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.

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The man who makes a success of an important venture never wallows 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 - CI


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


2. Book– Refereed Book Chapter – BI


3. Conferences - Refereed Conference Papers - EI

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 decentred 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, refereeing 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.
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**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 an 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.
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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-businesse-knowledge
Figure 2.6: cvs.com - cvs.com/CVSAp/ 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.
consumersdiscountrx.com/rfunkhouser
Screen Capture 3.3: e-business health website
emical.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
webbusters.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
americanatino.net

Screen Capture 4.17: Networkability
emedical.com.au

Screen Capture 4.18: Networkability
HealthyCommunity.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