developed and utilised by global pharmaceutical companies in an attempt to reach all perspective consumers; from the general health consumer through to the GP.

This study has revealed that there are expressed concerns, both qualitatively and quantitatively, by GPs, in relation to the level of influence pharmaceutical companies are having on health websites. GPs who participated in this study indicated that there are a number of issues associated with pharmaceutical companies and the Internet. GPs frequently suggested that there is a great deal of suspicion surrounding the level that pharmaceutical companies are having on the health websites GPs are using and recommending to the health consumer. The most important aspect of this study was the question of influences that motivate GPs to recommend health websites to the health consumer. It has been established that the control of health websites has the potential to create a culture of ‘regulated knowledge’, which can be more easily homogenised in an attempt to maximise capital and commercial gain on a global scale (Hardt & Negri, 2000).

This study has put forward a number of claims that global pharmaceutical companies seek to exploit the marketing potential of the WWW and the Internet. The exploitation and control of online health information to GPs and the health consumer will collectively
see a change in the prescribing habits of the GP and to a larger extent create a consumer that is a passive recipient of biased health information. Transnational corporations (pharmaceutical companies) seek to maximise profit, with little thought given to the global repercussions of such pursuits. The WWW and the Internet have dramatically increased access to drugs and other pharmaceutical products, resulting in a society which is becoming 'overmedicated' and creating 'rogue' online pharmacies. In an ironic way, this freedom and interconnectedness has been viewed by many profit driven organisations as necessary to control, govern and regulate. The notion of a 'virtual community' is creating a global market place, whereupon there are no market boundaries and to a larger extent creating a commerce trend where no one can exist outside of it (Hardt & Negri, 2000). This phenomenon has in part directly / indirectly affected and motivated general practitioners to recommend health websites to the health consumer.

Hardt and Negri (2000) maintain that TNCs (global pharmaceutical companies) are engaged in a sinister scheme against humanity. More succinctly, they call Empire 'the enemy'. The 'enemy' comes in the form of great industrial and financial powers exploiting the multitude (the health consumer); they also control human life itself, producing needs, social relations, bodies, and minds, while in imperial postmodernity big government has become merely the despotic means of domination and the totalitarian production of subjectivity. Global pharmaceutical companies in the new millennium need to establish new markets for their products and new forms of marketing and distribution to health consumers. The development of computer technology, and more specifically the advent of the WWW and the Internet, has made it a reality in which communication has no more physical boundaries to marketing and distribution. Through such modern forms of communication technologies an interconnected world (and markets) and the creation of a global community that transcends national borders and laws is being created.
Controlling communication technologies allows pharmaceutical companies to maximise profits at the expense of the health consumer. Power, in a global homogenised market place, is now exercised through modern forms of communication (WWW, the Internet) that directly organize the brains and bodies of the multitude (the health consumer) (Hardt & Negri, 2000). Through the WWW and the Internet, global pharmaceutical companies can conduct their decisions and operate their funds almost instantaneously across great distances and regional and national boundaries. This is even more ‘doable’ in the case of products that can be stored and transferred electronically; as in the case of online health information. To many, this stands to work against social equity, deepening chasms between the ‘haves’ and the ‘have nots’, between the ‘ignorant’ and the ‘knowledge elite’.

Wee (2000) asserts that this global capital in its contemporary form is characterised by strategies of predatory mobility (across time and space) that have vastly compromised the capacity of actors in single locations even to understand, much less anticipate or resist these strategies. Thus, modern communication technologies globalises objects, information and experiences unevenly, so that global pharmaceutical companies can present biased information to GPs and the general global health consumer receives. To global pharmaceutical companies the WWW and the Internet, is a marketing, sales and distribution network which seeks to homogenise markets, making it impossible to exist outside its global power.
8.1.3 **Reliability, interactive, and usability components associated with health websites**

This section will specifically address the following research hypothesis and objective.

**Hypothesis 3:** A general practitioner’s level of confidence associated with information technology does directly influence their website recommendation trends and Internet use.

**Objective 4:** To investigate GPs understanding and their conceptualisation pertaining to levels of reliability, interactivity and usability (user control) components associated with the health websites they use and recommend to health consumers.

Previous studies, on the topic of website recommendation by the physician to the health consumer are dichotomous. Many researchers, especially in the medical field, are solely concerned with the individual’s risk of encountering inadequate sites on the web (Eysenbach & Jada, 2001). Such studies focus on the quality of information and usability of websites on the Internet, irrespective of the users’ ability to evaluate sites. Williams (2005) comments that the aim of the evaluation could be to assess any or all of the following: information quality – when evaluating health websites, the accuracy and authority of content is of particular relevance; usability issues, such as navigation; site facilities, such as multimodalities, networkability etc; relevance of the material and media to a particular target user group. This may include both topic content and level of language.

The results of this study indicate the need for a quality assurance rating system, or evaluation criteria for health websites. The challenge is to find the right balance between sufficient transparency, reliability and interactivity without causing anxiety for the health consumer and GP alike. The quality improvements necessary to improve health websites
will not be achievable until several serious issues are resolved and the developed frameworks are implemented and monitored. Consensus does not necessarily mean the merging of all frameworks into one, but it does mean forging agreement on what health websites developers, GPs and online health information seekers need to do and how the frameworks will be described and made actionable.

It is widely recognised that the development and implementation of reliability seals and certifications can be misleading to the health consumer and GP alike, providing a false sense of security. Even though the inclusions of such reliability, interactivity and usability components may prove a positive step forward, it is possibly more important that web designers develop clear and verifiable criteria, realistic mechanisms/frameworks to enforce adherence to standards, and specific sanctions for violators. Health consumers and Gold Coast GPs will benefit when health websites are developed to provide clear information about a website's operations and does not overwhelm the online health information seeker. Perhaps when such infrastructure gathers universal momentum and agreement throughout the healthcare industry, health consumers will be able to assure themselves that they have found a reliable and safe place that will help them with their health concerns and questions.

8.2 Future implications

This study makes a significant contribution to the body of knowledge about influences that motivate, either directly or indirectly, GPs to recommend health websites to the health consumer. Furthermore, this study provides significant contributions and important insights into modern e-health care delivery, the categorisation (see Appendices 10 & 11) and evaluation (see Appendices 12 & 13) of health websites (e-knowledge, e-business, e-professional) and a better understanding of the influence that human–computer
interaction (see Appendices I - 5) is having on website prescribing habits of Gold Coast GPs. This study went beyond studying the direct, surface influences that motivate GPs and examined a more sensitive, 'covert' type of relationship which exists between GPs, health websites, the health consumer, global pharmaceutical companies and the WWW / Internet.

Suggestions for further studies include the need to upskill GPs concerning their understanding and critical appraisal skills pertaining to the reliability, interactivity and usability components of the health websites they are interacting with and recommending to the health consumer. Murray (2003) maintains that some problems must be addressed before e-health care can reach its full potential; indicating that not only do GPs need to develop better communication and IT appraisal skills but similarly patients need to develop improved skills and knowledge in relation to the reliability of the websites they are accessing. Current proposals to help patients and GPs assess online health information include 'kitemarking' (seals of approval) of health websites which are deemed acceptable in terms of the levels of trust and reliability of information. However, such an approach has been viewed with a degree of skepticism due to the rapid growth of health websites which makes 'kitemarking' and other attempts at prompting seals of approval as infeasible.

This study has identified a growing need for medical school curriculums and CME programs to include such mentioned issues and create courses to include online health information retrieval and evaluation education that is beneficial to the GP and the health consumer. A need to include such educational programs to medical schools was voiced by one participant,
A good idea would be to include programs that upskill new and existing doctors about website usage. I would certainly be in favour of policy changes which would see these types of programs throughout medical schools and also as part of the CME [Continuing Medical Education] process. (Participant # 1)

Similarly, participant # 13 states,

For more doctors to take on website recommendation I feel that we will need further education about web usage. Courses could be included in university degrees. It is such a growing and fast emerging practice that I think many professionals don’t realise how wide spread the practice is. I think that suggestions need to be considered that will put doctors and academics on the same page. I would be interested in knowing just how many GPs are using the Internet and in what capacity. To make it a more acceptable practice perhaps particular websites could be promoted by the AMA.

