Assessing the Effectiveness of Corporate Web Sites: An Experimental Study of the Web Acceptance Model

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Certification

I, Koo-Won Suh, declare that this dissertation, submitted in fulfilment of the requirements for the award of Doctor of Philosophy, in the School of Management, Marketing, and Employment Relations, University of Wollongong, is wholly my own work unless otherwise referenced or acknowledged. The document has not been submitted for qualifications at any other academic institution.

Koo-Won Suh

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Abstract

There has been an ongoing need for designing and assessing corporate Web sites as important marketing communication tools. Typically, most research on Web site effectiveness has adopted traditional advertising evaluation models. A fundamental shortcoming of this approach is that it does not provide much information about user interaction. As corporate Web sites are new interactive media and Web user characteristics are far different from those of traditional communication media, new approaches should be developed.

To overcome the inherent shortcomings of previous research, this study has developed a new theoretical framework, the Web Acceptance Model (WAM), which explores customer acceptance and uses of corporate Web sites. This study took an interdisciplinary approach involving theory derived from Marketing, Communication, Information Systems (IS), Education, and Psychology.

The model is premised on two central phenomena of Web-Mediated Communication (WMC): social interaction between Web sites and users, and the active participation of users. In the model, the phenomenon of social interaction is captured by the inclusion of moderating variables: affective and task-related interaction which can help explain "why" a specific type of Web site is likely to be more effective. It is unlikely that a particular type of Web site will be effective all of the time. Therefore, this model also seeks to explain "when" a Web site is more likely to effective. Individual user difference as a moderator can help explain "when" and reflects the active role of

customers in WMC. Finally, the model addresses all three elements of consumer attitudes i.e., affective, cognitive, and conative.

Specifically, the model includes predictor, moderator, mediator, and criterion variables. The predictor (independent) variables are Web site content and structure. Content analysis was used to identify Web site typology in terms of structure and content. It was necessary to conduct an empirical study of Web site typology, as there was no published research on this topic. Empirically derived typology may better explain real world phenomena than a conceptually developed typology. Through content analysis of around 386 corporate Web sites, this study identified two types of Web site structure ("hypermedia" and "static image") and two types of content ("integrated communication" and "basic image").

The criterion variables, which are the communication effects achieved by a Web site, are measured in terms of overall attitude toward the Web site and revisit intention. Among three mediators between the predictor and criterion variables, "social presence" serves as an affective bridge, while "perceived usefulness" and "perceived ease of use" serve as cognitive bridges. Finally, Web literacy serves as a moderator, which affects the direction and strength of the relationships between the predictors and mediators.

The overall purpose of this study was to uncover the distinguishing features of effective corporate Web sites (i.e., those sites which are seen by users to be attractive, user-friendly and useful). To do this, the study sought to answer two exploratory questions and test hypotheses derived from the model. The exploratory questions were: (1) What content and structural elements are presented on corporate Web sites? and (2) How can

corporate Web sites be classified according to their content and structure? These questions were answered through a preliminary content analysis of corporate Web sites. Fourteen hypotheses were derived to answer the three experimental research questions: (1) How do consumers respond to different types of Web site? (2) Do user attitudes toward corporate Web sites vary according to Web literacy levels? and (3) What features of corporate Web sites determine revisit intention amongst Web users? The first five hypotheses addressed how customers respond to different types of Web sites. The next five hypotheses examined what features of corporate Web sites determine revisit intention amongst Web users. The final four hypotheses investigated whether user attitudes toward corporate Web sites vary according to their Web literacy levels. These hypotheses were tested through a laboratory experiment.

This study employed a 2 (Web site structure) × 2 (Web site content) between-subject factorial design, with Web literacy serving as a co-variant. Each subject was allowed to explore only one of four specially constructed Web sites. Subjects were randomly assigned to each cell. The data was gathered through a self-report instrument, of which validity and reliability were ensured by a rigorous two-stage pilot test. Empirical evidence was gathered from one hundred and sixty students at the University of Wollongong in Australia who were recruited for the experiment. The data was analysed using the statistical methods of MANCOVA, ANCOVA, ANOVA, Multiple Linear Regression, and Simple Linear Regression.

In terms of Web site content, it was found that the integrated communication type of Web site was more effective than the basic information type. The integrated type had higher social presence and perceived usefulness. In relation to Web site structure, it was

found that the hypermedia type was more effective than the static image type, generating higher social presence and perceived usefulness. The results of this investigation suggest that social presence and perceived usefulness were critical factors that explain "why" a specific type of Web site is more effective than the other type. The more positive social presence and perceived usefulness were, the higher attitude toward the Web site was, and in turn, the higher revisit intention was. However, there was no significant relationship between perceived ease of use and attitude toward the Web site. It was also concluded that Web literacy moderate the relationship between Web structure and social presence. For example, people who with low Web literacy experienced higher differences in social presence between static image type and hypermedia type than those with high Web literacy.

These results imply that both Web site structure and content had effects on consumer attitude and the two dimensions of social interaction (i.e., social presence and perceived usefulness) are critical factors for identifying consumer responses to Web sites. One of the interesting findings was the importance of an emotional response, meaning that it is not possible to fully explain consumer behaviour without the understanding of emotional responses to Web sites.

The Web Acceptance Model provides a new way of conceptualising social interaction, which is central to WMC, and underlines the importance of an interdisciplinary research to our understanding of WMC. Therefore, it is hoped that this study will make a significant contribution to a burgeoning area of research that is of great and increasing importance to both the discipline and the practice of marketing.

Papers

The following papers and publications have been produced from the research reported in this thesis.

1. Suh, K. and Couchman, P. K. (2003). *Measuring consumer responses to corporate Web sites: The development of an instrument.* Paper presented at the 2003 Chartered Institute of Marketing (CIM) Inaugural Australian Conference, Sydney, Australia, August 20-22.

2. Suh, K., Couchman, P. K., and Hasan, H. (2003). *Understanding Web-mediated marketing communication: The Web acceptance model.* Paper presented at the 2003 Chartered Institute of Marketing (CIM) Inaugural Australian Conference, Sydney, Australia, August 20-22.

3. Suh, K., Couchman, P. K., and Lee, D. (2002). *Functions of a corporate Web site: A cross-national comparison*. Unpublished manuscript. Wollongong, Australia: University of Wollongong.

4. Suh, K., Couchman, P. K., and Lee, D. (2002). *Empirical classification of Web structure: A cross-national comparison of corporate Web sites*. Unpublished manuscript. Wollongong, Australia: University of Wollongong.

5. Suh, K., Couchman, P. K., and Park, J. (2003). *A Web-mediated communication (WMC) model based on activity theory.* Paper presented at the 7th World Multiconference on Systemics, Cybernetic and Informatics (SCI 2003), Orlando, Florida, July 27-29, and TT21C (Transformational Tools for 21st Century Minds), Gold Coast, QLD, Australia, July 27-29.

6. Suh, K., Hasan, H., and Couchman, P. K. (2003). *Web-mediated communication (WMC) and social interaction: A social psychological approach.* Paper presented at the 7th World Multiconference on Systemics, Cybernetic and Informatics (SCI 2003), Orlando, Florida, July 27-29, and TT21C (Transformational Tools for 21st Century Minds), Gold Coast, QLD, Australia, July 27-29.

7. Suh, K., Hasan, H., Couchman, P. K., and Lee, D. (2003). Exploring social interaction in Web-mediated communication. In H. Hasan, I. Verenikina, and E. Gould. (Eds.), *Information systems and* a*ctivity theory volume 3: Expanding the horizon* (pp. 141-155). Wollongong, Australia: University of Wollongong Press.

8. Suh, K., Couchman, P. K., Park, J., and Hasan, H. (2003). The application of activity theory to Web-mediated communication. In H. Hasan, I. Verenikina, and E. Gould. (Eds.), *Information systems and* a*ctivity theory volume 3: Expanding the horizon* (pp. 122-140). Wollongong, Australia: University of Wollongong Press.

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ACRONYMS

ANCOVA	Analysis of Covariance
ANOVA	Analysis of Variance
A_{WS}	Attitude Toward the Web Site
CMC	Computer-Mediated Communication
HCI	Human Computer Interaction
IMC	Integrated Marketing Communication
IS	Information Systems
ISIC	International Standard Industrial Classification
MANCOVA	Multiple Analysis of Covariance
MANOVA	Multiple Analysis of Variance
PU	Perceived Usefulness
PEOU	Perceived Ease of Use
RI	Revisit Intention
SP	Social Presence
WAM	Web Acceptance Model
Web	The World Wide Web
WMC	Web-Mediated Marketing Communication or Web-Mediated Communication

CHAPTER 1. INTRODUCTION

1.1 Background to the Study

The "World Wide Web" (usually abbreviated to simply "the Web"), the result of a convergence between information technology and telecommunication technology, has become an important marketing communication medium. The Web, which is accessible through millions of networked computers around the world, is a medium which enables communication among diverse communities of users. Given the extensive reach of this new communication medium, the establishment of a presence on the Web through a corporate Web site has increasingly become an important marketing tool for companies today. The corporate Web site is a locus where a dynamic interaction can occur between a firm and its actual or potential customers. There is no doubt that, in contrast to traditional marketing communication media such as the mass media and television, the corporate Web site offers major advantages by facilitating real-time, two-way communication between firms and customers. Furthermore, the very nature of the Web site – with its hyperlinks and multi-media capabilities – enables firms to perform different marketing communication activities by delivering many types of information in a readily-accessible form to a broader range of target audiences. Thus, it can be argued that the Web has brought about a "new paradigm" for marketing communication.

As a new and increasingly pervasive marketing communication medium, the Web has two distinctive features. The first is its hyperlinks capability through which users

navigate and obtain information on the Web. It is because of this capability that communication through the Web is characterised by interactivity, i.e. users do not just receive information through this medium, rather they interact with the Web. Web users can choose what information they access and where they access it, as well as their viewing time. They can control the order in which they access information, for example by deciding where to start and whether to skip a particular element of a page or site. In other words, they can browse the Web at their own pace. As a result, Web users experience the feeling that they are in control (Markham, 1998). The Web also provides a real time feedback function. For instance, unlike traditional mass media, the Web enables firms and consumers to reciprocally communicate through facilities like email or bulletin boards. After all, Web users can control their communication environment. A second distinctive feature of the Web is its multi-modality, i.e. its multi-media nature involving the use of text, images, sound and moving images (including video) which can provide richer means for the presentation of information. When marketing information is presented using this multi-modality capability, customers can become more interested in and engaged with the message.

The importance of the Web features of interactivity and multi-modality to marketing communication is that they can enhance learning, understanding, mental engagement and user satisfaction as many studies have shown (e.g., Clark, 1992; Dennis and Kinney, 1998; Huang, 1999; Kiesler, Zubrow, Moses, and Geller, 1985, Walther, 1992). Furthermore, these features help create a sense of community among users and influence the social dynamics of communication within and across the diverse communities so created. As a marketing communication medium, therefore, the Web has the potential to create richly interconnected virtual communities or marketplaces,

where firms and consumers can engage in different forms of interaction, including purchase transactions.

Another important aspect of the Web site as a marketing communication medium is its versatility. A corporate Web site can fulfill a range of functions, including advertising, public relations, sales promotions, customer service, and online selling. A number of studies have found that corporate Web sites typically perform many functions other than advertising (e.g., Cockburn and Wilson, 1996; Deans and McKinney, 1997; Perry and Bodkin, 2000), and it has been claimed that the corporate Web site is an effective tool for integrated marketing communication (e.g., Suh, Couchman, and Lee, 2002a). This multiple function feature of corporate Web sites has important implications for the assessment of their effectiveness. Different marketing communication tools have different objectives (e.g., the short-term objectives of a sales promotion versus the longer term objectives of a public relations exercise), they are aimed at different target audiences (e.g., the focus of advertising on existing or potential customers versus the broader audiences of public relations) and involve different types of message. Thus, to assess a corporate Web site only in terms of traditional advertising effectiveness measures can be misleading and often inadequate.

The increasing use of corporate Web sites as a marketing communication medium indicates a need for more detailed studies of this phenomenon, a need that is being addressed by a rapidly-growing field of research in marketing (e.g., Hoffman and Novak, 1996; Huizingh, 2000; Perry and Bodkin, 2000). Contributing to this emerging field, the study reported here introduces a new concept Web-mediated marketing communication (WMC) to refer to the use of a corporate Web site as a marketing

communication tool. It is argued that, as the characteristics of the Web as a communication medium are quite different from other mass media, WMC should be treated as significantly different from traditional marketing communication media such as television advertising. Furthermore, WMC is a distinctive form of computer-mediated communication in that a corporate Web site delivers not only symbolic content, such as multi-media and information, but also sensory content which is experienced by users as a virtual reality (Fogg, 1999). Through such features as animation, sound and real-time feedback, users can develop the perception that they are communicating with other people and not just with an impersonal medium. Because of these distinctive features, a new perspective is required to understand the WMC phenomenon.

1.2 Research Problem and Research Question

Even though the Web has effected a fundamental paradigm shift in marketing communication, much of the research on Web marketing communication to date has not adequately reflected this shift. Therefore, in spite of the burgeoning interest in this phenomenon, there remain many problems and issues to be addressed. There are two major shortcomings in many existing studies of Web marketing communication. The first is a tendency to treat corporate Web sites as just an advertising medium (e.g., Novak and Hoffman, 1997; Raman and Leckenby, 1998; Salam, Rao, and Pegels, 1998; Singh and Dalal, 1999). This is not acceptable given the diversity of marketing functions a corporate Web site can fulfil, as indicated above. The second shortcoming is a failure to recognise that Web users are quite different from the audiences of traditional marketing media. Web users are more active participants in the communication process

than in traditional mass media where consumers tend to be more passive recipients of the communication messages to which they are exposed (Hoffman and Novak, 1996; Wortring, Kayany, and Forrest, 1996). Firms develop Web sites to meet specific purposes and consumers explore Web sites according to their own goals, motives and capabilities (with respect to the latter, given the relative novelty of this medium, experience and familiarity with the Web varies considerably among users as captured by the notion of "Web literacy"). The convergence of firm and consumer at a corporate Web site involves an active interaction, in which Web users have more power compared to the audience of traditional media. As Wortring *et al*. (1996) have argued, the resulting "active consumer" requires a change in perspective toward marketing communication.

Acknowledging these shortcomings, it can be seen that there is a pressing need to develop a systematic basis for understanding and assessing WMC. This need was reinforced in a study by Bush, Bush, and Harris (1998) which revealed that marketing practitioners build and maintain corporate Web sites without an adequate knowledge of the Web and its distinctive features. Indeed, at present there is very little reliable knowledge (i.e., as obtained from systematic empirical studies based on sound theoretical frameworks) about the factors which determine Web site effectiveness or even about how marketers interact with consumers via the Web. Exacerbating this problem, there is also a deficiency of studies on the different types of corporate Web sites (i.e., in terms of their content and structure) and how these are deployed by firms to support or realise their marketing strategies. These are the issues and problems on which this study focused, and the overall aim was to identify the features of effective corporate Web sites (i.e., those sites which are seen by users to be attractive, user-

friendly and useful). To meet this aim, and address the identified shortcomings and knowledge gaps in the existing research base on WMC, five specific research questions were formulated for this thesis:

- What content and structural elements are presented on corporate Web sites?
- How can corporate Web sites be classified according to their content and structure?
- How do consumers respond to different types of corporate Web site?
- Do user attitudes towards corporate Web sites vary according to Web literacy levels?
- What features of corporate Web sites determine revisit intention among Web users?

To answer these questions, the thesis adopted a two-phased approach: a preliminary study addressing the first two questions (reported in Chapter 3) sought to develop a Web site typology, and this was followed by the main experimental phase which - through the formulation and testing of a theoretical model - addressed the other three questions. The two-phased approach to addressing the research questions was adopted for the following reasons. Firstly, with respect to the classification of corporate Web sites, it was considered that an empirically-derived typology (i.e., based on a content analysis of existing Web sites) was necessary given the major shortcomings of previous

studies in this area. Secondly, an experiment was chosen to test the theoretical model because this method is widely accepted among social and behavioural scientists for its ability to make robust claims about causal relationships (e.g., Boruch, 2001; Bryman, 1989).

1.3 Contributions of the Research

The study reported here makes both academic and managerial contributions, as discussed in the following sections.

1.3.1 Academic Contributions

Within the academic discipline of Marketing, the study makes a number of significant contributions to the growing body of research on Web-mediated marketing communication (WMC). Firstly, despite a growing interest in new methods for measuring the effectiveness of WMC, few studies have yet developed and empirically tested a theoretical model as a basis for this assessment. This study proposes a theoretical framework based on the concepts of activity theory which is a social psychological approach to studying human activity. Activity theory has originated from a Russian psychologist Les Vygotsky and it has been premised on the assumption that a human being interacts with others through tools. Activity theory has been actively used in the field of Information Systems (IS) for studying the interaction between information technology and a human being. This Web Acceptance Model (WAM), used for the first time in marketing-related research, has a number of significant implications

for the study of WMC. In contrast to more traditional models of communication (e.g., the information processing model; Shannon and Weaver, 1949) the model postulates that WMC is a process of mutual exchange and social interaction between firms and customers as active participants. From this perspective, corporate Web sites are not just channels for the distribution of information, rather they form the basis for a virtual community where firms and customers actively engage in exchange relationships. In addition, the WAM identifies two dimensions of social interaction in WMC (i.e., affective and task-related), an approach which moves beyond the unidimensional conceptualisation of human communication as simply a transfer of information from sender to receiver. Thus, the WAM depicts WMC as the exchange of both information and emotional responses and so provides a multi-dimensional basis for assessing the communication performance of corporate Web sites.

Secondly, the study provides a more sophisticated conceptualisation of communication then is generally provided in studies of consumer behaviour (e.g., the transmission of a message or meaning; Mowen, 1990; Schiffman, Bednall, Watson, and Kanuk, 1997; Solomon, 1994). Even though many communication theorists have emphasised that social interaction is at the core of human communication (e.g., Cherry, 1966; Gerbner, 1977), to date most marketing communication models have failed to adequately reflect this. Adopting social interaction as a central concept, the WAM indicates that WMC is a process of mutual exchange carried out within specific culturally determined frameworks of meaning and as such often involves an emotional component. From this perspective, task-related interaction explains the process of information exchange, while affective interaction accounts for the affective responses that also occur during the process.

Thirdly, the study contributes to the development of theory within the discipline of Marketing by drawing on theoretical concepts in the field of Information Systems and Human Computer Interaction studies. It is clear that research from a number of academic disciplines, including Marketing, Communication Studies, Information Systems, Education and Psychology, can offer useful insights into user responses to corporate Web sites. Each of these disparate areas of study can add to our understanding of WMC, but none on its own is sufficient. By drawing on and integrating concepts from other disciplines, this study sought to gain synergies and richer understandings into the phenomenon of WMC.

Finally, this study contributes a measurement system for Web effectiveness. As typical advertising typology cannot be applied to Web sites, the clear definition of Web functions and the classification of Web sites derived from empirical research, can serve as independent variables in the Web effectiveness study. Moreover, the instrument filtered through a more rigorous pilot test, likely to be valid measures of the constructs in the theoretical model.

1.3.2 Managerial Contributions

The study also makes managerial contributions for marketing and marketing communication practitioners, in that it provides a basis for marketers and Web site designers to better understand how to design, assess and increase the effectiveness of their corporate Web sites. Firstly, the study moves beyond widely-used rules of thumb and anecdotal guidelines by providing managers with informed insights into Web site

design through the classification schemes for Web site typology (i.e., Web site content types and Web site structure types) proposed in Chapter 2.

Secondly, the results of the study indicate that a corporate Web site is not just an advertising medium, but is rather a versatile tool of integrated marketing communication which involves a range of marketing functions including online selling and customer service. This study gives direction into how Web designers and markers select and combines various marketing communication functions for more effective Web design.

Thirdly, this study serves to warn Web site design practitioners not to follow conventional wisdom, such as "simple is better" or "content is king", without first testing the veracity of such beliefs. The study provides empirical evidence that adding so-called "bells and whistles" to a Web page (e.g., animation, sound, video and links) can make a Web site more attractive to users, indicating that both content and structure are important aspects to address in Web site design. This finding reinforces the need for close collaboration between marketers and Web designers in the creation of corporate Web sites.

Fourthly, the WAM proposed and tested in the study provides a basis to enable marketers to assess and maximise the effectiveness of corporate Web sites. Of particular note here, the two dimensions of social interaction in the model provide critical indicators of consumer attitudes towards a Web site. These social interaction measures can help explain consumers' emotional and cognitive responses more precisely than using more conventional broad-brush attitude measures.

Fifthly, the study showed that a Web site is both an emotional and a cognitive medium. Accordingly, marketers should be aware that an effective Web site should not only foster a perception of usefulness among users it should also create a feeling of social presence. Finally, the study indicates that individual differences (e.g. in terms of Web literacy, motives and culture) play an important role in user responses to Web sites. This finding implies that a "one-size-fits-all" approach to Web site design is not appropriate and that individual differences amongst consumers in target markets should be taken into account when designing a corporate Web site.

1.4 Definitions of Key Terms

To facilitate a better understanding of this dissertation, several important terms are defined below. These constructs will be further elaborated in Chapters 2 and 4.

Attitude toward the Web site: Attitude toward the Web site is defined as a learned predisposition to respond to a Web site as a communication medium or partner, which represents a Web user's overall feelings toward the Web site (Belch and Belch, 1999).

Computer-Mediated Communication (CMC): CMC is defined as the process of human communication through computers, both stand-alone computers and networked system (Suh, Hasan, and Couchman, 2003).

Hypermedia: Hypermedia is defined as the executional elements of a Web site including hyperlinks and multimedia (e.g., text, images, audio, and video).

Perceived Usefulness: Perceived usefulness is defined as the degree to which a user believes that using a particular Web site would enhance task performance (Davis, 1989).

Perceived Ease of Use: Perceived ease of use is defined as the degree to which a user believes that using a particular Web site would be free of effort (Davis, 1989).

Revisit Intention: Revisit intention is defined as a consumer's propensity to revisit a particular Web site.

Social Presence: Social presence is defined as a user's feeling that he or she is interacting or communicating with other people (Suh, Hasan, and Couchman, 2003). In Web communication this can be experienced as a feeling that a user is communicating via the Web site with other human beings (Suh, Couchman, and Hasan, 2003).

Web Literacy: Web literacy refers to a user's ability to manage the distinctive features of the Web, including hypermedia and interactivity. Hence, Web literacy encompasses a complex set of factors including experience, confidence, and familiarity that determine an individual ability to navigate the Web and manage their interaction with Web sites.

Web-Mediated Marketing Communication (WMC): A firm's use of the Web for marketing purposes or a use of a corporate Web site as a marketing communication tool (Suh, Couchman, and Park, 2003).

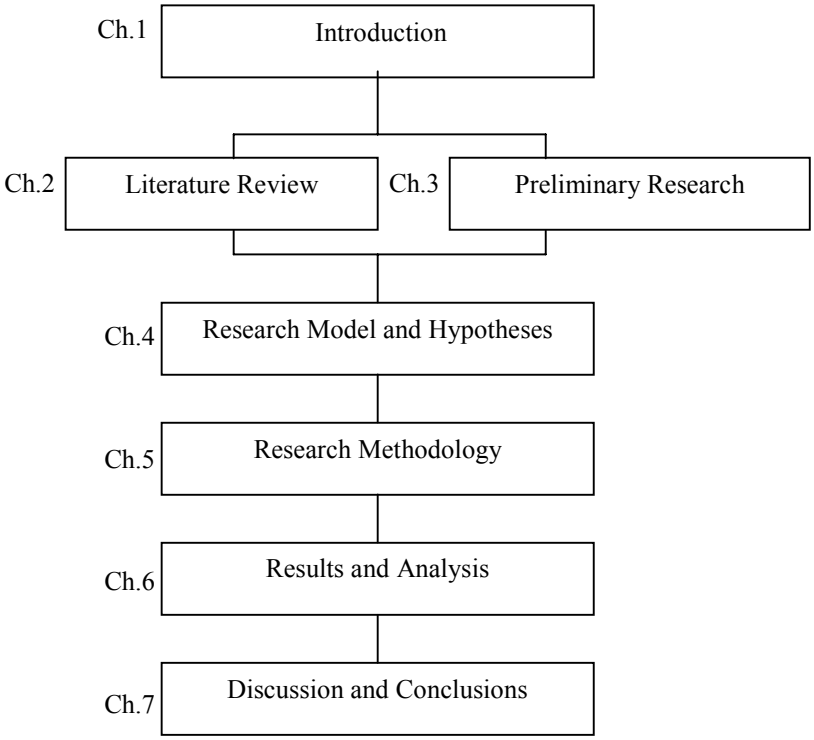
Web Site Content: Web site content refers to the information presented on a Web site (Suh, Couchman, and Hasan, 2003).

Web Site Structure: Web site structure refers to the combination or organisation of the executable elements of a Web site, encompassing text, graphics, audio, video, and hyperlinks (Suh, Couchman, and Hasan, 2003).

1.5 Structure of the Thesis

This dissertation is organised into seven chapters as shown in Figure 1.1.

Figure 1.1 Structure of the Thesis



Chapter 1 introduces the study and discusses the importance of the study's focus. The first chapter also introduces the research questions that were addressed and provides an overview of the academic and managerial contributions made by the study.

Chapter 2 provides a critical review of the relevant literature relating to the study's focus, i.e., corporate Web sites and marketing communication, marketing communication studies, and computer-mediated communication (CMC). On the basis of this review, a theoretical framework was developed. The key constructs of the theoretical framework discussed in this chapter are WMC (Web-mediated marketing communication or Web-mediated communication), Web site typology (i.e., Web site content and structure), social interaction, individual differences (i.e., Web literacy and motives) and communication effects (i.e., attitude toward the Web site and revisit intention).

Chapter 3 discusses the results of the preliminary research. An empirical study of corporate Web sites identified a Web site typology (i.e., Web site content and structure) derived from a content analysis. The Web site typology resulting from the preliminary research served as a theoretical basis for the study. The findings from the preliminary research were used for generating test Web sites in the subsequent experimental study.

Chapter 4 proposes a research model, and research hypotheses derived from this, which developed from a literature review and preliminary research. The proposed research model, called the Web Acceptance Model, seeks to explain consumer behaviour on the Web. The proposed model consists of four groups of variables, i.e., predictor, moderator, mediator, and criterion variables.

Chapter 5 presents the research methodology used in this study. The first section describes the development of the research instrument, including operationalisation of the constructs in the model, instrument design and a pilot test of the instrument. The

second section describes the experimental methodology for testing the research hypotheses. It covers the experimental design, participants, the test Web sites, experimental procedure, and data entry. Finally, the statistical methods used for data analysis are discussed.

Chapter 6 reports the results of the pilot test of the instrument and the hypothesis tests. In the first section, the results of the pilot test are presented, which involved three main analyses, i.e., a factor analysis for unidimensionality, the corrected-total correlation analysis for construct validity, and Cronbach's alphas for scale reliability. The second section discusses the results of the main experiment, which involved assumption testing and hypothesis testing.

Finally, Chapter 7 summarises the results of the hypothesis tests, discussing the implications for academics and practitioners. It presents answers to the research questions of the study. The limitations of the study are described along with suggestions for further research.

CHAPTER 2. LITERATURE REVIEW

2.1 Introduction

Web-mediated marketing communication (WMC) is a relatively new phenomenon, and to date little research within the discipline of marketing has been published on this topic. As indicated in the previous chapter, the overall aim of the study related in this thesis was to investigate the features of effective corporate Web sites. Accordingly, the purpose of this chapter is to critically review the existing marketing literature in order to determine what is known about this phenomenon and to identify any knowledge gaps or problems with the current body of marketing knowledge. This critical review of the marketing literature is extended with a review of literature in social psychology which offers useful insights into the nature of WMC.

This chapter begins with the media characteristics of the Web as a marketing communication medium for firms. Then, some of the issues addressed by marketing communication research are discussed. It is argued that existing marketing communication and consumer behaviour models are not well suited to WMC. Given the deficiencies and limitations in the existing marketing literature, a new theoretical framework is proposed. This framework is based on Activity Theory, a theory originally developed within school of social psychology. The important constructs of this framework are Web site typology, social interaction, individual differences and Web communication effects.