Dr Joe Kosterich (2007), spokesperson for Australian medical website Virtual Medical Centre.Com., supports such comments by stating,

The medical students coming through the system now will almost exclusively adopt the practice [website recommendation], as will future students. It will be the norm with the majority of patients spending much more time finding out about a specific condition online than will in face – to – face consultations. Medicine will reflect this like everything else.
Supporting his predictions is the Australian visitor traffic to Virtual Medical Centre.com, which incorporated 19 separate free-of-charge ‘medical centres’ to address conditions including allergies, skin conditions, psychiatry and men / women / children’s health. The site attracted 371,000 visitors in September alone (see Appendix 14).

While this study reveals that Gold Coast GPs are recommending health websites to a high degree, there is still an expressed need to undertake further research into what mechanisms may encourage both present and future Gold Coast GPs to adopt such an innovative approach to modern e-health care delivery. The findings of this study suggest that Gold Coast GPs need training to help them assess the level of reliability, interactivity and usability components throughout a health website. Courses added to medical schools’ curriculum on how best to assess, use and recommend health websites for patient education, have frequently been indicated as a necessity for future GP training. For those Gold Coast GPs already in practice, CME courses would enable GPs to help patients learn about e-health care issues using the website material / content. It has been identified throughout this study that web-based continuing medical education courses or programs in medical schools may help GPs develop the skills necessary for the evaluation and delivery of effective e-health care. A similar study, conducted by Decco (2003), recommends that the act of an ‘Internet prescription’ maybe encouraged through educating GPs about the availability of quality assurance models, the existence of professionals trained specifically to handle medical information in a variety of situations and CME course designed to make GPs more aware of health website material, components and content. However, to date, there is little research indicating any substantial coordinated approach to addressing these recommendations.
Other recommendations, from this study, indicate that avenues must be further explored that will allow GPs to have ready access to health websites which have a high degree of reliability, possess appropriate levels of interactive components and are user friendly. This is perhaps an initial step in improving the acceptance and adoption of e-health technologies in a broader context. Underpinning many of the suggested reasons as to why GPs don’t recommend websites is due to the issue of ‘trust’, in terms of a reliable website, free from biased information. This issue was frequently put forward as a necessary issue of increasing website recommendation by GPs. How this level of ‘trust’ can be implemented and maintained is another point of contention and warrants a further study in itself. Literature suggests that further studies into the area of human–computer interactions must investigate sustainable action plans and strategies which will create and encourage change amongst GPs, health consumers and web designers alike.

Moreover, the data from this study suggest that the Internet and the WWW is being used by global pharmaceutical companies in an attempt to control and homogenise markets and the dissemination of health information to the health consumer and GP alike. Furthermore, McAFee (2003) suggests that the WWW and the Internet can influence every phase of the ‘Pharmaceutical Value Chain’ and subsequently the dissemination of online health information to the GP and health consumer. The governance of such nodal communication points (health websites) has implications for GPs and health consumers alike. Given the findings from this study and the contention of McAFee (2003), further investigation of the level of influence by global pharmaceutical companies on GPs’ Internet prescribing habits and recommendations would seem appropriate.
Finally, this study is the first exploration of GPs' views of health website components (reliability, interactivity and usability) and recommendation trends in Australia. This study might help guide future research and policy (see Appendix 15) and assist GPs to develop the skills necessary for the delivery of effective modern e-health care, medical education and public health promotion. As this is the first Australian study that has examined the influences that directly or indirectly motivate Gold Coast general practitioners to recommend a health website to the health consumer, further research and cross-cultural studies should be undertaken to determine the extent of the 'Internet prescription'.


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LIST OF APPENDICES
APPENDICES

Appendix 1: Associated elaborations pertaining to reliability components
Appendix 2: Associated elaborations pertaining to interactive components
Appendix 3: Associated elaborations pertaining to usability components
Appendix 4: A flow chart for designing reliable, interactive and user friendly health websites
Appendix 5: A guide to the development of a reliable, interactive and user friendly health websites
Appendix 6: Letter of introduction – quantitative / qualitative
Appendix 7: Supporting research questions - quantitative
Appendix 8: Survey instrument – quantitative
Appendix 9: Interview instrument – qualitative
Appendix 10: Health website categorisation
Appendix 11: A ranking scale for categorising health websites
Appendix 12: A systematic approach to the evaluation (formative and summative) of health websites
Appendix 13: A Measurement Scale
Appendix 14: Media Release – ‘Young doctors sending patients to cyberspace’ November 9th, 2007.
### INCREASING THE 'TRUSTWORTHINESS' OF A HEALTH WEBSITE

#### 8 RELIABILITY COMPONENTS

Components of a web page which allows for a user to determine its level of reliability, in terms of its content material and the credibility of individuals or groups intentions or qualifications.

<table>
<thead>
<tr>
<th>DEFINE</th>
<th>1. Authority: the person or organization presenting the material is recognized as having definitive knowledge and accreditation.</th>
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<tbody>
<tr>
<td></td>
<td>&gt; Doctors, universities, academics, accredited individuals.</td>
</tr>
<tr>
<td></td>
<td>&gt; Information based on sound, scientific evidence rather than hearsay.</td>
</tr>
<tr>
<td>CHECK LIST FOR 'AUTHORITY'</td>
<td>&gt; Links to the author via email, web page or other research.</td>
</tr>
<tr>
<td></td>
<td>&gt; The author’s name and credentials.</td>
</tr>
<tr>
<td></td>
<td>&gt; Name and accreditation of institution responsible for content.</td>
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<td></td>
<td>&gt; Able to examine the publisher’s or Web Host’s reputation.</td>
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<th>DEFINE</th>
<th>2. Accuracy: the extent to which information is reliable and free from errors.</th>
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<tr>
<td></td>
<td>&gt; Use of editors.</td>
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<td></td>
<td>&gt; A peer review process which monitors accuracy.</td>
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<td></td>
<td>&gt; Uniformity of language and format.</td>
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<tr>
<td>CHECK LIST FOR 'ACCURACY'</td>
<td>&gt; Information is free from grammatical errors.</td>
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<tr>
<td></td>
<td>&gt; Listing of creditable sources.</td>
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<td>&gt; Information is not hearsay or premature in assumption.</td>
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<th>DEFINE</th>
<th>3. Objectivity: the extent to which information expresses fact without distortion by personal feelings or other biases.</th>
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<tr>
<td></td>
<td>&gt; Knowing the intent of the institution, organization or person providing the information.</td>
</tr>
<tr>
<td></td>
<td>&gt; Limited evidence of bias.</td>
</tr>
<tr>
<td>CHECK LIST FOR 'OBJECTIVITY'</td>
<td>&gt; The purpose of the group is clearly stated, i.e. profit or non-profit.</td>
</tr>
<tr>
<td></td>
<td>&gt; The level of influence exerted by advertisers or sponsors on the content and display of organization’s goals.</td>
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<th>DEFINE</th>
<th>4. Currency: the extent to which information and material can be identified as up to date.</th>
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<tr>
<td></td>
<td>&gt; Displaying current statistical data.</td>
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<td></td>
<td>&gt; Up to date publications, copyright details and web site revisions.</td>
</tr>
<tr>
<td>CHECK LIST FOR 'CURRENCY'</td>
<td>&gt; Dates to latest inclusion and information revisions.</td>
</tr>
<tr>
<td></td>
<td>&gt; Dates as to when web page was constructed and regular up dates.</td>
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<tr>
<td></td>
<td>&gt; Copy right dates and details.</td>
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<th>DEFINE</th>
<th>5. Intended Audience: information is aimed at a specific group of people. The group that the material is aimed at is stated.</th>
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<tbody>
<tr>
<td></td>
<td>&gt; Statements indicating specifically who the information is aimed and intended for.</td>
</tr>
<tr>
<td>CHECK LIST FOR 'INTENDED AUDIENCE'</td>
<td>&gt; Intended audience is categorized or expressed by: age, gender, ethnicity, minority group, target population, disease segmentation.</td>
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<th>DEFINE</th>
<th>6. Coverage: the range of topics and the depth to the topics addressed.</th>
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<tbody>
<tr>
<td></td>
<td>&gt; Inclusions of an index, site map, table of contents or preface.</td>
</tr>
<tr>
<td>CHECK LIST FOR 'COVERAGE'</td>
<td>&gt; Disclosure indicating depth of information presented throughout web page.</td>
</tr>
<tr>
<td></td>
<td>&gt; Intended use and application of information.</td>
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<tr>
<th>DEFINE</th>
<th>7. Confidentiality: any individual's information/details given to the Web Host will be respected and kept private.</th>
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<td></td>
<td>&gt; Statements throughout web page stating level of security, privacy and intentions.</td>
</tr>
<tr>
<td>CHECK LIST FOR 'CONFIDENTIALITY'</td>
<td>&gt; Adhering to Information Privacy Acts.</td>
</tr>
<tr>
<td></td>
<td>&gt; Clear statements as to what the intentions of the web host is when pertaining to personal information.</td>
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<th>DEFINE</th>
<th>8. Justifiability: any claim that the web site makes is supported by appropriate, balanced evidence and research.</th>
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<tr>
<td></td>
<td>&gt; Claims relating to commercial products, specific medical treatments or services are presented with balanced evidence from reputable sources and fact.</td>
</tr>
<tr>
<td>CHECK LIST FOR 'JUSTIFIABILITY'</td>
<td>&gt; Claims are balanced with supporting evidence clearly defined.</td>
</tr>
<tr>
<td></td>
<td>&gt; The statement about the performance of any item, medication or organization is evidence based and balanced.</td>
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</table>
There are four interactive components which heighten interactive technology. When all four are seamless and working together; interactivity, user engagement and connectedness are heightened throughout the health domain. At times, amongst the components, there is an ‘overlapping’ of technologies when attempting to heighten interactive technology. However, this ‘overlapping’ of technologies brings about a number of outcome commonalities, these being: (1) an increase in self-efficacy, (2) the ability to communicate and control information either synchronously or asynchronously, (3) the ability to manipulate text, and (4) the ability to narrow / segment information for a particular audience, target group or individual.
INCREASING 'USER CONTROL' THROUGHOUT A HEALTH WEBSITE