2.2 Corporate Web Sites and Marketing Communication

Web-mediated Marketing Communication (WMC) is a new phenomenon and is different from other communication mediated via the Internet. Generally WMC refers to the "use of a Web site for marketing purposes" (Suh, Couchman, and Park, 2003; Suh, Hasan, Couchman, and Park, in press). Web sites can be classified into five main groups: (1) personal Web sites run by individuals or groups of people, (2) corporate Web sites for profit-oriented firms, (3) public sector Web sites run by government agencies, (4) non-profit organisation Web sites for Universities, and (5) Web sites for voluntary organisations such as the Salvation Army. This study particularly focuses on corporate Web sites, which have unique addresses or uniform resource locators (URLs) such as ".com" or ".co". Corporate Web sites deliver a variety of information relating to companies, products, and services. The term "mediated communication" emphasises human communication that uses media such as the Web rather than direct face-to-face interaction (Richards and Curran, 2002). Leiss, Kline, and Jhlly (1986) explain that the term "mediated communication" has two implications. First, it emphasises the interaction mediated by communication media (e.g., the Web or mass media rather than face-to-face). The different characteristics of communication technologies will have an influence on the patterns of the communication process and interaction. The second implication refers to the role of firms and consumers in the communication process. In mass-mediated marketing communication (e.g., advertising), firms and communication organisations have more power to control the channels and messages. By contrast, in WMC it is argued that consumers have more power to control the channels and messages. Therefore, this study uses the term "Web-mediated marketing communication" to emphasise the active role of consumers and their interaction. WMC

involves interaction between firms and consumers mediated via corporate Web sites. In this section the characteristics of a corporate Web site and consumers interaction with a Web site will be discussed in order to provide a background for understanding WMC.

2.2.1 Media Characteristics of a Corporate Web Site

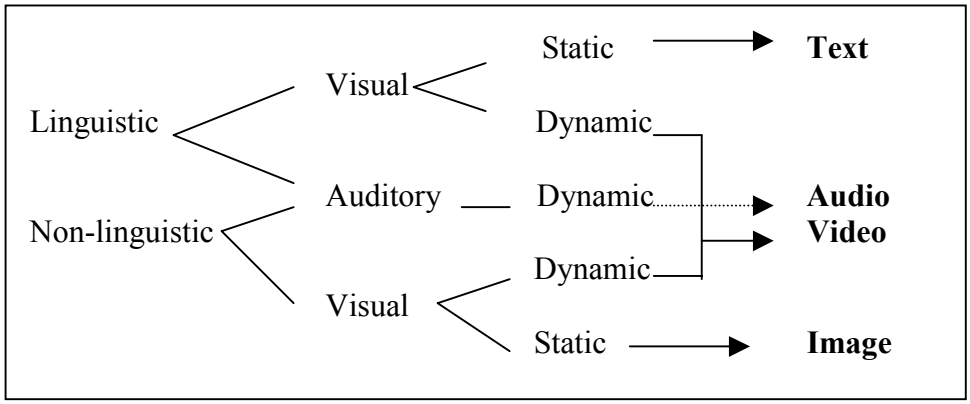
(1) Hypermedia

Hypermedia is the most distinctive feature of a Web site. Here hypermedia is defined as the dynamic elements of a Web site, which include hyperlinks and multimedia. Although there have been many studies on hypermedia (e.g., Bouvin, 2000; Cockburn and Wilson, 1996; Deans and McKinney, 1997; Dholakia and Rego, 1998; Palmer and Griffith, 1998; Lowe and Hall, 1999), there has been some confusion about the term. Hence, it is useful here to more clearly define the elements of hypermedia.

First of all, for the categorisation of multimedia, three dimensions are considered: (1) linguistic or non-linguistic, (2) auditory or visual, and (3) dynamic or static properties. Advertising and psychology research (e.g., Littlejohn, 1983; Krech and Crutchfield, 1965; Moriarty, 1994; Rada and Tochtermann, 1995; Ross, 1973) indicate that these three dimensions can facilitate an understanding of consumer's perception and feelings. Based on these criteria four categories of Web-based multimedia are identified (see Figure 2.1). Text, as the written language, including letters and numbers, is expressed in static and visual forms. Audio is any kind of sound, which is a dynamic, auditory medium. An image refers to a non-lingual, static, and visual element of a Web site. It includes photographs, paintings, drawings, graphics, etc. Video refers to dynamic visual

elements including both linguistic and non-linguistic. The simplest form of video is animation. Some examples are flickering icons, spinning logos, or scrolling text (King, Knight, and Mason, 1997). More complicated forms of video are full motion video clips such as films.

Figure 2.1 Multimedia Elements of a Web Site



A hyperlink is an important concept that distinguishes a Web site from all other mass media. A hyperlink refers to a connection between two or more sets of information. The prefix "hyper" emphasises multidirectional links, which enable the user to move or jump in any direction while they are navigating a Web site. This differs from the sequential nature of traditional mass media advertising. In this sense a hyperlink is a crucial factor in determining the non-linear nature of a Web site (e.g., Fuller and Jenkins, 1995; Heim, 1993; Jackson, 1997; Landow, 1992; Lanham, 1993). Reflecting this, the use of hyperlinks is distinctively called "navigation", and accordingly, navigation often refers to the use of the Web generally.

Typically, links are performed by clicking on highlighted words or symbols. A hyperlink may be classified into two categories, an internal and external link. An

internal link allows the user to move to another place within the same Web site or even on the same page. An external link takes users to another Web site. External links are created for various purposes. For instance, linking to external resources, a company can provide users with additional information related to the industry. Some sites facilitate external links to affiliated companies to enhance brand and corporate image.

(2) The potential of Hypermedia for Marketing Communication

The potential advantages of hypermedia to marketing communication can be explored by identifying its unique characteristics. Firstly, hypermedia can enrich the quality of information and its presentation. Hypermedia involves the use of more than one sense in communication. This multi-modality stimulates sensory perception in a synergistic way and enhances the experience of accessing information (e.g., Nisbett and Ross, 1980). Hyperlinks also can improve the quality of information by leading users to more relevant data.

Secondly, as discussed above, hypermedia is non-linear and non-sequential, hence, there is no single predetermined path that users follow. Users can select the page they want to read, and decide which direction they want to go. Thus, users can control the order and sequence of presentation while they are navigating a Web site (Burton, Moore, and Holmes, 1995). User control when accessing a Web site involves a shift of power to control information from firms to consumers (Pavlou and Stewart, 2000; Vandermerwe, 2000). This shift emphasises the importance of taking a consumer-centric approach to Web site design, central to the concept of marketing.

Finally, as many researchers have argued (Bates, 1994; Blumberg and Galyean, 1995; Granieri, Becket, Reich, Crabtree, and Badler, 1995; Kurlander and Ling, 1995; Maes, Blumburg, Darrell, and Pentland, 1995; Tu and Terzopoulos, 1994), the ultimate goal of using hypermedia is to enhance perceived reality through rich interaction. When users feel they are navigating where they want to go, and they get what they want, a Web site is seen as an interaction-rich virtual space (Suh, Couchman, and Park, 2003). This implies that Web users have more power to control information process than traditional mass media.

Although hypermedia has many advantages, there are also drawbacks that need to be considered. For instance, multi-modality itself does not automatically guarantee its effectiveness. Sometimes a Web site, with the hypermedia element, can take more time as it takes a long time to download and this can cause irritation. A Web site can also distract user's attention due to its complexity.

(3) Web Site Functions

In traditional marketing communication, personal selling is the dominant marketing communication tool in industrial marketing, while mass media advertising is the most frequently used tool for consumer markets (Dickson, 1994). Firms cannot perform more than one function on the same media. However, a corporate Web site delivers more than one function at the same time (e.g., Ainscough and Luckett, 1996; Cockburn and Wilson, 1996; Esrock and Leichty, 2000; Perry and Bodkin, 2000). Some scholars (e.g., Berthon, 1996) argue that a Web site is a combination of direct selling and advertising. Others (e.g., Cockburn and Wilson, 1996) identify corporate Web sites perform several

functions including public relations (PR), advertising, online selling, and customer service. These facts imply that a corporate Web site can be an effective marketing communication medium for firms due to its multi-functionality.

However, the problem in the field is that there has been some confusion with the terms and definitions of the functions of marketing communication. These problems call for new criteria for the classification of marketing communication tools. This thesis more clearly defines the functions of marketing communication. This process begins with an investigation of the traditional functions of marketing communication.

Although the terminology and definitions are not standardised (Anderson and Rubin, 1986), advertising, public relations (PR), sales promotion, and personal selling are the four common elements of the traditional marketing communication mix (e.g., Boone and Kurtz, 1992; Boyd, Walker, and Rarreche, 1995; Fill, 1995; Rix and Stanton, 1998; Stanton, Miller, and Layton, 1991). The traditional criteria for the classification of these marketing communication tools are whether they use paid or unpaid media, whether they use product-specific or company-specific messages, whether they are personal or non-personal, and whether sponsors are identified or unidentified (e.g., Belch and Belch, 1999; Shimp, 1997).

However, the traditional classification schemes for the marketing communication mix have been criticised by many scholars. For example, van Waterschoot and van den Bulte (1992) have pointed out the vagueness of the classification criteria. Overall, two main problems can be identified. The first is related to the definition of sales promotion. As van Waterschoot and van den Bulte (1992) argue, there is no standard definition.

Moreover, following the American Marketing Association's definition, many authors define sales promotion as activities other than advertising, public relations, and personal selling (e.g., Cateora, 1993; Morrison, 2002; Perreault and McCarthy, 1996; Ray, 1982). The lack of clear definition of sales promotion often causes confusion with promotion, another general term for marketing communication. Therefore, sales promotion should be more clearly defined for Web marketing communication.

The second problem is the blurring of functions amongst marketing communication tools. Sales promotion activities basically overlap with advertising and personal selling (van Waterschoot and van den Bulte, 1992). Moreover, advertising activities also overlap with sales promotion and public relations. Corporate image advertising, also called corporate advertising or institutional advertising, is a hybrid form of advertising and public relations in that it emphasises corporate-related messages rather than particular products or services (Boyd *et al.,* 1995; Kotler, 1994; Perreault and McCarthy, 1996; Shimp, 1997). On the other hand, promotional advertising and direct response advertising, which include sales promotional content or attempts to induce direct responses (Engel, Warshaw, and Kinnear, 1991; Kotler, 1994; Shimp, 1997), are hybrid forms of advertising and sales promotion. Hence, the criteria for the advertising, public relations, and sales promotion functions should be made clearer for Web marketing communication.

Drawing on previous studies on the functions (e.g., Ainscough and Luckett, 1996; Angehrn, 1997; Cockburn and Wilson, 1996; Deans and McKinney, 1997; Dholakia and Rego, 1998; Esrock and Leichty, 2000; Hoger, Cappel, and Myerscough, 1998; Huizingh, 2000; Leong, Huang, and Stanners, 1998; Liu, Arnett, Capella, and Beatty,

1997; McNaughton, 2001; Perry and Bodkin, 2000; Simeon, 1999; Spiller and Lohse, 1997-8; Zeff and Arronson, 1999), five marketing communication functions of a corporate Web site can be identified: advertising, public relations, sales promotion, online selling, and customer service. The functions of advertising, public relations, and sales promotion through corporate Web sites are basically the same as those in traditional marketing communication. Online selling can be regarded as an online version of personal selling in traditional marketing communication. However, customer service is a new function of a corporate Web site.

In WMC, advertising refers to messages related to a product or service to persuade potential customers to choose a specific product or service. Familiar advertising activities of a corporate Web site are product information, brochures, catalogues, packaging, signs, posters, and so forth (Boyd *et al*., 1995; Kotler, 1999). Hence, advertising is similar to typical brand advertising in traditional marketing communication.

Public relations (PR) can be defined as activities that use corporate-related information to enhance corporate image or goodwill with broad publics including employees, stockholders, financial communities, the government, and even general publics (Boone and Kurtz, 1992; Engel *et al*., 1991; Griffith and Krampf, 1998; Kitchen, 1993; Lamb, Hair, and McDaniel, 1996; Patti and McDonald, 1985). Popular activities of public relations in Web marketing communication are general news about a company, annual reports, contributions, speeches, seminars, newsletters, sponsorships, charitable donations, press kits, company magazines, favourable news, and so on (Boyd *et al*., 1995; Kotler, 1999; Mercer, 1999; Rix and Stanton, 1998; Uva, 2000). In traditional

marketing communication, both corporate advertising (also called institutional, image, or public relations advertising) and PR put an emphasis on corporate image rather than sales of specific products or services (Burnett, 1993). The only difference between corporate advertising and PR is whether they use paid or unpaid media. In the Web, however, this criterion is not appropriate any more. Therefore, here corporate advertising is included in public relations.

Sales promotion refers to an attempt to induce a customer to perform a specific action within a short period of time (Boone and Kurtz, 1992; Davis, 1981; Dickson, 1994; Kotler, 1994; Morrison, 2002; Runyon, 1984; Shimp, 1997; Zikmund and D'Amico, 1996). Activities of sales promotion include coupons, sweepstakes, contests, samples, rebates, low-interest financing, free offer, price reduction, etc. (Bolen, 1981; Boyd *et al*, 1995; Davis, 1981; Griffith and Krampf, 1998; Kotler, 1999; McDonalds, 1984; Rix and Stanton, 1998).

Online selling is defined as an online transaction, that is, direct selling and buying products or services over the Web (e.g., Esrock and Leichty, 2000; Griffith and Krampf, 1998; Lamb *et al*., 1996; Stewart, Pavlou, and Ward, 2002). Online selling aims at providing facilities for buyers to purchase products or services. The ordering process and payment system through the Web are examples of online selling activities. Although usage of this function remains low (Chaudhury, Mallick, and Rao, 2001), online selling is an important capability of corporate Web sites.

Customer service refers to all the activities of answering customers, responding to customers, and solving customer problems. Accordingly, activities of customer service

include after sales, handling of repair or installation, dealing with complaints, technical advice, contacts, answers, and so on (e.g., Kotler, 1999; Lovelock, 1991). Customer service has played an important role in competitive marketing environments. As the quality of products becomes very similar, customer service is perceived to be a critical attribute for many companies (Boyd *et al*., 1995; Jain, 1993).

2.2.2 Consumer Interaction

In traditional advertising situations, consumers are accidentally or inadvertently exposed to advertisements while they are watching television. The viewers are regarded as passive recipients of advertising messages. However, Web users voluntarily access corporate Web sites and actively communicate with firms. In the WMC process consumers should be regarded as active participants (Fiske and Hartley, 1978; Hall, 1980; Pitt, Berthon, and Watson, 1996; Rogers, 1986). The concept of "active participants" provides new perspectives to understand WMC. Active consumers are more involved and feel a sense of community via social interaction, which is an important feature of WMC. This section explores how interactivity has an effect on consumer interaction, and how interaction creates a virtual community in WMC. This will provide a basis for developing a new approach for WMC.

(1) Interactivity

A Web site is called an "interactive medium" to emphasise its capability for interactivity. In the marketing context, a corporate Web site can be understood as a medium of interactive advertising or interactive marketing communication because it

enables consumers to control marketing information and to engage in communication (Shimp, 1997). The key assumption behind the concept of interactivity is that Web users are active participants in the communication process. Although there is no standard definition of interactivity, it is generally understood as a property of communication process rather than a media characteristic (Rafaeli and Sudweeks, 1997). Here interactivity can be defined as "the extent to which users can participate in modifying the form and content of a mediated environment in real time" (Steuer, 1992).

Feedback and immediacy are important concepts in relation to interactivity. Unlike traditional advertising, a Web site facilitates real-time feedback functions, which provide mutual understanding, enhance involvement (Clark, 1992; Clark and Brennan, 1991; Dennis and Kinney, 1998; Huang, 1999; Luo, 2002; Walther, 1992; Zack, 1993). There are feedback functions in traditional marketing communication. Consumer survey or monitoring sales data are some examples. In this context consumers are passive or reactive and feedback time is very delayed. Ultimately these sorts of feedback functions cannot increase interactivity in marketing communication. Beside, interactive communication means continuous exchanges of information (Zack, 1993). A corporate Web site is not a one-time advertisement. Web users can come back again any time, 24 hours a day, 7 days a week, whenever they want.

The importance of interactivity for marketing communication is that it ultimately influences a consumer's affect and creates social relationships (Duncan and Moriety, 1998; Ghose and Dou, 1998; Kiesler, Zubrow, Moses, and Geller, 1985; Rafaeli and Sudweeks, 1997). Marketing scholars (e.g., Duncan and Moriety, 1998) argue that relationship building is the critical task in WMC.

(2) Interaction and Virtual Community

The concept of "interaction" is a property of human actors in a communication system such as consumers, marketers, and firms. From marketing communication perspectives, interaction refers to "mutual exchange of information and emotion between consumers and firms". Emotion differentiates interaction from "action-reaction" or "stimulus-response" which does not involve interrelationship. Hence, interaction is regarded as the ideal of human communication (Berlo, 1960). Reciprocity or mutuality is also an important concept. Interaction occurs between more than two or more people. When consumers and marketers interact, they influence each other (Lauer and Handel, 1977).

A corporate Web site allows a high degree of interaction. Web users can send feedback and email to marketers any time. Further they can receive a response from marketers in a short time. Through this process Web users are involved in the marketing communication process. They exchange information and emotion. Amor (1999) insists that a corporate Web site creates tight relationships and a sense of teamwork between consumers and firms. Traditional advertising viewers, on the contrary, cannot do this. They just receive information while they are watching television or reading newspapers. There is generally no interaction between consumers and firms. This is the difference between traditional advertising and WMC. The concept of interaction has made marketing communication scholars re-think the communication concept. Therefore, it is claimed that consumer interaction in the marketing process should be explored and evaluated.

Further, consumer interaction creates a virtual community. Rheingold (1993) defines virtual communities as:

> "social aggregations that emerge from the Net when enough people carry on those public discussions large enough, with sufficient human feelings, to form webs of personal relationships in cyberspace (p. 5)."

In short, the definition emphasises the human feelings between people. While there are many processes or elements of human feelings, the ability to create a sense of presence online is one important factor (Palloff and Pratt, 1999). When consumers navigate Web sites they feel that they are communicating or interacting with others. This feeling is called social presence (Suh, Hasan, and Couchman, 2003; Suh, Hasan, Couchman, and Lee, in press). Therefore, social presence is an important indication of a virtual community. For example, a high degree of social presence generates a virtual community. Several studies have found that interactive media create virtual communities (e.g., Papacharissi and Rubin, 2000).

In WMC a corporate Web site is a place, consumers and firms are members, and they share information. Hoffman and Novak (1996) have proposed a conceptual model, which highlights the role of a sense of presence in the marketing context. Advertising scholars (e.g., Choi, 2000; Choi, Miracle, and Biocca, 2001) have recently begun to include the concept of presence in empirical studies. They found that a high level of presence created a high level of positive attitude toward the advertisement, brand attitude, and intention to revisit the Web site.

When firms provide better interactive social environments (e.g., online forums, feedback functions, bulletin boards, etc.), consumers and firms can build better relationships. Many marketing scholars (e.g., Hoey, 2000; Hoffman and Novak, 1996; Rayport and Sviokla, 1995) argue that understanding a virtual community or marketspace is critical to the success of WMC.

2.3 Marketing Communication Studies

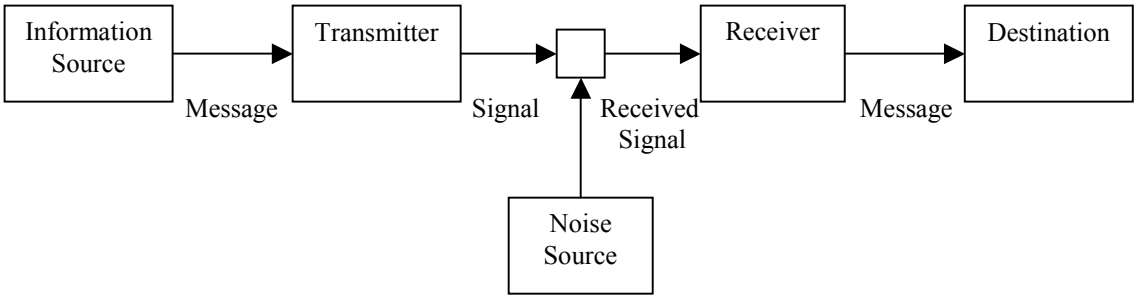
Although most marketing and advertising scholars acknowledge the importance of a corporate Web site as a marketing communication tool, to date little systematic research has been carried out into the nature of WMC and the means of assessing WMC effectiveness. Furthermore, most WMC research has been undertaken using traditional marketing communication models. Hence, there is a need to examine existing marketing communication models and the study of marketing communication effectiveness. This will provide a basis for developing a new marketing communication model for application to corporate Web sites.

2.3.1 The Traditional Marketing Communication Model

Marketing communication consists of advertising, public relations (PR), sales promotion, and personal selling. Marketing communication studies have mainly focused on advertising through traditional mass media such as television, newspaper, radio, and magazine (Watson, Zinkhan, and Pitt, 2000). Accordingly, in this study traditional marketing communication means traditional advertising.

The information processing model is the most dominant approach in marketing communication (Cohen, 1981; Duncan and Moriarty, 1998; Penrice, 1995; Riva and Galimberti, 1998). The information processing model is based on Shannon and Weaver's (1949) model of communication (see Figure 2.2). Shannon and Weaver's model is composed of a sender (transmitter), a receiver, and a message (which is transformed into the signal). In this model message and signal have been regarded as the most important factors. Based on this communication model, a traditional advertising model has been conceptualised as one-way communication from an advertiser to a consumer (Stewart *et al*., 2002).

Figure 2.2 Shannon and Weaver's Model of Communication



Source: Shannon and Weaver (1949, p. 5)

The traditional advertising model has mainly focused on advertising messages rather than on consumers. The goal of advertising is to deliver messages precisely to consumers. The first interest of advertisers is how to manipulate messages to persuade consumers. The second interest is to measure the advertising effects. This model has been supported by cognitive psychology, which has developed persuasion and communication effect paradigms (Radford, 1994). Persuasion simply means attempting

to change consumer attitude and behaviour. Effective measures involve concepts such as perception, thinking, beliefs, meanings, or intention (Losee, 1999).

Although scholars insist that feedback is important, in the traditional linear model of advertising, feedback functions are very limited. For instance, in the marketing setting, the only way to get consumer information is to ask consumers through a survey questionnaire or telephone "hotline"(e.g., customer service 1-800). The shortcomings of these types of feedback are a lack of interaction between consumers and firms, and substantial time gaps between advertising implementation and consumer response. For this reason a reciprocal relationship between consumers and firms has been largely ignored. However, it is argued here that reciprocity of WMC should be considered (Stewart *et al*., 2002).

Furthermore, many scholars (e.g., Peter and Olson, 1990; Rogers, 1986) have argued that the traditional advertising model has long neglected the emotional aspects and experiences of consumers. Recently many researchers (Gunawardena and Zittle, 1997; Kuehn, 1993; Mantovani, 2001; Choi, 2000; Choi *et al*., 2001) have found that a Web site can generate rich emotional interaction. To fully understand the nature of the new phenomenon, new marketing communication models should be developed.

2.3.2 Effectiveness Studies

The study of advertising effectiveness has been conducted in consumer behaviour, which focuses on "the processes involved when individuals or groups select, purchase, use, or dispose of products, services, ideas, or experiences to satisfy needs and desires"

(Solomon, 1994, p.7). In other words, consumer behaviour involves the study of interaction amongst consumers and firms in the marketing environment. While consumer behaviour utilises concepts and models from other scientific disciplines such as psychology, sociology, anthropology and economics, most consumer behaviour theories have been modeled on cognitive psychology (Liefield, 2003; Stewart *et al*., 2002). Accordingly, the study of advertising effectiveness has been heavily influenced by cognitive psychology.

The basic premise of advertising effectiveness is that consumers are passively exposed to advertisements, then, they process advertising messages. As a result, brand beliefs are formed, which lead to brand attitudes and intentions to purchase the brand. These psychological responses finally influence the consumer's decision to choose a particular brand. Thus, the information about consumer beliefs, perceptions, attitudes, and intentions are very important for assessing traditional advertising effects because these measures predict a consumer's final choice of a particular brand (Liefield, 2003).

(1) Attitude Measures

Typically, the effectiveness of advertising has been assessed by an approach called "communication effects" (e.g., Olson, Toy, and Dover, 1982; Shimp, 1997; Sirgy, 1998). The most widely used measures of advertising effects are attitude toward the advertisement (Aad), attitude toward the brand (Ab), and purchase intention (PI) (Goldsmith, Lafferty, and Newell, 2000). In accordance with Gordon Allport's (1935) classical definition of attitude, attitude toward the advertisement (Aad) is defined as a general predisposition to respond to a particular advertisement in a favourable or

unfavourable way (e.g., Belch and Belch, 1999; Cacioppo, Harkins, and Petty, 1981; Lutz, 1985; Mitchell and Olson, 1981; Solomon, 1994). Similarly, attitude toward the brand (Ab) is defined as a general predisposition to respond to a particular brand in a favourable or unfavourable way. Purchase intention (PI) refers to a consumer's expressed propensity to buy a particular product. Previous studies on advertising effectiveness have demonstrated a consistent causal relationship amongst the three measures. Attitude toward the advertisement can have an effect on attitude toward the brand, which in turn determines purchase intention (Brown and Stayman, 1992; Heath and Gaeth, 1994; Kalwani and Silk, 1982; MacKenzie, Lutz, and Belch, 1986). The framework is still dominantly used for the study of Web site effectiveness (e.g., Bruner and Kumar, 2000; Choi, 2000; Choi *et al*, 2002; Hamilton and Luo, 1999; Pho and Adam, 2002; Stevenson, Bruner, and Kumar, 2000).

However, the advent of Web sites as an interactive marketing communication brings new challenges with regard to measures of effectiveness. The traditional communication effect measures have flaws in that they do not reflect two important features of WMC: emotional aspects of interaction and multi-functionality (e.g., advertising, PR, sales promotion, online selling, and customer service) of Web sites (e.g., Pavlou and Stewart, 2000; Suh, Couchman, and Lee, 2002a; Suh, Couchman, and Hasan, 2003).

Firstly, as the measures of conventional advertising effects are premised on the concepts of a passive audience and the linear communication model, a consumer's cognitive attitude is the main concern. Although attitude toward the advertisement has frequently utilised affective responses (e.g., like/dislike, good/bad, etc), the general feelings about the advertisement do not fully illustrate consumer attitude nor do they reflect the

concept of active participants. These measures, while useful, are only parts of the potential measures of WMC (Pavlou and Stewart, 2000). To overcome these shortcomings, new measures for identifying consumer interaction should be explored. Alternative models should include affect, experiences, individual characteristics, and so forth (Stewart *et al*., 2002; Warden, Lai, and Wu, 2002).

Furthermore, as Lavidge and Steiner (1961) emphasised, measures of Web site effectiveness should be linked to the functions of a corporate Web site. Different from traditional advertising, corporate Web sites perform several functions including advertising, public relations, sales promotion, customer service, and online selling for broader target audiences (Suh, Couchman, and Lee, 2002a). In other words, corporate Web sites focus more on building relationships with a wide range of consumer groups rather than short-term transactions (Hoffman, Novak, and Chatterjee, 1995; Wen, Chen, and Hwang, 2001). Accordingly, typical measures of brand advertising such as attitude toward the brand and purchase intention do not seem to be adequate measures of Web site effectiveness. Reflecting this fact, many marketing communication scholars have developed new communication measures such as attitude toward the Web site (Aws) and revisit intention (RI) for Web site effectiveness (e.g., Bruner and Kumar, 2000; Chen and Wells, 1999; Choi, 2000; Choi *et al*., 2001; Davis, 1999; Loiacono, Chen, and Goodhue, 2002; Luo, 2002; O'Neill, Palmer, Charters, and Fitz, 2001; Stevenson *et al*., 2000; Suh and Couchman, 2003; Suh, Couchman, and Hasan, 2003; Yoo and Donthu, 2001).

(2) Attention Measures

New measures of Web site effectiveness have been proposed by many researchers (e.g., Hofacker and Murphy, 1998; Hoffman and Novak, 2000; Raman and Leckenby, 1998). Some of the most commonly-used methods of assessing Web site effectiveness are the "click-through rate" (or "click-through ratio", "hit rate", "hit ratio") and "duration of visit" (or "visit duration", "duration time"), which reflect the level of attention given to a Web site or a banner ad. A click-through rate is simply calculated by counting the number of times a Web site is clicked within a given period time. On the other hand, duration of visit refers to the amount of time each visitor spent navigating a specific Web site. Even though these measures have an advantage in that they are easy to obtain, there are a few potential shortcomings.

First of all, it is frequently argued that the click-through rate can be inflated or deflated because of technological limitations (e.g., Berthon, Pitt, and Prendergast, 1997; Zeff and Aronson, 1999). For instance, when several users access a Web site through the same proxy server, a Web publisher may recognise them as only one user due to the same address. The same problem may happen when several people share a computer or the same IP address.