3 USABILITY COMPONENTS

The extent to which the user of the system can participate in, modifying the form and content of the mediated environment. A sense of 'ease of movement' throughout the domain is important for determining user control.

1. Health Literacy: the extent to which the user can read and understand the information. Health literacy levels should be at a year 6 level, so as to ensure that all users have the ability to understand health information contained throughout the website. Easy level of navigation associated with locating content throughout web domain. The inclusion of Site Maps, Table of Contents and Prefaces heightens levels of navigation.

CHECK LIST FOR 'NAVIGATION'
- Ease of understanding of text.
- The ability to easily locate information and content through the application of Site Maps, Tables of Content and Prefaces.

2. Interface Engagement: the extent to which an individual user may manipulate the content of the interface to suit (tailor) his/her specific needs at a time that is determined by them. Closely associated with the levels, types and degrees of interactive components associated with web page.
- The level to which content and other modular units throughout the interface may be manipulated and segmented so as to provide tailored, timely and relevant information.
- High degrees of technology associated with synchronous/ asynchronous communication.

CHECK LIST FOR 'INTERFACE ENGAGEMENT'
- A number of modular components which heighten levels of user engagement.
- Closely associated with the level of interactive components throughout an interface.
- Components allow user to manipulate and segment text/information to suit his/her needs, either synchronously or asynchronously.
- Possess interactive components which allow for audience segmentation (emails, chat rooms, bulletin boards, feedback facilities) – linked with Temporal Flexibility.

3. Educational: the extent to which the combined experience (navigation/interface engagement) has lead to a user feeling that a level of education was reached as a result of engaging within the interface. Educational levels can also be influenced by the combined inclusions of both reliability and interactive components throughout the web experience.
- The combined approach of such components as: Precision, Structural, Navigation and Engagement will heighten levels of education.
- The ability of a web page to keep a user actively engaged will lead to a distinct increase in information retention and the ability to successfully recall this information (Social Learning Theory).

CHECK LIST FOR 'EDUCATIONAL'
- The website creates an environment which promotes prolonged engagement by the user.
- Reliability and Interactive Components heighten the degree of information recall and retention by user.

There are three usability components which heighten levels of engagement, navigation and education. These three components are closely linked and related to all interactivity components, which when working seamlessly together encourages and enhances the ability of an interface to prolong a users engagement, creates an easy free 'toggle' and improves their ability to retain and recall appropriate information. The main attributes of the 3 User Component are: (1) Speed of response, (2) Ease to finding content and information, (3) Ease to manipulate and segment information and (4) Increasing user engagement throughout interface.
Appendix 4:

A flow chart for designing reliable, interactive and user friendly health websites

1. CONCEPTUALISATION

- Theory development of the following needs:
  - i. Target group and health needs,
  - ii. Needs assessment tools,
  - iii. Create user profile for 'health technology'.

- Information seeking process,
- Influences and constraints,
- Health Locus of control,
- Barriers to internet use,
- Interactive health web sites,
- ABS statistics of internet use.

Background theory to give 'understanding' of specific health issues.

2. DESIGN & 3. IMPLEMENTATION

- Identify Reliability, interactive and usability components of intended web interface (see Appendix 1, 2 and 3).

- Identify website Category and intended use (see Appendix 10, 11 and 12).
  - i. Based on conceptual understanding of target groups and health issue,
  - ii. Determine levels and types of interactive components,
  - iii. Establish level of reliability components,
  - iv. Establish appropriate ranking scale and health web page category.

- Implement completed health web page for health professional and target group.

4. EVALUATION

- Systematic evaluation tool so as to establish 'reliability and trustworthy ranking system' (see Appendix 13).
  - i. Provide feedback mechanism,
  - ii. Automatic ranking scale,
  - iii. Summative and formative evaluation tool.
1. CONCEPTUALISATION
Compiling and gathering appropriate data, statistics and other information pertaining to understanding ‘OBESITY amongst Adolescents’.
- ABS - Australian Obesity Statistics.
- Data and Medical facts associated with Adolescents and Obesity trends.
- Australian trends as compared to World trends.
- Barriers to weight control and Adolescents.
- Barriers to web access and support groups - psychobehavioural profile.
- Develop ‘user profile’ from data.
- View other web based programs and other health promotion programs which are aimed at Obesity.

2. DESIGN
Determining web page categorization / orientation and levels of Reliability, Interactivity and User Control Components.
- Categorization of web page - determining the orientation of web page (information, commercial, medical).
- Determining the levels and types of Reliability / Interactive / User Control Components.
- Determining level and type of ‘built-in’ and external forms of Evaluation.
- All of the above ‘DESIGN PHASE’ is determined via needs assessment of key stakeholders.

3. IMPLEMENTATION
Upon completion of site implementation should be such that product (web page) has the most impact on the intended target group. Marketing and advertising of the web site must be given consideration.

4. EVALUATION
‘Built-in’ and progressive evaluation techniques and tools should be designed and implemented along the entirety of the Framework.
- BUILT-IN (email, chat rooms, help buttons, questionnaires, support numbers and contacts).
- EXTERNAL (questionnaires, focus groups, face-to-face interviews, data analysis).
- Evaluation should be both formative and summative in nature.