Secondly, proponents of "duration of visit" argue that a user who spends more time on a Web page gets more involved in information processing, which in turn leads to a positive attitude toward the Web site (cf. Olney, Holbrook, and Batra, 1991; Thorson, Chi, and Leavitt, 1992). However, recent studies on the Web have yielded contradictory results (e.g., Balabanis and Reynolds, 2001). One possible explanation is that the

relationship between them is influenced by other factors, such as Web experiences, user characteristics, and types of Web sites (e.g., Raman and Leckenby, 1998; Bezjian-Avery, Calder, and Iacobucci, 1998).

Furthermore, many researchers have raised an objection to adopting an attention measure such as the click-through rate and duration of visit as a sole measure of Web site effectiveness. While information about how many users come and how long they stay on a Web site is easy to check, it does not give any further information about consumer attitudes (Briggs and Hollis, 1997; Day, 1997; Tierney, 2000). Alternatively, many researchers have suggested and adopted attitude measures such as "attitude toward the Web site" and "revisit intention" (e.g., Chen, Clifford, and Wells, 2002; Chen and Wells, 1999; Li and Bukovac, 1999; Luo, 2002; Wu, 1999; Yoo and Donthu, 2001).

2.4 Computer–Mediated Communication (CMC) Studies

Long before the advent of the Internet, research on mediated communication has been conducted in the field of CMC studies. Generally the term computer-mediated communication (CMC) is defined as the process of human communication through computers, both stand-alone computers and networked system (Suh, Hasan, and Couchman, 2003). Here mediated communication emphasises human communication that uses media such as computers, email, video conferencing, a Web site, etc. rather than direct face-to-face contacts (Richards and Curran, 2002). Recently, CMC research has influenced the marketing communication field, and many scholars (e.g., Choi *et al*., 2001; Hoffman and Novak, 1996; Hoey, 2000; Rafaeli and Sudweeks, 1997; Rafaeli

and Noy, 2002) have developed and tested new models. Accordingly, CMC research provides useful insights into WMC.

CMC studies began in the 1970's, mainly focusing on personal interaction in group work situations (Rice and Love, 1987). However, after the 1990's CMC research has focused on social interaction in an Internet environment and has been pursued by various disciplines including information systems, education, library sciences, and marketing. Social Presence Theory (e.g., Short, Williams, and Christie, 1976) and Media Richness Theory (e.g., Daft and Lengel, 1986) have been the most frequently adopted approaches by CMC researchers.

CMC researchers have argued that the effects of communication are dependent upon the specific characteristics of the communication media. They have insisted that communication media vary in their capacities to deliver social cues in human communication, and CMC media are less likely to convey social interaction (Huang, 1999). Their assumption is that face-to-face is the ideal communication in group situations (Siegel, Dubrovsky, Kiesler, and McGuire, 1986; Sproull and Kiesler, 1986). Accordingly, CMC media are substitutes for face-to-face communication. However, many other researchers have shown that there are social, emotional aspects in CMC communication such as a sense of online community or friendship (e.g., Boudourides, 1995; Hiltz and Turoff, 1978; Steinfield, 1986; Williams, Strover, and Grant, 1994).

Regardless of these contradictory arguments, CMC research has developed many useful concepts including "interactivity", "social interaction", "social presence", "a virtual community", which are utilised in this study. In the marketing context, Hoffman and

Novak (1996) identify unique characteristics of CMC media and propose a useful research framework for computer-mediated environments (CMEs), which encompasses important concepts such as mediated-communication, interactivity, a sense of presence, etc. While Hoffman and Novak's conceptual model provides guidelines for CMC in general, it cannot speculate on unique influences of different media on human behaviour. Hence, more elaborate models for WMC should further be explored. Furthermore, Hoey (2000) applies CMC concepts for testing the marketing communication effectiveness of electronic publishing. He emphasised that interpersonal interaction facilitated by online conferencing and forums, is an important factor for Web site success.

Although CMC studies have provided useful insights into mediated communication, they have inherent shortcomings. Firstly, as most research has been conducted at the very early stage of the Internet era (e.g., Miltenoff, 1999), they have focused on a very narrow range of communication media such as email and computer conferencing, and have neglected differences among communication media such as email, Multiple User Dimension (MUD), Internet Relay Chat (IRC), Newsgroups, and the World Wide Web (the Web). As a result, CMC media have been regarded as just text-based media (Boudourides, 1995; Kreijns and Gerrissen, 1999; Walther, 1992). Secondly, the study of CMC has focused on the medium itself rather than on the user. Both Social Presence Theory (e.g., Short *et al*., 1976) and Media Richness Theory (e.g., Daft and Lengel, 1986) have emphasised the importance of the inherent characteristics of communication media. In these areas of study, researchers have argued that the use of communication media is dependent upon the different characteristics of the communication media

regardless of user-related factors (e.g., motives, education, and usage) and the social context at use (Dennis and Valacich, 1999). Finally, CMC researchers do not consider the diverse purposes of communication. Most CMC researchers to date typically have focused on task-related communication in the work situation. Hence, it is questionable whether the results of studies on CMC can be applied to WMC.

The shortcomings of CMC studies provide some useful guidelines for the study of WMC. To begin with, the differences of the media should be considered because the types of CMC vary widely according to media characteristics and purposes of communication. For example, email is text-based, whereas the Web is a hypermedia-based medium encompassing links, text, audio, video, images, etc. It can be generally assumed that user responses to the Web will be different from those to email. Accordingly, the result of studies on email research cannot be generalised to all CMC media.

In addition, theories of human behaviour such as Activity Theory (e.g., Vygotsky, 1962, 1981) have insisted that human activities involve tool mediation and human interaction (Suh, Couchman, and Park, 2003). Communication media are only mediating artefacts through which human beings interact with other human beings. Researchers have begun to investigate the human side of CMC and the resulting studies have suggested that a computer can create social responses such as a sense of presence or interpersonal feelings (e.g., Boudourides, 1995; Hiltz and Turoff, 1978; Steinfield, 1986; Williams *et al*., 1994). Thus, WMC, as a form of CMC, should not be treated simply as a process of human-computer interaction. Rather, it should be seen as mediated human-human communication (e.g., Riva and Galimberti, 1997; Tourangeau, Couper, and Steiger,

2001). For this reason, theories derived from the social psychology of communication can help us better understand the nature and dynamics of WMC.

2.5 Theoretical Framework of the Study

On the basis of the literature review it was concluded that conventional approaches to the evaluation of marketing communication media are not appropriate to WMC given the distinctive characteristics of this new medium. Particularly, in the marketing context the role of the consumer, and the communication concept have been questioned. Nevertheless, to date little systematic, empirical research has been carried out. The lack of an appropriate framework, which can be applied to WMC, gives rise to the need for a new approach (Hoffman and Novak, 1996; McDowell and Sutherland, 2000; Stewart *et al*., 2002). This chapter suggests a new approach for WMC and introduces Activity Theory. Then the WMC model and the important features of the model are discussed.

2.5.1 A New Approach in WMC

Drawing on existing literature and research findings, three shifts in focus for WMC studies have been identified:

(1) The focus of research: from the medium (message) to the consumer

(2) The concept of communication: from information to interaction

(3) Theories derived: from cognitive psychology to social psychology

First of all, the focus of research needs to shift from the media (messages) to the consumer. This also means a shift from the firm (marketer) to the consumer (Ray, 1982). In traditional advertising model, the mass media or the advertising message is the focus. Consumers are simply recipients of messages, which are highly manipulated by advertisers. Hence, the effectiveness of advertising depends solely upon the advertiser's skills to manipulate advertising messages (e.g., advertising creativity). The interest of advertisers is to know whether the message is delivered to the consumer accurately or not. On the contrary, in WMC consumers are at the centre of the communication process. Consumers and firms are participants in communication mediated by a Web site. Consumers actively access the Web and interact with firms. While consumers are surfing a corporate Web site, they feel that they are interacting with someone from firms. The level of interaction depends on both the characteristics of a Web site and consumer characteristics such as experience, motives, etc (e.g., Jackson, 1997).

Secondly, the concept of communication should shift from information to interaction. In traditional advertising models communication is defined as the process of transmission of information (e.g., Schramm, 1954; Ross, 1973; Shannon and Weaver, 1949). This view has been radically challenged because it does not take into account reciprocal interaction (Riva and Galimberti, 1998). In WMC, communication refers to a process of exchanging both information and emotions between firms and consumers, which is conceptualised as interaction (Craig, 1999; Suh, Hasan, and Couchman, 2003). Rich interaction on a corporate Web site is provided by reciprocal communication via various feedback functions and hyperlinks (Riva and Galimberti, 1998). It is worth noting that it is mediated human-human interaction (e.g., Riva and Galimberti, 1997; Tourangeau *et*

al., 2001). This implies that consumer interaction is the determinant of assessing WMC effectiveness.

Finally, there is a need to shift from theories derived from cognitive psychology to those derived from social psychology. Traditional advertising effect measures have focused on consumer's reactive responses to advertising stimuli. As advertisers' interests have been accurate message delivery, cognitive psychology has been very helpful in assessing consumer attitudes and behaviour. However, existing consumer behavioural models are not well suited for assessing the social aspects of human interaction. Traditional behavioural models based on cognitive psychology have been challenged and criticised by many marketing communication scholars (e.g., Craig, 1999; Stewart *et al*., 2002; Peter and Olson, 1990). For this reason, theories derived from the social psychology of communication can help us better understand the nature and dynamics of WMC.

In conclusion, a new WMC model should integrate three major shifts and it should also focus on both outcomes and process of marketing communication.

2.5.2 Activity Theory

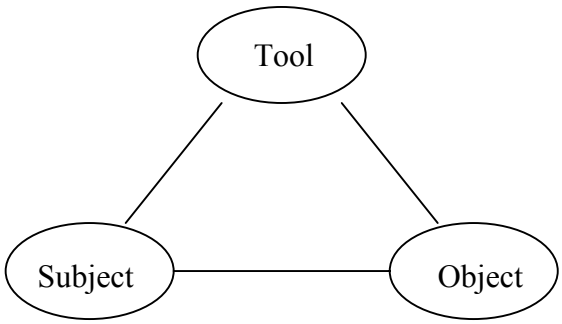
Activity Theory has been built on the premise that a human being interacts with others through tools. Mediated interaction provides a basis for investigating human activity (Vygotsky, 1981). Activity Theory incorporates concepts of mediation, interaction, community, etc. and these aspects have drawn attention amongst scholars in the field (Uden and Willis, 2001). Accordingly, Activity Theory provides a solid theoretical basis

for understanding mediation and interaction of Web-mediated communication (e.g., Hasan, 1998; Mwanza, 2000; Ryder, 1998).

Activity Theory originated from a Russian psychologist Les Vygotsky in the 1920's, and was introduced to the West in the 1980's. Activity Theory has well-established theoretical foundations and has been applied in various disciplines such as Social Psychology, Education, Human-Computer Interaction (HCI), Information System (IS), and so forth (Hasan, 1999). Recently Activity Theory has been applied to the marketing communication area (e.g., Chaudhury *et al*., 2001; Suh, Couchman, and Park, 2003; Suh, Hasan, and Couchman, 2003).

Activity Theory investigates human interaction with others through an "activity", which is a basic unit of analysis for understanding human behaviour. Activity theorists have argued that human activity is not an isolated entity (Bannon, 1997). Rather it is structure composed of three basic elements: a subject, an object, and a tool. An agent who engages in an activity is called a "subject". A subject can be an individual or a group of people. More than one subject constitutes a community when they share an object. All human activities are driven by a certain purpose or motive, which is called an "object". Vygotsky (1978) has emphasised that a human being does not directly react to others, but interacts with others through the use of tools and signs. An activity is usually mediated by one or more artefacts (a tool). The basic mediation model (Figure 2.3) illustrates the simplest form of Activity Theory.

Figure 2.3 Basic Mediation Model



In relation to WMC, Activity Theory encompasses three important principles, which distinguish human beings from animals, (1) object-orientedness, (2) mediation, and (3) social interaction through higher mental functions (e.g., cognition and affect). In the first place, Activity Theory has emphasised that all human activities are always purposeful (Hasan, 1999). In other words, a human being undertakes an activity to accomplish a certain purpose. Then the object motivates and gives direction to an agent (Mappin, 2000). An object is also understood as a motive.

Secondly, a human being always interacts with others through mediation. In other words, a human activity is mediated by a variety of tools and artefacts (Bannon and Bodker, 1991; Kaptelinin, 1996). Mediation is a unique concept in Activity Theory. Tools can be classified into two basic categories: physical and psychological tools. Physical tools usually facilitate or restrict conditions for physical activities. On the other hand, psychological tools boost and activate cognitive and affective functions. However, the distinction between physical and psychological tools is not always clear, and sometimes both reside in the same tool. For example, a corporate Web site as a communication medium can be regarded as a physical tool. As a symbolic system, which consists of various signs such as text, audio, video, and images, it can also be

considered as a psychological tool. Tools shape human interaction with others and reflect human experiences and knowledge (Ryder, 2001). In that respect, tools are embedded in a social-historical context.

Finally, Vygotsky classified human beings' mental processes into two categories: lower (natural) and higher (cultural) mental functions. Lower mental functions are biological mechanisms like instincts (Gindis, 1995; Ratner, 1998). Higher mental functions distinguish human beings from animals. Through higher mental functions (e.g., cognitive and affective functions) a human being engages in an activity and interacts with others. In turn, social interaction develops higher mental functions (Nicholl, 1998). Without higher mental functions human beings cannot have objects, and cannot create or develop tools.

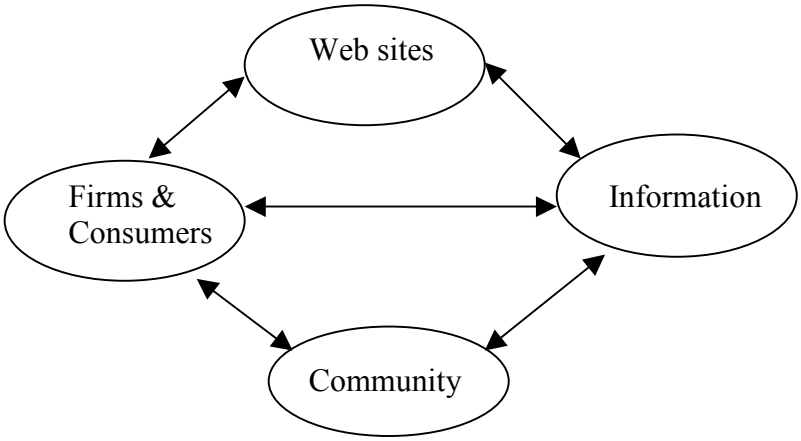
It is worth noting that Activity Theory is a general conceptual framework rather than a fully predictive theory (Ryder, 2001). As Activity Theory does not have a standard format, it allows flexibility in its application. Based on its principles a variety of models can be developed according to different contexts.