NEEDS ASSESSMENT
- Consultations with key stakeholders.
- Review relevant data and information.
- Familiarize with characteristics of the target group.
- Analysis of the organizational context in which the program will operate.
- Analysis of key stakeholders’ needs.
- Identify contributing factors of health issue.
- Selection of a focus for the program.

www.obesity.com
Web Page is designed and developed on:
- Conceptually sound data and statistics.
- Types and levels of modular components have been determined by consultation and needs assessments to determine what is relevant to key stakeholders.
Appendix 5:

A guide to the development of a reliable, interactive and user friendly health websites

1. CONCEPTUAL

THEORY

Understanding:

- Information seeking process,
- Influences and constraints,
- Health locus of control,
- Barriers to internet use,
- Interactive health web sites,
- ABS statistics of internet use,
- Phenomena of WWW on hith.

Diagrams:

- A comparison analysis of various hith promotion Media,
- hith and the new media,
- A 3 stage model of hith promotion using interactive

2. DESIGN

DEVELOPMENT

Understanding:

- Critiquing types of hith web sites,
- Interactive technology,
- Interactive and reliability components,
- User control.

Concept:

- Determining interactive and reliability components and a hith web page criteria,
- Constructing a reliability ranking scale,
- Design a Web Page category.

3. IMPLEMENTATION

COMPLETION

Understanding:

- Implementation of completed website,
- Ensure that barriers to access are minimal,
- Marketing and advertising so to ensure target population and hith professionals are aware of site.

4. EVALUATION

SYSTEMATIC

Understanding:

- Specific evaluation criteria,
- Current attempts to evaluate,
- Evaluation carried out throughout all phases,
- Summative and formative evaluation (built in systematic approach).

Concept:

- Evaluation of all stages and phases,
- Evaluating the reliability / interactive components, user control and hith web page category.
Appendix 6:

Letter of introduction and survey instrument – quantitative

School of Education and Professional Studies

Mr Wayne Usher

Associate Lecturer

Telephone +61 (0)7 5552 8729
Facsimile +61 (0)7 5552 8599

w.usher@griffith.edu.au

Gold Coast campus, Griffith University

Dear Gold Coast General Practitioners

I would like to take this opportunity to introduce myself. My name is Wayne Usher and I am an Associate Lecturer within the Faculty of Education and Professional Studies – Gold Coast campus. I am also undertaking a PhD. The topic I have chosen to investigate is surrounding and measuring GP’s knowledge and attitudes towards using and recommending health websites to patients.

You will find enclosed a survey in relation to this PhD. Also contained within this envelope is a pre-paid envelope addressed to Griffith University. Once you have completed this survey, please forward them onto Griffith University.

The survey is completely anonymous and at no stage will you be contacted in relation to your responses. I would greatly appreciate it if your valuable responses could be completed and forwarded onto me within the next two weeks.

Also contained within this envelop is a chance to be involved in a follow-up interview. If you wish to be involved please complete the form and forward this separately to the University.

I am seeking your assistance in the final stage of this study. I feel that such a study, as this, will benefit both present and future GPs. I understand the enormous pressure and time constraints placed on Doctors and would appreciate any feedback (minor or major) you could give me throughout this initial stage of data collection.

If at anytime you wish to discuss this survey, please feel free to contact me.

Kind Regards

Wayne Usher
Dip.HlthProm,Grad. Dip.HlthProm.,M.HlthSci
Appendix 7:

Supporting research questions

Section A (questions a – h): Response rates and participating GP’s personal information. Results indicated below (a-h) are data / response rates collected from the pilot study.

a. Number of mailed surveys: n =  
b. Response rate: n =  
c. Yes responses (full completion): n =  
d. Yes responses (partial completion): n =  
e. No responses: n =  
f. What is the gender distribution of participating (returned surveys) GPs?  
g. What is the average age of participating (returned surveys) GPs?  
h. What is the average experience (number of years) of participating (returned surveys) GPs?

Section B – (questions 1 – 17): What are the usage trends, attitudes, prevalence of medical [health] website recommendation to the health consumer by Gold Coast GPs?

Question 1- What are the trends and prevalence of medical [health] website recommendation by GPs throughout the Gold Coast region?  
1a. What proportion of participating GPs did not recommend medical [health] websites to the health consumer?  
1b. What are the correlations between those GPs not recommending medical [health] websites and the stated GP demographic information (age, gender, years experience)?
1c. What proportion of participating GPs did recommend medical [health] websites to the health consumer?

1d. What are the correlations between those GPs recommending medical [health] websites and the stated GP demographic information (age, gender, years experience)?

Question 2- What are the reasons why GPs chose not to recommend medical [health] websites to the health consumer?

2a. What was the main reason / s (in order of importance) as to why participating GPs chose not to recommend medical [health] websites to the health consumer?

Question 3- What is the predominate age group that GPs recommend medical [health] websites to?

3a. To what age group did participating GPs predominantly recommend medical [health] websites to?

Question 4- What is the predominate age group to which GPs recommend medical [health] websites to?

4a. For the predominant age group to which participating GPs recommended medical [health] websites to, what were (in order of importance) the reasons for their recommendations?

Question 5- What is the total patient portion to which GPs recommend medical [health] websites to?

5a. To what proportion of patients numbers did participating GPs recommend medical [health] websites to?

Question 6- What is the proportion of medical [health] websites recommended to male by GPs?
6a. What proportion of medical [health] websites were recommended to males by participating GPs?

Question 7- What is the proportion of medical [health] websites recommended to females by GPs?

7a. What proportion of medical [health] websites were recommended to females by participating GPs?

Question 8- What proportion of patients request their GPs to recommend medical [health] websites to them?

8a. What proportion of patients asked participating GPs to recommend medical [health] websites to them?

Question 9- What is the predominate age group which requests that GPs recommend medical [health] websites to them?

9a. What was the predominant age group that requested the recommendation of medical [health] websites from participating GPs?

Question 10- What is the predominate intention for medical [health] website recommendation by GPs to the health consumer?

10a. What is the predominant intentions of GPs for recommending medical [health] websites to the health consumer?

Question 11 - What is the predominate source used by GPs to find medical [health] websites they recommend to the health consumer?

11a. What is the predominant source used by participating GPs to find medical [health] websites they recommend to the health consumer?

Question 12 - What is the predominate health issue / concern to which GPs recommend medical [health] websites to the health consumer?

12a. What is the predominate health issue / concern to which participating GPs recommend medical [health] websites to the health consumer?
Question 13 – What is the proportion of patients that bring online medical [health] information to the GP?

13a. What is the proportion of patients that brought online medical [health] information to participating GPs?

Question 14 – What is the predominate age group of patients that brought online medical [health] information to the GP?

14a. What is the predominate age of patients that brought online medical [health] information to participating GPs?

Question 15 – What proportion of specific medical [health] websites do patients bring to the GP?

15a. What proportion of specific medical [health] websites did the health consumer bring to participating GPs for consultation and discussion?

Question 16 – What proportion of males brought GPs online medical [health] information?

16a. What proportion of males brought participating GPs online medical [health] information?

Question 17 – What proportion of females brought GPs online medical [health] information?

17a. What proportion of females brought participating GPs online medical [health] information?
Section C (questions 18 – 23): What level of influence do Pharmaceutical Companies have on Gold Coast GPs with regards to the recommendation of medical [health] websites to the health consumer?

Question 18 - What proportion of medical [health] websites are sponsored by pharmaceutical companies?

18a. To the knowledge of participating GPs what proportion of medical [health] websites are sponsored by pharmaceutical companies?

18b. What is the correlation between participating GPs knowledge of sponsored pharmaceutical medical [health] websites and their 1) age, 2) gender and 3) years of experience?

Question 19 – What percentage of GPs are offered incentives by pharmaceutical reps to recommend medical [health] websites to the health consumer that are sponsored by pharmaceutical companies?

19a. What percentage of participating GPs are offered incentives by pharmaceutical reps to recommend medical [health] websites to the health consumer that are sponsored by pharmaceutical companies?

19b. What is the correlation between participating GPs being offered incentives by pharmaceutical reps and their 1) age, 2) gender and 3) years of experience?

Question 20 – What is the predominate reasons to which GPs choose to recommend medical [health] websites to the health consumer?

20a. What is the predominant reasons (in order of importance) to which participating GPs choose to recommend medical [health] websites to the health consumer?