2.5.3 The WMC Model

According to Activity Theory, WMC is a human communication activity which involves subjects, objects, tools, and communities in a marketing environment (see Figure 2.4). Subjects are individual consumers or a group of consumers who perform communication activities. A community, here, is a group of people who share the same goals or purposes (Ellison and McGrath, 1998; Hasan, 1999). Objects are goals or

motives that drive consumers to act. And tools are Web sites that mediate the communication activity. More specifically, WMC is a communication activity undertaken between firms and consumers, which is oriented by particular objectives and mediated by corporate Web sites, towards a certain object and mediated by a corporate Web site and a community. In a marketing situation, subjects are firms and consumers. Consumers include a wide variety of target audiences ranging from dealers to stockholders, government, and general publics. Firms and consumers share similar interests and common goals, and therefore they constitute a community.

Figure 2.4 Basic Elements of WMC



Through a survey of 279 college students, Papacharissi and Rubin (2000) have found that browsing a Web site to obtain information has been the most conspicuous predictor of Web use. This result has been supported by a Web user survey (GVU, 1998). From a firm's point of view, informing is a universal purpose of marketing communication (e.g., Kotler, 2000; Shimp, 1997), and a corporate Web site seeks to perform this function (Suh, Couchman, and Lee, 2002a). In other words, firms try to deliver a wide range of marketing information to consumers via their Web sites. On the other hand,

consumers access corporate Web sites to collect product information (see Figure 2.5). Thus, it can be concluded that the exchange of information is a common motive of the Web community.

In the WMC model social interaction plays an important role. Social interaction is defined as a "process or outcome of continuous interchange between people in a social context such as conversation, attending a lecture, conducting an interview, etc (Cairns, 1979; Vygotsky, 1978). Human interaction in mediated communication has two conspicuous characteristics, that is, it is social and reciprocal. Many researchers suggest that people respond to computers just as they are interacting with other humans (e.g., Picard, 1997, Cassell and Bickmore, 2002; Nass, Moon, Fogg, Reeves, and Dryer, 1995; Nass, Steuer, and Tauber, 1994; Reeves and Nass, 1996). This notion implies that communication interaction is social. Another characteristic of interaction in mediated communication is reciprocity. Reciprocity refers to mutual understanding, exchanging information. Reciprocity or mutual interchange is a critical element of community because humans cannot share social rules and reality without reciprocity (Fernyhough, 1996; Gouldner, 1960; Riva and Galimberti, 1998; Saito, 1996).

Another important concept here is that of virtual community. Basically, a community is a group of people who have common interests and goals. A corporate Web site, utilising reciprocal communication facilities (e.g., feedback and email), creates a sense of space where subjects can communicate. This is a social phenomenon, arising from interaction among people (e.g., Fernyhough, 1996; Riva and Galimberti, 1998; Saito, 1996). Generally, it is assumed that the higher the degree of social interaction involved in accessing a Web site, the more the Web site is perceived as a constituting a community

(e.g., Benschop, 1997; Williams *et al*., 1994). As a result, the Web site and the community merge into one domain (see Figure 2.2). Therefore, a virtual community can be defined as a sense of space where consumers and firms exchange information and emotional states. In WMC, the virtual community can be called a "marketspace" to differentiate it from a "marketplace," which is a physical community (Rayport and Sviokla, 1994).

Figure 2.5 The WMC Model

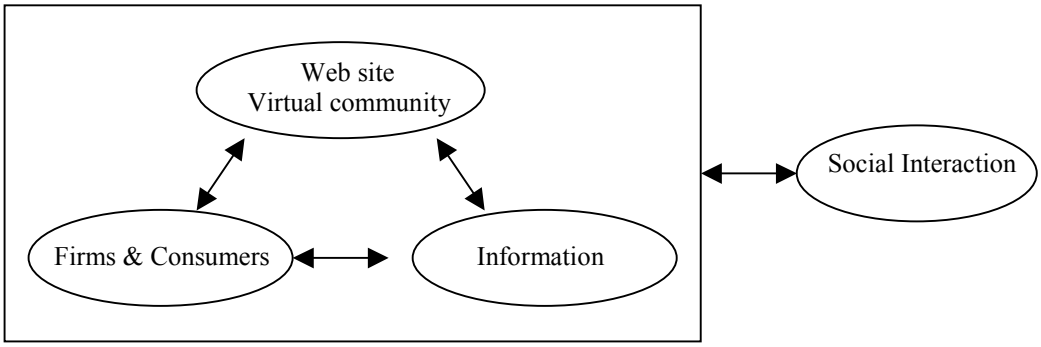


Figure 2.5 illustrates the overall process of WMC. From this model WMC can finally be defined as an "exchange process of social interaction between firms and customers mediated by a Web site and a virtual community for the exchange of information". This definition implies that communication is not a single exchange of information but also involves social interaction, potentially ongoing form of relationship.

2.5.4 Implications of the WMC Model

The conceptual model this study proposes aims at complementing the conventional marketing communication model by filling gaps in our knowledge in relation to the evaluation of WMC effectiveness. This model has significant implications for the study of the Web.

Firstly, the WMC model contrasts with traditional communication models, which defines communication as a message transmission process (e.g., Shannon and Weaver, 1949; Schramm, 1954). In traditional communication models, the direction of transmission is always from the sender (firms) to the receiver (consumers). Furthermore, although there is a feedback loop, it is asynchronous and performed through other media like telephone and consumer surveys. On the contrary, the WMC model suggests that communication is the process of social interaction between firms and consumers. Consumers are not simply passive recipients but are "participants" in a communication process.

Secondly, the Web design process is not a simple allocation of hypermedia elements but an activity informed by particular objectives. The comparison between a simple allocation and an activity can be described by the term "informative" and "communicative" (Gahagan, 1975). The former refers to a simple allocation of information without intention. On the contrary, the communicative design of a Web site is an intended and planned behaviour of firms aimed at influencing consumers. The contrast with conventional media (e.g., TV) a Web site delivers multi-functions (e.g., advertising, PR, sales promotion, online selling, and customer service) and involves a

hypermedia structure. Hence, Web site design requires well-prepared communicative plans for selecting and combining various design elements and modes of presentation.

Television commercials are of thirty-second duration or fifteen-second and can only tell one thing about a product or service (Leiss *et al*., 1986). Once TV commercials are broadcast, consumers cannot access them again. By contrast, a corporate Web site is able to deliver high volumes of information with unlimited storage. In this sense, Web design is much more complex than traditional advertising.

Thirdly, the model indicates the important role of individual differences. As Activity Theory has argued, different objects drive different activities and people have different capabilities (Vygotsky, 1978). As a result, different motives for accessing Web sites and different capabilities (e.g., Web literacy) should be considered in the study of WMC. The Web is a new medium, and use of the Web can be seen as a learning situation. It is undoubted that individual differences have an effect on consumers' activities and social interaction. Accordingly, individual factors, such as motivation and Web literacy should be included in any study of WMC.

Finally, the model emphasises that a corporate Web site creates a virtual community, where firms and consumers interact. Many studies have shown that CMC media can generate emotional relations with an online community (e.g., Ogan, 1993; Rheingold, 1993). However, the affective side of human interaction has long been neglected in communication studies (e.g., Aboulafia, Gould, and Spyrou, 1995; Craig, 1999; Peter and Olson, 1990). To address this shortcoming, Activity theorists have postulated that human cognition cannot be understood without considering human affect or emotion.

As a critical feature of any human activity, the emotional aspects of social interaction should be included (Suh, Couchman, and Park, 2003).

2.5.5 The Key Constructs of the WMC

This section discusses about the important constructs of the WMC derived from the literature, which leads in to the research model and hypotheses in Chapter 4. Web site typology, social interaction, individual differences (e.g., Web literacy, motives, and gender), and attitude and behavioural measures (e.g., attitude toward the Web site and revisit intention) are included. Web site typology will be a predictor, social interaction as a mediator, and individual difference as a moderator, while attitude and behavioural measures will be used as criterion variables. Each construct is defined and the marketing application of these constructs is discussed.

(1) Web Site Typology

Content and structure are two basic elements that determine the type of Web site (e.g., Huizingh, 2000; McCready, 1997). In a marketing communication context, it is frequently said that content is "what is said" and structure is "how it is said". In other words, content refers to the communication message and structure means a manner of organisation of a Web site. As a Web site utilises a wider range of content and structural elements than traditional advertising, a typical advertising typology (e.g., slice-of-life, comparison, and demonstration) cannot be applied to a Web site. In this section, the traditional advertising literature as well as the WMC literature will be drawn on to develop a systematic basis for formulating a Web site typology.

It is argued that different types of Web site content (i.e., what is said) and Web site structure (i.e., how it is said) will create different effects on consumer's interaction with a corporate Web site (e.g., Escalas, Jain, and Strebel, 1994). Thus, several WMC scholars have focused on the effectiveness of a Web site type (e.g., Bruner and Kumar, 2000; Choi, 2000; Choi *et al*., 2001; Dalal, Quible, and Wyatt, 2000; Escalas *et al*., 1994; Huizing, 2000; Li and Bukovac, 1999). Generally different Web site types have yielded different effects on consumer attitudes. For example, Escalas *et al*. (1994) have reported that a well-organised Web site increased consumer satisfaction. Dalal *et al*. (2000) overall regardless of a Web site is graphic-based vs. text-based design. Choi (2000) has found that a Web site with an animated human character generated higher social presence than a Web site without an animated character.

For the last two decades, the effect of advertisement types has been the main interest of marketing scholars. Traditional advertising effectiveness studies have dominantly focused on whether a specific element is present or absent in advertisements (e.g., McQuarrie and Mick, 1999; Scott, 1994; Stewart and Koslow, 1989). However, previous research on traditional advertising often has yielded different conclusions about the effectiveness of a particular element (Laskey, Fox, and Crask, 1994). Accordingly, many researchers (e.g., Dyer, 1982; Laskey *et al*., 1994) have argued that the traditional approach (i.e., atomistic) is problematic and have suggested adopting a holist approach for classifying advertising types. Here it would be beneficial to examine the difference between two approaches.

There are two competing approaches to investigate a typology of Web sites: atomistic (or mechanistic) and holistic approaches (e.g., Schutt, 1996). First of all, an atomistic approach has emphasised the presence or absence of a particular element of a Web site (such as text, sound, images, etc.). Many of the advertising effectiveness studies to date have been based on the atomistic approach, and verbal (or text-based) versus visual (or graphic-based) message types have been very popular. Using this approach, traditional advertising studies have generally found that a visual type is more effective than a verbal type (e.g., Landoni and Gibb, 2000; McQuarrie and Mick, 1999; Scott, 1994; Stewart and Koslow, 1989), although there have been some controversies. This approach has recently been applied to a Web site typology study (e.g., Choi, 2000; Li and Bukovac, 1999).

By contrast, the holistic approach has been based on the Gestalt psychology, which has asserted that people understand the universe as an organised whole, not an elementary part (Gray, 1991). This approach, therefore, seeks to identify the pattern of a Web site, which is a group of elements as a whole (e.g., Mardrazo, 1996). Laskey *et al*. (1994, p.9) explain that

> "Rather than focusing on individual elements of a commercial, one could examine types of commercials identified by their dominant executional focus. The distinction between studying these basic executional styles, instead of executional elements, is an analogous to examining personality types rather than personal traits. Focusing on executional styles would allow advertisers to assess the effectiveness of a small number of basic executional types, defined by a commercial's dominant executional focus, instead of being concerned about the

individual building blocks of a commercial".

Recently many researchers have adopted this approach in classifying advertising types (e.g., Laskey *et al*., 1994; Suh, 1995). Based on this approach they have classified televisional commercials into many different categories such as narration, demonstration, fantasy, and so forth. While several researchers (e.g., Berners-Lee, 1989; Jackson, 1997) have suggested adopting a holistic approach in WMC, there are only few studies which have applied a holistic approach (e.g., Cappel and Myerscough, 1997; Huizing, 2000; Koehler, 1999). Regarding Web site structure, Koehler (1999) has classified a Web site into five types: text dominant, graphic dominant, multimedia dominant, file retrieval dominant, and E-mail dominant. Huizing (2000) has classified Web site content, based on the functions of a Web site, into information (e.g., background company, specific products, and non-commercial), transaction (e.g., request for proposals, and ordering feature), and entertainment types. Cappel and Myerscough (1997) have suggested five Web site content types such as marketplace awareness, customer support, sales, advertising, and electronic information services. However, these studies generally have lacked systematic investigation of Web sites. Furthermore, the hybrid nature of Web sites (i.e., a Web site can include various hypermedia elements and functions at the same time) has been neglected (Cappel and Myerscough, 1997).

(2) Classification Schemes for a Web Site Typology

Unlike traditional mass media advertising, a Web site delivers hypermedia (e.g., hyperlinks and multimedia) and multi-functions (e.g., advertising, PR, sales promotion, online selling, and customer service), which are potential capabilities of a corporate

Web site as a marketing communication tool (Palmer and Griffith, 1998). Therefore, the way in which to organise a Web site is one of the important marketing activities for firms (e.g., Berthon, Pitt, Katsikeas, and Berthon, 1999).

Based on the distinctive characteristics of a Web site, as discussed in Section 2.1.1, this study proposes a Web site typology in terms of structure and content (Table 2.1). The items of a Web site structure include five elements of hypermedia: text, images, audio, video, and hyperlinks. Each element has included items. For instance, items for text are headline and descriptive text, while images include company logos and photographs. Web site content contains five elements of the Web function: advertising, PR, sales promotion, online selling, and customer service. Each element includes specific items.

This study attempts to adopt a holistic approach to classify Web sites. Based on classification schemes the researcher can identify the dominant focus of Web site structure and content. For instance, this classification scheme can be used as a basis of Content Analysis, which is discussed in Chapter 3 of this thesis. The study of Web site typology is still in its infancy. Many scholars have argued that one hindrance is a lack of any guidelines to manage effective Web sites (e.g., Bieber and Isakowski, 1995). This classification scheme could provide a strong basis for the study of Web site effectiveness.