Question 21 – What is the predominate reasons to which GPs choose not to recommend medical [health] websites to the health consumer?
21a. What is the predominate reasons (in order of importance) to which participating GPs choose not to recommend medical [health] websites to the health consumer?

Question 22 – What incentives do pharmaceutical companies offered GPs as an attempt to entice them to use and recommend pharmaceutically sponsored medical [health] websites to the health consumer?

22a. What incentives (in order of importance) have pharmaceutical companies offered participating GPs as an attempt to entice them to use and recommend pharmaceutically sponsored medical [health] websites to the health consumer?

Question 23 – What proportion of pharmaceutical companies offer GPs incentives for recommending their medical [health] websites to the health consumer?

23. What proportion of pharmaceutical companies offered participating GPs incentives for recommending their medical [health] websites to the health consumer?
Section D (question 24 – 32): What do Gold Coast GPs understand about Reliability Factors, Interactive Technologies, Usability Components and Quality Assurance Seals associated with the medical [health] websites they recommend to the health consumer?

Question 24- What percentage of GPs understand the level of reliability and quality assurance associated with the medical [health] websites they recommend to the health consumer?

24a. What percentage of participating GPs understand the level of reliability and quality assurance associated with the medical [health] websites they recommend to the health consumer?

Question 25 – What proportion of the medical [health] websites GPs recommend to the health consumer do they check to ensure the quality of information?

25a. What proportion of the medical [health] websites GPs recommend to the health consumer do they check to ensure the quality of information?

Question 26 – What methods do GPs use to determine the level of reliability of the medical [health] websites they recommend to the health consumer?

26a. What methods (in order of importance) do GPs use to determine the level of reliability of the medical [health] websites they recommend to the health consumer?

Question 27 – What do GPs understand about reliability components of a medical [health] website they recommend to the health consumer?

27a. What proportions do participating GPs understand about specific reliability components (authority, accuracy, objectivity, currency, intended audience, coverage, confidentiality and justifiability) of a medical [health] website they recommend to the health consumer?
27b. What is the correlation between participating GPs knowledge of specific reliability components of medical [health] websites they recommend and their 1) age, 2) gender and 3) years of experience?

Questions 28 – What percentage of GPs understand what constitutes Interactive Technology?

28a. What percentage of participating GPs understand what constitutes Interactive Technology?

Question 29 - What proportions of GPs understand about specific interactive technology components (multimodality, networkability, interactivity, temporal flexibility, message tailoring capabilities) of a medical [health] website they recommend to the health consumer?

29a. What proportions of participating GPs understand about specific interactive technology components (multimodality, networkability, interactivity, temporal flexibility, message tailoring capabilities) of a medical [health] website they recommend to the health consumer?

29b. What is the correlation between participating GPs knowledge of specific interactive technology components of medical [health] websites they recommend and their 1) age, 2) gender and 3) years of experience?

Question 30 – What percentage of GPs understand what ‘usability’ means in terms of the medical [health] websites they recommend to the health consumer?

30a. What percentage of participating GPs understand what ‘usability’ means in terms of the medical [health] websites they recommend to the health consumer?30b. What is the correlation between participating GPs knowledge of ‘usability’ of medical [health] websites they recommend and their 1) age, 2) gender and 3) years of experience?
Question 31 – What proportion of the medical [health] websites that GPs recommended to the health consumer have a high level of usability?

31a. What proportion of the medical [health] websites that participating GPs recommended to the health consumer have a high level of usability?

Question 32 – What components of ‘usability’ are GPs able to identify throughout the medical [health] websites they recommend to the health consumer?

32a. What components of ‘usability’ are GPs able to identify throughout the medical [health] websites they recommend to the health consumer?

32b. What is the correlation between participating GPs knowledge of the components of ‘usability’ of medical [health] websites they recommend and their 1) age, 2) gender and 3) years of experience?
Appendix 8:

Survey instrument – quantitative

THIS SURVEY WILL TAKE APPROX 30-40 MINUTES TO COMPLETE

Throughout this questionnaire, the following terms and definitions are used:

1. **Health websites**: any website endorsed by a Physician for the dissemination of health related knowledge to patients via the Internet (Gerber & Eiser, 2001, p.457).

2. **Recommendation**: actively prescribing to a patient a particular medical [health] website for the purposes of education, prevention, rehabilitation or drug therapy. More commonly referred to as an ‘Internet Prescription’.

3. **Reliability**: worthy of confidence; being or deriving from a source worthy of belief or consideration for evidentiary purposes (Legal Dictionary).

4. **Interactivity**: the level and degree to which an individual/s may interact / control information and feedback from the webpage. Also the level and degree to which an individual/s may tailor health information to suit his / her specific needs at a particular time. Associated with synchronous and asynchronous communication mediums.

5. **Usability**: the extent to which the user of the system can participate in, modifying the form and content of the mediated environment. A sense of ease of movement throughout the domain is important for determining user control.

PERSONAL DETAILS – [PLEASE COMPLETE]

<table>
<thead>
<tr>
<th>GENDER:</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>AGE:</td>
<td>20-30</td>
<td>31-40</td>
</tr>
<tr>
<td></td>
<td>41-50</td>
<td>51-60</td>
</tr>
<tr>
<td></td>
<td>60+</td>
<td></td>
</tr>
<tr>
<td>Years of Experience:</td>
<td>&lt; 10 years</td>
<td>&gt; 10 years</td>
</tr>
</tbody>
</table>

1. Have you ever recommended a medical (health) website to a patient? (Circle one)  
   Yes (go to Q 3)  
   No* (go to Q 2)

2. If you answered 'No' to Q 1, please indicate (x) the most important reason for 'not' recommending medical (health) websites.

*If you answered ‘no’ to Q 1 and have answered Q 2, then please complete questions 21-23 & 27-32
The websites are not generally accredited by a professional organisation.
I do not have the time to view and read all of the content contained within medical [health] websites.
I don't know whether or not the content is reliable information.
I am concerned that my patients may misinterpret the content in medical [health] websites.
I find that recommending medical [health] website has a negative impact on the doctor – patient relationship.
I would prefer to personally discuss with my patients any medical intervention or treatment.
I am concerned that medical [health] websites may be sponsored by pharmaceutical companies and so may display biased content information.

3. If you do recommend medical (health) websites to your patients, to which age group do you recommend such websites most often?  - (Circle one)

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-18 yrs</td>
<td></td>
</tr>
<tr>
<td>19-25 yrs</td>
<td></td>
</tr>
<tr>
<td>26-45 yrs</td>
<td></td>
</tr>
<tr>
<td>46-65 yrs</td>
<td></td>
</tr>
<tr>
<td>66 yrs +</td>
<td></td>
</tr>
</tbody>
</table>

4. Which of the following is the main reason why you recommend medical (health) websites mostly to the above age group? - (x) the most important reason – 1 response

- I feel that the age groups have access to and able to use the appropriate technology (internet / WWW).
- I feel that the treatment I offer lends itself to educating patients of this/these age groups via the internet.
- I feel that the age groups are more inclined to be able to understand the medical [health] information.
- I feel that the age groups are more proactive in their health care.
- I feel that the age groups are more inclined to request that I recommend medical [health] websites.
- I feel that it enhances the doctor – patient relationship.
- Other ... please state

5. Of your total patient numbers, to what proportion do you recommend medical (health) websites?  - (Circle one)

<table>
<thead>
<tr>
<th>Percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>1-10%</td>
</tr>
<tr>
<td>11-20%</td>
<td>21-30%</td>
</tr>
<tr>
<td>31-40%</td>
<td>Over 40%</td>
</tr>
</tbody>
</table>

6. To what proportion of your male patients do you recommend medical (health) websites?  - (Circle one)

<table>
<thead>
<tr>
<th>Percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>1-10%</td>
</tr>
<tr>
<td>11-20%</td>
<td>21-30%</td>
</tr>
<tr>
<td>31-40%</td>
<td>Over 40%</td>
</tr>
</tbody>
</table>

7. To what proportion of your female patients do you recommend medical (health) websites?  - (Circle one)

<table>
<thead>
<tr>
<th>Percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>1-10%</td>
</tr>
<tr>
<td>11-20%</td>
<td>21-30%</td>
</tr>
<tr>
<td>31-40%</td>
<td>Over 40%</td>
</tr>
</tbody>
</table>

8. What proportion of your total patient numbers ask you to recommend medical (health) websites for them to access and read?  - (Circle one)

<table>
<thead>
<tr>
<th>Percentage</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0%</td>
<td>1-10%</td>
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<tr>
<td>11-20%</td>
<td>21-30%</td>
</tr>
<tr>
<td>31-40%</td>
<td>Over 40%</td>
</tr>
</tbody>
</table>

9. Of those patients who ask you to recommend medical (health) websites, which age group asks you to recommend medical (health) websites to them most frequently?  - (Circle one)

- Adolescents (10-18 yrs)
- Young Adults (19-25 yrs)
- Adults (26-45 yrs)
- Middle Age (46-65 yrs)
10. What proportion of medical (health) website recommendations that you make is intended to achieve each of the following patient outcomes?