Table 2.1 Classification Schemes for a Web Site Typology

	Elements	Items
Web Site Structure	Text	Headline, Description
	Image	Company logos, Photographs
	Video	Moving text, Moving images, Video, Video icons
	Audio	Music, Sound, Audio icons
	Links	Internal links, External links
Web Site Content	Advertising	Product/service description, Product catalogue, Product/service news, Product package
	Public Relations	Company news, Company history, Mission statement, Company organisation, Financial information, Affiliated company, Human resources, Recruiting, CEOs, Social activity, Company profile
	Sales Promotion	Contest, Financial incentives, Sampling, Product demonstration
	Online Selling	Transaction process, Online payment
	Customer Service	Branch locations, After sales service, FAQs, Technical information, Customer feedback, Contact, Links to affiliated company, Links to other organisation

(3) Social Interaction

As argued previously, communication essentially involves social interaction and so an understanding of this is central to an understanding of WMC. However, despite many studies of this phenomenon, the domain and measures of social interaction remain under-developed and somewhat controversial. In order to provide a sound basis for measurement, the following review synthesises the literature on social interaction.

From the 1950's, many researchers have developed classification schemes of social interaction in communication. Commonly there have been two key aspects of social interaction: the task and affective dimension (e.g., Andres, 1996; Bales, 1950, Hare, 1960, Champness, 1973b; Hiltz and Johnson, 1990; McGrath, 1991; Van Dulmen, 1998; Walls, 1993). Particularly, as these dimensions have been developed and applied to mediated communication situations, they will also serve as rigorous measures for WMC.

The task dimension of social interaction refers to the achievement of the communication task. The task domain is regarded as a cognitive function of human interaction. Therefore, it is measured by a subjective perception in relation to communication quality (e.g., Hiltz and Turoff, 1978; Olaniran, 1993; Rice and Love, 1987). The most frequently utilised measures for communication quality are perceived usefulness and perceived ease of use (Davis, 1989). Perceived usefulness refers to the extent to which a user believes that using the communication medium will enhance task performance (Davis, 1989). Perceived ease of use of a medium refers to the extent to which users believe that using the communicating medium will be free of effort (Davis, 1989).

Many researchers argue that task-related interaction measures are strongly relate to the acceptance and use of communication media (e.g., El-Shinnawy and Markus, 1998, Davis, 1989; Swanson, 1987). Many studies have applied these measures in assessing Web site effectiveness. These studies have found that both perceived usefulness and perceived ease of use are strong predictors of attitude and behavioural intention. For instance, Gefen and Straub (2000) have identified that the more users perceived a Web

site as useful, the higher their purchase intention is. Such measures can be will be applied in this study as cognitive measures of social interaction.

The affective dimension of social interaction refers to the emotional aspects including positive and negative feelings. This domain is an affective function of social interaction. Accordingly, it is assessed by consumers' feelings in relation to communication (e.g., Biocca, 1997; Burgoon and Hale, 1987; Champness, 1973a and b; Culter, 1995; Garrison, Anderson, and Archer, 2001; Mason, 1994; Mclassac and Gunawardena, 1996; McLellan, 1996; Nowak, 2001; Rourke, Anderson, Garrison, and Archer, 1999; Spears and Lea, 1992; Sproull and Kiesler, 1986; Storck and Sproll, 1995; Walther, 1992). Social presence is one of the commonly-used measures for the affective domain of social interaction. Social presence is defined as "the user's feeling that she or he is interacting with others (e.g., Biocca, 1997; Champness, 19731, Short *et al*., 1976; Suh, Hasan, and Couchman, 2003; Suh, Hasan, Couchman, and Lee, in press). Recently social presence has been applied to marketing communication (e.g., Choi, 2000; Choi *et al*., 2001; De Greef and Ijsselsteijn, 2000). Choi (2000) found that there were positive relationships between social presence and communication effect measures (e.g., attitude toward the advertisement, revisit intention, and attitude toward the brand). De Greef and Ijsselsteijn (2000) also identified that both measures are correlated. Social presence can be regarded as a precedent of the attitude toward the Web site. This measure will be utilised in this study as an affective measure of social interaction.

(4) Individual Differences

The Web is premised on the non-linear nature of hypermedia so it allows the users a great deal of control (Jonassen and Grabinger, 1990; Reed and Oughton, 1997). However, the level of control is dependent upon the users' navigation ability. In other words, while experienced users would fully utilise the hypermedia capability of a Web site, those with little experience would not fully navigate a Web site. The user's ability is a very important concept in that it ultimately shapes the nature of the consumer-marketer interaction (Stewart and Pavlou, 2002). Accordingly, it is crucial for Web designers and marketers to understand consumer ability and cultural factors. Unfortunately, although many researchers (e.g., Jonassen, 1988) have advocated the necessity of studies of individual differences, only a handful of researchers to date have explored the effect of individual differences in WMC (Chen and Ford, 1999).

Here individual differences refer to the dissimilarities in individual characteristics of consumers, which affect communication process and outcomes (e.g., Agarwal and Prasad, 1999; Zahedi, van Pelt, and Song, 2001). Consumers differ in their abilities, skills, culture and they interpret marketing information in different ways based on these differences. Individual differences have a diverse range of factors including demographic, behavioural, psychological and cultural. For instance, some researchers (e.g., Abdul-Gader, 1996; Schumitz and Fulk, 1991) have identified that usage, experience and skills influence the use of new media.

Other researchers (e.g., Gilroy and Desai, 1986; Thorson, 1990) suggest that motivation is also an important factor as well as skills and ability. The most frequently investigated

individual differences in terms of mediated communication situations are sex, usage (length of time using a specific medium), prior experience, learning, knowledge, skills, self-efficacy, motives (or motivations) and culture (e.g., Agarwal and Prasad, 1999; Canary and Hause, 1993; Chu, 1999; Compeau, Higgins, and Huff, 1999; Escalas *et al*., 2001; Huizingh, 2000; Ju-Pak, 1999; Kayany and Yelsma, 2000; Papacharissi and Rubin, 2000; Stewart *et al*., 2001; Tripp, 2001; Zahedi *et al*., 2001; Zhang and Gelb, 1996).

This study focuses on three distinctive individual characteristics of consumers: Web literacy, and motives. This section reviews what is known about each of the individual characteristics with respect to WMC.

(5) Web Literacy

Web literacy can be defined as an ability to actively explore and obtain information from a Web site (Suh and Couchman, 2003), which encompasses a complex set of factors including experience, knowledge, and skills that determine an individual ability to navigate the Web and manage their interaction with Web sites. Web literacy reflects a users ability to manage the distinctive features of the Web, including hypermedia and interactivity. The results of many studies indicate that Web literacy is closely related to experience, usage levels, and self-efficacy (Abdul-Gader, 1996; Cassidy and Eachus, 2001; Schmitz and Fulk, 1991). For example, Lazonder, Biemans, and Wopereis (2000) demonstrated that people who have more Web experience were better able to search the Web. Many other studies supported this finding (e.g., Carlson and Zmud, 1999;

Fenichel, 1981; Hirsch, 1997; Jacobson and Fusani, 1992; McDonald and Stevenson, 1998; Patel, Drury, and Shalin, 1998; Reed and Oughton, 1997).

In addition, prior usage of and familiarity with the medium, which include not only the specific medium (e.g., a Web site) but also other related technologies such as personal computers, or their peripherals is also positively related to the ability (e.g., Agarwal and Prasad, 1999; Escalas *et al*, 2001). Finally, self-efficacy, a person's belief or confidence about their ability to manage the Web (e.g., Bandura, 1977, 1982, and 1994), is closely related to Web literacy. For example, Staples, Hulland, and Higgins (1998) have proved that self-efficacy is positively related to online performance, a finding has been supported by several studies (e.g., Nahl, 1996 and 1997; Ren, 1999).

Many studies have shown that various constructs such as literacy, experience, skills, self-efficacy, familiarity, training, and knowledge are positively related to each other and they represent the same construct which is "individual ability" (e.g., Agarwal, Sambamurthy, and Stair, 2000; Cassidy and Eachus, 2001; Compeau and Higgins, 1995; Dishaw, Strong, and Bandy, 2002; Eastin and LaRose, 2000; Marcolin, Compeau, Munro, and Huff, 2000). Accordingly, it can be concluded that Web literacy encompasses a complex set of factors including experience, confidence, and familiarity that determines a person's ability to interact with Web sites.

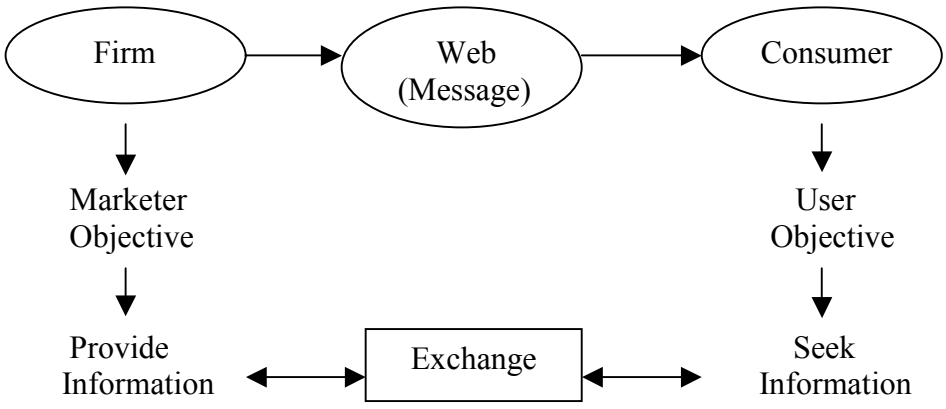
(6) Motive

In a marketing communication context, "Uses and Gratifications Theory" is one useful approach to study consumers' media use. "Uses and Gratifications" scholars have

argued that users' media use is a purposive or goal-driven activity, hence their media consumption behaviour differs according to their different motives and goals. They further have emphasised that users' social psychological factors are more important than media characteristics in the study of responses to media (e.g., Blumler, 1979; Papacharissi and Rubin, 2000; Rubin, 1993).

According to uses and gratifications scholars, Web users are at least as active as marketers. Web users do not just visit Web sites but utilise them to fulfil their specific purposes. When users respond to other's communication initiatives, they are not simply passive recipients of message but are active participants in the process (Figure 2.6). As consumers are actively involved, their activities (such as the amount of time they spend on the specific Web site and page) and attitudes vary according to their motives. For example, Kaye (1998) identified that there is a relationship between Web use motivation and attitude toward a Web site. More specifically, Web users looking for information have showed a more positive attitude toward a Web site than those who surfed a Web site for a pastime. Steinfield (1986) also found that the different motives of email use yielded different attitudes. Thus, it can be said that a study of motives is crucial to understand active consumer behaviour.

Figure 2.6 Process of Mediated Communication



An extensive review of the uses and gratifications literature has suggested that the most robust dimensions of mass media use include entertainment, information, and irritation (Luo, 2002). This classification is based on studies of traditional communication media. As the Web is different from traditional mass media, motives for media use are also likely to be different. Recently, many researchers have investigated the motivations of Web use. For instance, December (1996) identified communication, interaction, and information-seeking as three motives for Internet use. Similarly, Charney (1996) found that information, entertainment, and communication were most conspicuous motives of Web use through a study of university students. A user survey (GVU, 1998) also found that three most important categories were information, entertainment, and shopping. On the contrary, Kaye (1998) and Ebersole (2000) suggested more broad categories including information, communication, entertainment, etc. Although definitions and categories are somewhat different, it can be concluded that two most prominent categories are gaining access to information and entertainment, which are common to both the Web and traditional media. In a marketing communication setting, as discussed before (see Section 2.4.3), a common motive of consumers and forms are the exchange of information. Thus, this study will be conducted in an information-seeking setting.

(7) Gender

Over the past several decades, numerous studies have focused on gender differences in many areas including marketing, psychology, and communication. However, the majority of the studies have found no significant gender differences. For instance, through a meta-analysis of hundreds of studies, Canary and Hause (1993) concluded

that fifty years of research have yielded no significant differences between males and females on communication effects. Several studies on email and the Web use also have reported similar results (Li, Kuo, and Russell, 1999; Steinfield, 1986). Usually, the presence of small gender differences can be explained by other socio-cultural factors such as experience and education (e.g., Canary and Hause, 1993; Hamilton, 1995; Kayany and Yelsma, 2000). On the basis of these findings, it was decided not to use gender as an independent variable in the study (e.g., Canary and Hause, 1993; Tannen, 1990; Tripp, 2001).

(8) Attitude and Behavioural Measures

The ultimate goal of traditional advertising is usually to enhance transactions between firms and consumers (e.g., selling products and services). Accordingly, marketers are interested in sales volume or market share, which are frequently called "sales effects". However, these outcomes are often not accurate enough to measure the results of marketing communication activities because they are influenced not only by marketing communication variables but also by other marketing mix variables such as price or product quality. Therefore, the use of sales effect measures has been little used for assessing special marketing communication activities such as sales promotion, direct-response advertising, or retail advertising (e.g., Belch and Belch, 1999; McDonald, 1993; Simon, 2001). Besides, they do not explain the underlying meanings behind transactions. In other words, sales volume or market share do not tell why consumers purchase certain products or services. However, the measurement of consumer attitudes does. Different measures of consumer attitudes can explore various aspects of consumer responses to marketing communication (McDonald, 1993). Traditionally, consumer

attitudes have been used to assess marketing communication effectiveness, an approach which is called "communication effects" (e.g., Olson *et al*., 1982; Shimp, 1997).

However, the advent of Web sites as interactive marketing communication tools bring new challenges with regard to measures of effectiveness. As Lavidge and Steiner (1961) emphasised, measures of Web site effectiveness should be linked to the functions of a corporate Web site. Different from traditional advertising, most corporate Web sites perform multi-functions including advertising, public relations, sales promotion, customer service, and online selling for broader target audiences (Suh, Couchman, and Lee, 2002a). Accordingly, typical measures of brand advertising such as attitude toward the brand (Ab) and purchase intention (PI) do not seem to be proper measures of Web site effectiveness. Reflecting this trend, many researchers recommend attitude toward the Web site (Aws) and revisit intention (RI) as new measures of Web site effectiveness (e.g., Bruner and Kumar, 2000; Chen and Wells, 1999; Choi, 2000; Choi *et al*., 2001; Davis, 1999; Loiacono, Chen, and Goodhue, 2002; Luo, 2002; O'Neill *et al*., 2001; Stevenson *et al*., 2000; Suh and Couchman, 2003; Suh, Couchman, and Hasan, 2003; Yoo and Donthu, 2001).

Attitude Toward the Web Site (Aws)

The basic logic of attitude toward the Web site (Aws) is analogous to attitude toward the advertisement. Attitude has been a key construct in marketing communication and consumer behaviour over the past 40 years. The most popularly cited definition of attitude is as a "learned predisposition to respond to an object" (Allport, 1935, p. 810). An attitude has been widely regarded as a "relatively stable and enduring predisposition

to behave," hence it can be a "useful predictor of consumer behaviour toward a product and service" (Mitchell and Olson, 1981, p. 318). Based on a widely-used definition of attitude, attitude toward the Web site can be defined as "a predisposition to respond to a Web site as a communication medium or partner".