Please circle one for every category:

<table>
<thead>
<tr>
<th>Patient Outcomes</th>
<th>0%</th>
<th>1 - 10%</th>
<th>11 - 20%</th>
<th>21 - 30%</th>
<th>31 - 40%</th>
<th>Over 40%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Educate the patient about their specific condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide information on drug therapy for their specific condition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Provide information on alternative therapies for their specific condition</td>
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<td></td>
</tr>
<tr>
<td>Provide information on surgical procedures</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Promote pharmaceutical products and services</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Inform the patient of online chat &amp; support networks for their specific condition</td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Other...please specify</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

11. What proportion of the medical (health) websites that you recommend are found from the following sources?

Please circle one for every category:

<table>
<thead>
<tr>
<th>Source</th>
<th>0%</th>
<th>1 - 10%</th>
<th>11 - 20%</th>
<th>21 - 30%</th>
<th>31 - 40%</th>
<th>Over 40%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Search engines (Google, Alta Vista etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medical literature and journals</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>AMA Websites</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pharmaceutical companies (adverts, promotions, reps or websites)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional peers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other...please specify</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
12. What proportion of the medical (health) websites that you recommend are concerned with the following health issues/concerns?

Please circle one for every category:

<table>
<thead>
<tr>
<th>Diet and food intake</th>
<th>0%</th>
<th>1 - 10%</th>
<th>11 - 20%</th>
<th>21 - 30%</th>
<th>31 - 40%</th>
<th>Over 40%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmaceutical drug treatment</td>
<td>0%</td>
<td>1 - 10%</td>
<td>11 - 20%</td>
<td>21 - 30%</td>
<td>31 - 40%</td>
<td>Over 40%</td>
</tr>
<tr>
<td>Specific diseases</td>
<td>0%</td>
<td>1 - 10%</td>
<td>11 - 20%</td>
<td>21 - 30%</td>
<td>31 - 40%</td>
<td>Over 40%</td>
</tr>
<tr>
<td>Prevention of disease</td>
<td>0%</td>
<td>1 - 10%</td>
<td>11 - 20%</td>
<td>21 - 30%</td>
<td>31 - 40%</td>
<td>Over 40%</td>
</tr>
<tr>
<td>Exercise</td>
<td>0%</td>
<td>1 - 10%</td>
<td>11 - 20%</td>
<td>21 - 30%</td>
<td>31 - 40%</td>
<td>Over 40%</td>
</tr>
<tr>
<td>Cosmetic surgery</td>
<td>0%</td>
<td>1 - 10%</td>
<td>11 - 20%</td>
<td>21 - 30%</td>
<td>31 - 40%</td>
<td>Over 40%</td>
</tr>
<tr>
<td>Alternate medicine</td>
<td>0%</td>
<td>1 - 10%</td>
<td>11 - 20%</td>
<td>21 - 30%</td>
<td>31 - 40%</td>
<td>Over 40%</td>
</tr>
<tr>
<td>Other ... please specify</td>
<td>0%</td>
<td>1 - 10%</td>
<td>11 - 20%</td>
<td>21 - 30%</td>
<td>31 - 40%</td>
<td>Over 40%</td>
</tr>
</tbody>
</table>

13. What proportion of your patients brings you medical (health) information they have found on the Internet about their health condition or disease? - (Circle one)

0% | 1 - 10% | 11 - 20% | 21 - 30% | 31 - 40% | Over 40% | (Circle one)

14. Which of the following patients' age groups brings you medical (health) information they have found on the Internet most frequently? - (Circle one):

- Adolescents (10-18 yrs)
- Young Adults (19-25 yrs)
- Adults (26-45 yrs)
- Middle Age (46-65 yrs)
- Elderly (66 yrs+)


15. For each of the following categories, please indicate what proportion of specific medical (health) information found on the Internet patients bring to you for discussion and consultation?

Please circle one for every category:

<table>
<thead>
<tr>
<th>Category</th>
<th>0%</th>
<th>1-10%</th>
<th>11-20%</th>
<th>21-30%</th>
<th>31-40%</th>
<th>Over 40%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diet and food intake</td>
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<td>Pharmaceutical drug treatment</td>
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<td>Specific diseases</td>
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<tr>
<td>Prevention of disease</td>
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<td>Exercise</td>
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<td>Alternate medicine</td>
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<tr>
<td>Non-communicable diseases (suicide, mental disorders, drug abuse, cancer, obesity)</td>
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<tr>
<td>Communicable diseases (flu, STDs, infections)</td>
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<tr>
<td>Other ...please specify</td>
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</tbody>
</table>

16. What proportion of your male patients brings you medical (health) information they have found on the Internet? (Circle one)

0% | 1-10% | 11-20% | 21-30% | 31-40% | Over 40% | (Circle one)

17. What proportion of your female patients brings you medical (health) information they have found on the Internet? - (Circle one)

0% | 1-10% | 11-20% | 21-30% | 31-40% | Over 40% | (Circle one)

18. To your knowledge, what proportion of the medical [health] websites that you recommend are sponsored by pharmaceutical companies? - (Circle one)

0% | 1-10% | 11-20% | 21-30% | 31-40% | Over 40% | (Circle one)

19. Have you ever been offered incentives by pharmaceutical representatives to recommend to your patients websites that are sponsored by pharmaceutical companies?

Yes / No
20. Which of the following statements is the most important, as to why you choose to recommend medical (health) websites that are pharmaceutically sponsored? - (x) the most important reason – 1 response

- The website’s content is professionally reviewed and quality assured by the pharmaceutical company.
- The website has the most relevant information for my patients.
- I believe the drugs / products they offer are the best on the market.
- The pharmaceutical reps offer me rewards / incentives for using their website.
- I do not have the time to view other medical (health) website alternatives.
- The website has been referred to me by my professional peers / colleagues.
- Other ....... please specify.

21. Which of the following statements is the most important reason, as to why you choose not to recommend medical [health] websites that are pharmaceutically sponsored? - (x) the most important reason – 1 response

- The website’s content is not professionally reviewed and quality assured.
- I question the motives behind pharmaceutical sponsored sites.
- I don’t have the time to read all the information on the website.
- I don’t know if the website is pharmaceutically sponsored or not.
- I have other alternate websites I recommend.
- It is against my personal principles to recommend pharmaceutically sponsored websites.
- It is against my professional ethics to recommend pharmaceutically sponsored websites.
- Other ....... please specify.

22. It is common practice in the current commercial market, for pharmaceutical companies to offer incentives to Health Professionals in an attempt to encourage them to use and recommend medical (health) websites. What benefits / incentives have been offered to you most frequently (select one) in an attempt to get you to use and recommend pharmaceutically sponsored medical (health) websites? - (x) the most important reason – 1 response

- Entertainment (movies, theatre, restaurants, sporting events).
- Attending local and overseas conferences.
- Professional connections and networking.
- Subsidised local and overseas holidays.
- Price incentives on the purchase of pharmaceutical products.
- Direct financial incentives.
- Gifts and novelty items (stationery, office equipment).
- Stationery

23. Of the pharmaceutical companies that you regularly deal with, what proportion of them offer you benefits / incentives for you to recommend their medical (health) websites? - (Circle one)

0% | 1 – 10% | 11 – 20% | 21 – 30% | 31 – 40% | Over 40% | (Circle one)

24. Do you know the level of reliability / quality assurance of the medical (health) websites that you recommend to patients?

Yes / No
25. Of the websites that you regularly recommend, what proportion of them do you read to check the quality of the information before recommending them to patients? - (Circle one)

0% | 1 – 10% | 11 – 20% | 21 – 30% | 31 – 40% | Over 40% | (Circle one)

26. Which of the below statements do you use most frequently as a method to determine the level of reliability of the medical (health) websites you use or recommend to your patients? - (x) the most important reason – 1 response

| I consider websites to be reliable if I have personally reviewed the content. |
| I consider websites to be reliable if they are authored by pharmaceutical companies. |
| I consider websites to be reliable if they have quality assurance control seals. |
| I consider websites to be reliable if they are recommended by the AMA. |
| I consider websites to be reliable if they are recommended by my professional peers. |
| I consider websites to be reliable if they are authored by a professional GP. |
| Other ....please specify. |

27. The following are the 8 components of Reliability. Please tick only those which you understand sufficiently well to be able to identify those components on a given medical (health) website.

- Authority
- Accuracy
- Objectivity
- Currency
- Intended audience
- Coverage
- Confidentiality
- Justifiability

28. Do you understand what constitutes 'Interactive Technology'?

Yes / No

29. The following are 5 components of interactive technology. Please tick only those which you understand sufficiently well to be able to identify those components on a given medical (health) website.

- Multimodality
- Networkability
- Interactivity
- Temporal Flexibility
- Message Tailoring Capabilities
30. Do you understand 'usability' in the context of medical (health) websites?

Yes / No

31. Of the websites that you recommend, what proportion has a high level of usability? - (Circle one)

0% | 1 – 10% | 11 – 20% | 21 – 30% | 31 – 40% | Over 40% | (Circle one)

32. Of the following 2 components of usability, please tick only those which you understand sufficiently well to be able to identify those components on a given medical (health) website.

☐ Navigation

☐ Interface engagement

Unsure
Appendix 9:

Interview questions – qualitative

<table>
<thead>
<tr>
<th>GENDER:</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years of Experience:</td>
<td>&lt; 10 years</td>
<td>&gt; 10 years</td>
</tr>
<tr>
<td>AGE:</td>
<td>20 - 30</td>
<td>31 - 40</td>
</tr>
</tbody>
</table>

Q1. Limited time (in terms of assessing the reliability of the website) was indicated as a major reason for not recommending websites to patients. What are some of the issues associated with 'limited time'?

Q2. Why don’t you recommend websites to your patients?

Q3. Why are more female GPs being targeted by Pharmaceutical Companies?

Q4. Why are the younger (31 - 40) GPs being targeted by Pharmaceutical Companies?

Q5. Why do younger GPs recommend more websites than the older GPs?

Q6. Why do less experienced GPs get approached by pharmaceutical companies in an attempt to get them to recommend their websites to the health consumer?

Q7. How do you think this practice of website recommendation helps or hinders your relationship with your patients?

Q8. In what ways do you think that the WWW and the Internet is changing the doctor–patient relationship?

Q9. How much influence do you think pharmaceutical companies are having over the prescribing habits of doctors?

Q10. To your knowledge how much influence do you think pharmaceutical companies are having throughout the WWW and the Internet?

Q11. What are some concerns you have when recommending websites to your patients?

Q12. What do you understand in relation to what makes a website reliable?

Q13. It has been indicated that more male GPs than female GPs understand authority, accuracy, objectivity, and currency. Whereas more female GPs understood intended audience, coverage, confidentiality, and justifiability when compared to their male counterparts. Why do you think this trend has emerged throughout the data?

Q14. It has also been indicated throughout the data that those GPs who are older with more experience indicated that they understood the majority of the reliability components as compared to the younger, less experienced GPs. Why do you think this trend has emerged throughout the data?

Q15. What do you understand in relation to the levels of Interactivity and Usability associated with the websites you use and recommend?

Q16. What do you think could be done to help both future and present doctors adopt the practice of website recommendation?
Appendix 10:

Health website categorisation

**e-knowledge**

- **Health literacy level is a low to moderate level.**
- **Information is presented so as to allow for users to be educated and determine preventative strategies.**
- **Interactive technologies include facilities that allow for questions and answers to be discussed.**
- **Straightforward questions for ease of identification by user.**

**e-business**

- **Links to other parts are affected by commercial gain.**
- **e-business facilities predominately through local websites.**
- **Healthcare B2C and B2B transactions and infrastructure.**
- **Offering health information and services at a price.**
- **No substantial information offered to users unless monetary costs are associated.**

**e-professional**

- **Information is discussing health, professionals of latest technology.**
- **Information is worded in medical language.**
- **Literature is medical articles or published works.**
- **Literature is educational for health professionals rather than preventative in nature.**
Appendix 11:

A ranking scale for categorising health websites

1 = low, 2 = moderate, 3 = high

<table>
<thead>
<tr>
<th>Criteria to determine type of health website</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>Needed level of Literacy</strong> to comprehend web page?</td>
<td>(Health literacy level)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. <strong>Ease of Navigation</strong> and User Control throughout interface?</td>
<td>(Navigation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. <strong>Level of Interactivity</strong> throughout interface?</td>
<td>(Interactivity)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. ‘<strong>Built-in</strong>’ evaluation tools and mechanisms – providing feedback facilities?</td>
<td>(Evaluation)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Interface is information based / non-profit in orientation?</td>
<td>(e-knowledge)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Hyper links from interface are equivalent in literacy levels and non-profit?</td>
<td>(e-knowledge)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Multimodalities are designed to be ‘user-friendly’ / educational?</td>
<td>(e-knowledge)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Asynchronous / synchronous functions are designed to assist in searching?</td>
<td>(e-knowledge)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Interface is aimed at generating profit and capital?</td>
<td>(e-business)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Hyper links from interface are equivalent in literacy levels and profit?</td>
<td>(e-business)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Multimodalities are designed to capture attention to increase change of profit?</td>
<td>(e-business)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Asynchronous / synchronous functions are designed to generate profit?</td>
<td>(e-business)</td>
<td></td>
<td></td>
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<tr>
<td>13. Interface is aimed at educating Health Professional (i.e. GP)</td>
<td>(e-professional)</td>
<td></td>
<td></td>
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<tr>
<td>14. Hyper links from interface are equivalent in literacy levels/orientation?</td>
<td>(e-professional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Multimodalities are designed to up skill / educate?</td>
<td>(e-professional)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Asynchronous / synchronous functions are designed to assist in educating peers?</td>
<td>(e-professional)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 12:

A Measurement Scale

'Reliability Scale'

Authority = 4 measurable scales
(a) The authors name and his / her credentials related to the subject area.
(b) Specific links to this author; be it personal email, web page or other significant research.
(c) Name and accreditation of institutions or governing organisations responsible for content and editing.
(d) Examining the publisher's / web host's reputation.

Accuracy = 3 measurable scales
(a) Listing of creditable source/s used in presenting research information.
(b) Information presented is free from grammatical errors.
(c) Information is not hearsay or premature in assumptions.

Objectivity = 2 measurable scales
(a) The purpose of the individual or group presenting the information is clearly stated, i.e. profit or non-profit.
(b) The potential influence exerted by advertisers or sponsors on the informational content of material is displayed.

Currency = 3 measurable scales
(a) Dates as to the latest revisions to the information displayed.
(b) Statements indicating dates pertaining to the website's construction, publication and information development.
(c) Copyright dates and details displayed.

Intended Audience & Coverage = 3 measurable scales
(a) A disclosure indicating the depth and level of the information.
(b) Intended use and application of information.
(c) A statement for whom the information is meant to address.

Confidentiality & Justifiability = 4 measurable scales
(a) Statement/s outlining Principles for Privacy and Confidentiality.
(b) The ability to express informed consent of health consumer.
(c) Express informed consent has been obtained, it should be indicated in the posted website's content.
(d) Statements indicating that claims are scientifically, evidence based information and data.
‘Interactivity Scale’

**Multimodality = 3 measurable scales**
(a) Contains interactive components which stimulates 3 human senses (visual, verbal, hearing).
(b) The integration of ‘sensory stimulus’, such as: (text, video, language).
(c) Multimodalities promote a heightened sense of ‘realism’.

**Networkability = 2 measurable scales**
(a) Hyper links and connections with other users and service providers which are ‘like minded’ / similar.
(b) Hyper links and connections with remote areas.

**Temporal Flexibility = 2 measurable scales**
(a) Possess interactive technologies (emails, chat rooms, bulletin boards, feedback facilities) which are asynchronous.
(b) Asynchronous or synchronous in nature, allowing users to interact with the content as the content is made available or to postpone the interaction as desired.

**Message Tailoring Capabilities = 2 measurable scales**
(a) Possesses interactive technologies which predetermines users keywords, urgency and origins.
(b) Information can be crafted to suit preferences and characteristics of targeted individuals.

‘Usability Scale’

**Health Literacy = 2 measurable scales**
(a) Level of literacy is to a year 6 level of literacy – ease of understanding.
(b) Ease of navigation around site (site maps, tables of content).

**Interface Engagement = 4 measurable scales**
(a) Posses interactive components which allow for audience segmentation (emails, chat rooms, bulletin boards, feedback facilities) – linked with temporal flexibility.
(b) A number of modular components which heighten levels of user engagement.
(c) Closely associated with the level of interactive components throughout an interface.
(d) Components allow user to manipulate and segment text / information to suit his / her needs, either synchronously or asynchronously.
Educational = 2 measurable scales

(a) Posses interactive components which promotes prolonged engagement by the user.
(b) Reliability and interactivity components heighten the degree of information recall and retention by user.

<table>
<thead>
<tr>
<th>Health Website</th>
<th>Reliability / Interactive / Usability</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reliability</td>
<td>Authority</td>
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<td>Accuracy</td>
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<td>Objectivity</td>
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<td>Currency</td>
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<td></td>
<td>Coverage / Intended Audience</td>
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<td></td>
<td><strong>Measurement Scale Total</strong></td>
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<td><strong>19</strong></td>
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<td>Interactivity</td>
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<td>Temporal Flexibility</td>
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<td>Message Tailoring Cap.</td>
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Appendix 13:

A systematic approach to the evaluation of health websites

By adopting a systematic approach to evaluation, it is hoped that a 'culture of evaluation' will be established among those working on interactive health websites. By a 'culture of evaluation' it is meant that through the use of clear articulation of evaluation criteria (formative and summative evaluation) content experts, health professionals and web designers and developers will become familiar with what constitutes 'good' and 'poor' health websites. For example, by evaluating the content of the web page, health experts and content developers may become aware as to what constitutes reliability components, interactive components and user control and the possible inclusions necessary for refining and improving a web page (formative) and what were the impacts and outcomes (summative) of such content / component design choices.

'Built in' evaluation technologies throughout a web page can help IT and Health Professionals determine the level of satisfaction and impact a web site is creating throughout the target population. Helps with further development and improvements of site.

**FORMATIVE EVALUATION**

The role of the formative evaluation is to provide information to the web designers that will help in the refinement and overall improvement of the content, design and other frameworks implemented. Further to this role, the formative evaluation should determine the appropriateness of the determined reliability, interactive components and the level and appropriate degree of user control.

**SUMMATIVE EVALUATION**

The role of the summative evaluation is to determine the impact and outcomes of the web page. This evaluation process is crucial to determining the extent of success each chosen interactive components and user control modular unit has had on the intended target population i.e. changing the health behaviours, educating population. Successful summative evaluation will help in the further development and inclusions of particular interactive components. This alone will help with economic rationalizing certain 'health technologies'.

Means of evaluation may include such techniques as: Clinical Studies, Field Studies, Questionnaires, Focus Groups, Interviews, 'Built in' and Observational Studies.

Meta-evaluation techniques maybe further implemented to determine the effectiveness of evaluation techniques developed throughout the conceptualization, design and evaluation phases.
Young doctors sending patients to cyberspace

The next generation of doctors will ensure 'internet prescriptions' overhaul face to face consultations, according to leading medical specialist Dr Joe Kosterich.

A Gold Coast study published in the Medical Journal of Australia has produced statistics to indicate the Internet is already changing the traditional doctor–patient relationship, with 55% of GP's aged 41–50 years old prescribing health websites to educate their patients about particular conditions or diseases. This is compared to 31% of GP's aged 51–60 years adopting the practice. The majority of GPs (69%) reported that they most often recommend websites to patients aged 26–45 years.

The results were supported by findings from the International Society for Research on Internet Interventions, which conducted successful trials on the effectiveness of internet programs for a number of health problems including depression, eating disorders and body image dissatisfaction.

"These are significant findings but they are the tip of the iceberg when you factor in the next generation of medical specialists coming through the system," said Dr Kosterich, Spokesperson for Australian medical website Virtual Medical Centre. Com.

"The gap found between the younger doctors and older GP's in terms of utilising the internet is pronounced, and this is still an age group that has adopted the internet rather than grown up with it. It is even still a significant figure for the latter, who would concede they are better served to direct patients to specific sites because they will do it regardless.

"But the medical students coming through the system now will almost exclusively adopt the practice, as will futuré students. It will be the norm with the majority of patients spending much more time finding out about a specific condition online than they will in face-to-face consultations. Nearly 70% of GP's acknowledged they directed 26-45 year olds to online medical sites in this study which underlines the changing face of society. Medicine will reflect this like everything else."

Supporting his prediction is the Australian visitor traffic to Virtual Medical Centre.Com, which Incorporates 19 separate free-of-charge 'Medical Centres' to address conditions including allergies, skin conditions, psychiatry and men, women and children's health. The site attracted 371,000 visitors in September alone.
Patients advised to go online

Janelle Miles
HEALTH REPORTER

Some Australian doctors are handing out Internet prescriptions — recommending websites to patients to inform them about disease prevention, diagnosis, and diagnosed illnesses.

A survey of more than 100 Gold Coast general practitioners in the latest Medical Journal of Australia found almost six in 10 had advised patients to consult health sites online.

Male GPs in their 40s and those with less than 10 years' experience were most likely to suggest patients access particular medical websites.

Of the 21 per cent of GPs who did not recommend the Internet to patients, more than half cited limited time to vet web material.

And Griffith University health scientist Wayne Usher found one in six questioned the reliability of the information he believed it was biased.

Mr Usher's 2006 survey, the latest to suggest the Internet is changing the traditional doctor-patient relationship.

Australian Medical Association federal president Rosanna Capolingua said: "The AMA has no specific policy on the Internet but we recognise patients will 'go and seek information,' in this 'day and age, online.'

Would you use the Internet to search for information on medical conditions?

Mark Curran
36, Voluntary
Cooperarco
No, not at all. I don't have that many medical conditions. I'd just go to a doctor.

Bey Johnson
25, Event Manager, Spring Hill
Yes, I do but within reason. I use it as a grounding or starting point and then check with my medical practitioner.

Zoe Ridgeway
32, Architect, New York
I certainly would because it's where I go for most searches. Any information I'm looking for, it's my first stop.

Julia Renaud
33, Communications and Marketing Consultant, Cooperarco
Yes, I do. I have a science degree so understand a lot of medical terminology. I find it's a good tool for understanding issues.

Jack Brown
32, Student, Utoring
Yes, because it's easier than opening a medical textbook. I think I'm coming down with something. I will check the symptoms online, it's cheaper than going to a doctor.