In a marketing context, it is generally agreed that attitude toward the object (e.g., attitude toward the advertisement, attitude toward the brand, and attitude toward the Web site) have been treated as consumers' overall feelings (e.g., Holbrook, 1978; Batra and Ray, 1986; Mitchell and Olson, 1981). Thus, attitude toward the Web site can be broadly defined as a multidimensional construct including affective and cognitive dimensions. It is worth noting that attitude toward the Web site should be interpreted as consumers' overall evaluation of the Web site, but not as an objective quality of a Web site (Arnold, 1960; Batra and Ray, 1986; Derbaix, 1995; Lutz, 1985; Mitchell and Olson, 1981; Suh, Hasan, and Couchman, 2003). Many marketing communication scholars (e.g., Bruner and Kumar, 2000; Chen and Wells, 1999; Choi, 2000; Choi *et al*., 2001; Stevenson *et al*., 2000) have adopted this measure for assessing a Web site. Choi (2000) found that there is a positive relationship between attitude toward the Web site and revisit intention. This measure will be utilised as a criterion variable in this study.

Revisit Intention (RI)

Basically, behavioural intention measures a consumer's expressed propensity to take further action such as purchase, use, visit, consumption, inquiry, etc. (e.g., Aaker, Batra, and Myers, 1992; Mowen, 1990). The most frequently used measure of behavioural intention is purchase intention (PI). As mentioned before, whilst purchase intention is

appropriate when the main goal of a Web site is to encourage transaction (e.g., shopping mall sites), this measure is less appropriate for corporate Web sites (Wansink and Ray, 1992). Recently many researchers argue that a universal goal of a corporate Web site is building relationships with consumers, and to maintain good relationships and consumer loyalty by attracting consumers to the Web site is essential (e.g., Brassington and Pettitt, 1997; Choi, 2000; Choi *et al.*, 2001; Novak, Hoffman, and Yung, 2000; Suh, Couchman, and Park, 2003; Suh, Hasan, and Couchman, 2003; Suh Hasan, Couchman, and Park, in press). Therefore, attracting users to revisit the Web site seems to be a critical factor in Web site effectiveness. Here revisit intention can be defined as a consumer's propensity to revisit a particular Web site.

Moreover, many advertising researchers have found that attitude toward the advertisement has a positive effect on purchase intention (Batra and Ray, 1986; Chaiken, 1980; Petty, Cacioppo, and Goldman, 1981; Cox and Locander, 1987; Mehta and Purvis, 1997). Similarly, it has been found that attitude toward the Web site will positively influence revisit intension (Bruner and Kumar, 2000, Choi, 2000, Choi *et al*. 2001). Thus, it is expected that attitude toward the Web site (A_{ws}) would precede revisit intention (RI). This measure will serve as a criterion variable in this study.

CHAPTER 3. PRELIMINARY RESEARCH

3.1 Introduction

The previous chapter discussed the distinctive features of a corporate Web site. As a Web site is quite different from more traditional media, current methods for developing a typology, based on traditional communication theories, may not work well in predicting dynamic interaction between firms and consumers. It is clear that, despite continued research efforts on the Web, to date systematic empirical research on a Web site typology has been deficient. To address this issue, preliminary empirical research was conducted. Accordingly, the purpose of this chapter is to describe a scheme for classifying corporate Web sites into meaningful groups in terms of content and structure.

This chapter describes an empirical investigation on a Web site typology based on classification schemes this study explored in the previous chapter. This chapter commences by discussing the methods used to classify Web sites including a general description of content analysis, the sample, pretesting of the coding procedure, and statistical analysis. Then, the results of the content analysis and the non-parametric Mann-Whitney *U* test are discussed.

3.2 Methods

3.2.1 Content Analysis

To develop the typology, the Web sites of a sample of Australian and Korean companies were content analysed. A corporate Web site is an outcome of a firm's effort to communicate with customers, so a study of the Web site can provide useful insights into how marketing communication activities are used to provide information for customers.

Content analysis is a purely descriptive technique that enables the systematic evaluation of communication contents (Aaker, Kumar, and Day, 2001; Berelson, 1952; Cartwright, 1953; Holsti, 1969; Palmer and Griffith, 1998). It is one of the most widely used methods for evaluating communication media including advertising (e.g., Yale and Gilly, 1988). As Rourke and Anderson (2002) argue, content analysis is:

> "systematic in the sense that a theoretical, a priori set of categories is constructed into which communication content is classified. It is objective in the sense that classification is rule-based and the reliability of classification is tested by having multiple coders classify the same content. Its quantitative character is evident in the process of converting communication content into discrete units and calculating the frequency of occurrence of each unit " (p.7).

Understanding what kinds of messages are presented and the hypermedia used on corporate Web sites is a necessary step toward the evaluation of consumer attitudes toward these marketing activities. Therefore, content analysis can provide a solid foundation for theoretical development in marketing communication.

As Web sites range in size from one page to thousands of pages (Nowak, Shamp, Hollander, and Cameron, 1999; Shneiderman, 1997), this study has focused on the home page (i.e., the first page of a Web site that users encounter) because this is the "gateway" to a Web site and as such plays a critical role for users much like an index or a table of contents for a book (Dalal *et al*., 2000; Esrock and Leichty, 2000; Shiva, 1997). Focusing on the home page allows the standardised comparison of Web sites of different companies.

In addition, the inclusion of both Australian and Korean Web site home pages of companies, which were enlisted in the international financial resources directory (e.g., Wright Investors' Service), not only reflects the international nature of the Web, but also allowed the study to encompass a wide range of industries and company sizes. Furthermore, the two countries play important roles in the Asia Pacific region and they represent different perspectives on culture and industry structure, so the inclusion of both countries enhanced the quality of the total sample frame helping to eliminate any unintentional biases in the selection process.

Each Web site was evaluated by two judges who were experienced Web users and bilingual Korean-English speakers. One judge was trained by the other to increase inter-

coder reliability (e.g., Kolbe and Burnett, 1991). The two judges coded the sampled sites independently. Inter-coder reliability was determined through pre-testing.

On the basis of a literature review of Web-mediated marketing studies (e.g., Cockburn and Wilson, 1996; Dholakia and Rego, 1998; Huizingh, 2000; McNaughton, 2001; Palmer and Griffith, 1998; Perry and Bodkin, 2000; Simeon, 1999), a coding frame of categories covering both Web site content (i.e., advertising, public relations, sales promotion, online selling, and customer service) and Web site structure (i.e., text, images, video, audio, and links) was generated as shown in Table 3.1 and 3.2. All categories were mutually exclusive, with precise and unambiguous definitions (e.g., Holsti, 1969). As discussed in the previous chapter, advertising was defined as messages related to a product or service to persuade potential customers to choose a specific product or service. Public relations was defined as activities that use corporate-related information to enhance corporate image or goodwill with broad publics. Sales promotion was defined as an attempt to induce a customer to perform a specific action within a short period of time. Online selling was defined as an online transaction such as direct selling and buying products or services via a Web site. Customer service was defined as the activities of answering customers, responding to customers, and solving customer problems.

As shown in Table 3.1, the Web site content typology included five general categories (i.e., advertising, public relations, sales promotion, online selling, and customer service) with 27 items. The Web site structure typology encompassed five general categories (i.e., text, images, video, audio, and links) with 13 items (Table 3.2). The coding of Web site content was carried out between September and October 2001 (384 sites were

accessible), whereas that of Web site structure was carried out between November and December 2001 (383 sites).

Table 3.1 Coding Categories and Items for Web Site Content

Category	Item
Advertising	Product/service description
	Product catalogue
	Product/service news
	Product package
Public Relations	Company news
	Company history
	Mission statement
	Company organisation
	Financial information
	Affiliated company
	Human resources
	Recruiting
	CEOs (Chief Executive Officers)
	Social activity
	Company profile
Sales Promotion	Contest
	Financial incentives
	Sampling
	Product trial
Online Selling	Transaction process
	Online payment
Customer Service	Branch locations
	After sales service
	FAQs (Frequently Asked Questions)
	Technical information
	Customer feedback
	Contact

Table 3.2 Coding Categories and Items for Web Site Structure

Category	Item
Text	Headline
	Description
Image	Logo
	Photo
Video	Moving text
	Moving image
	Video
	Video icon
Audio	Music
	Sound
	Audio icon
Links	Internal links
	External links

3.2.2 The Sample

(1) Sample Frame

Wright Investors' Service (http://www.corporateinformation.com) was used to locate and examine corporate home pages. This directory has listings of over 22,000 major companies around the world, including 644 Korean and 446 Australian companies at the time of the preliminary study. As the directory excludes foreign companies in each country, local companies (i.e., locally operated and owned) could be compared. Furthermore, most of the companies listed in this directory had Web addresses.

(2) Sampling Procedure and Sample Size

The preliminary study utilised cluster analysis, which involves a large sample with more than 100 units (Malhotra, 1996). To ensure a wide variation in company sizes and types of industries, approximately 200 Web sites were selected from each country with equal numbers of Australian and Korean companies (e.g., Berelson, 1952; Carney, 1972). 408 companies were selected by systematic sampling (every second company was selected from the Australian list and every third from the Korean list). For the companies that had no Web site addresses (URLs) in the *Wright Investors' Service* directory, local search engines were used to try to find their corporate Web sites. The Australian search engines used were *Webwombat* (http://www.webwombat.com.au) and *OzSearch* (http://www.ozsearch.com.au), whereas the Korean search engines were *Simmani* (http://www.simmani.com) and *Yahoo! Korea* (http://kr.yahoo.com). As can be seen in Appendix 3.1, a total of 386 Web site homepages were identified, including 190 Australian (43% of the Australian companies) and 196 Korean Web sites (30% of the Korean companies). All Web sites were treated as one sample in cluster analysis.

(3) Sample Profile

Table 3.3 and 3.4 shows the distribution of company size and industry. First of all, company size was measured by annual sales, which varied from under US $1,000 to over $1 billion. Around half of the Australian firms had annual sales of over $50 million, compared with 83.6 % of the Korean companies (Table 3.3). In terms of industry classification, the *International Standard Industrial Classification (ISIC)* was adopted. More of the firms in the Korean sample were in the manufacturing sectors than

in the Australian sample (68% vs. 14%), and the distribution of firms in each sample broadly reflected the industrial structure in the two countries. That is, the Australian economy was dominated by the service sector while the Korean economy was much more focused on the secondary sector especially manufacturing (Korea Federation of Industries, 2001; The World Bank Group, 2001a and b). Overall, the manufacturing sector was the largest in the sample (41.5%), followed by mining (12.4%) and finance (11.4%). Agriculture (0.8%), hotel (0.5%), education (0.5%), and health (0.2%) showed very low rates. Concerning the two countries, Korean firms were dominantly linked to manufacturing (68.7%). On the contrary, Australian companies were dispersed across various sectors such as mining (24.9%), real estate (18.0%), manufacturing (13.8%), and finance (13.8%). In terms of company size and industry, the sample appeared to be representative of the population of interest.

Table 3. 3 Distribution of Company Size by Country

Annual Sales	Australia[a]		Korea		Total	
	Count	%	Count	%	Count	%
$1,000	19	10.1	0	.0	19	4.9
$500,000	3	1.6	0	.0	3	.8
$1,000,000	4	2.1	1	.5	5	1.3
$2,500,000	9	4.8	0	.0	9	2.3
$5,000,000	8	4.3	0	.0	8	2.1
$10,000,000	18	9.6	3	1.5	21	5.5
$20,000,000	23	12.2	28	14.3	51	13.3
$50,000,000	18	9.6	32	16.3	50	13.0
$100,000,000	53	28.2	81	41.3	134	34.9
$500,000,000	9	4.8	22	11.2	31	8.1
$1,000,000,000	24	12.8	29	14.8	53	13.8
Total	188	100.0[b]	196	100.0[b]	384	100.0

[a]. The annual sales for 2 companies were unknown.
[b]. Rounding error

Table 3.4 Distribution of Industry by Country

ISIC	Australia		Korea		Total	
	Count	%	Count	%	Count	%
Agriculture	2	1.1	1	.5	3	.8
Mining	47	24.7	1	.5	48	12.4
Manufacturing	26	13.7	134	68.4	160	41.5
Electricity	3	1.6	5	2.6	8	2.1
Construction	14	7.4	19	9.7	33	8.5
Wholesale	11	5.8	8	4.1	19	4.9
Hotel	1	.5	1	.5	2	.5
Transport	17	8.9	6	3.1	23	6.0
Finance	26	13.7	18	9.2	44	11.4
Real Estate	34	17.9	1	.5	35	9.1
Education	1	.5	1	.5	2	.5
Health	1	.5	0	.0	1	.2
Community	7	3.7	1	.5	8	2.1
Total	190	100.0	196	100.1	386	100.0*

*. Rounding error

3.2.3 Pretest of the Coding Procedure

After developing a draft coding book to provide a general guide for the coding procedure (Thompsen, 1994), a series of pretests were conducted. The importance of pre-testing has been emphasised by many researchers (e.g., Gorden, 1992; Miles and Huberman, 1994; Perreault and Leigh, 1989; Weber, 1985; Wimmer and Dominick, 1997). Pre-testing allows the researchers to identify and correct unclear definitions and coding rules, thereby enhancing the level of inter-coder agreement.

Inter-coder reliability is defined as the degree to which different coders, coding independently, reach the same coding decisions (Rourke *et al*., 2001). For estimating inter-coder reliability, Thompsen (1994) suggests that at least 10 per cent of the total sample should be analysed by multiple coders, while Wimmer and Dominick (1997)

insist that between 10 % and 25 % should be coded. For this study 40 Web sites were selected for Web site content and 75 sites for Web site structure, accounting for approximately 10 % and 20% of the total sample.

One of the most widely-used measures for assessing inter-coder reliability has been the percentage of agreement between coders. While it is very easy to calculate, this method does not take into account any chance agreement among coders (Harris, Pryor, and Adams, 1997; Hughes and Garrett, 1990). To overcome this shortcoming, researchers have developed new measures, among them Cohen's kappa, which is a measure of agreement among coders after chance agreement has been eliminated (Becker, 1999; Hughes and Garrett, 1990; Rourke *et al*., 2001). The formula for Cohen's kappa is

$$\text{Kappa} = \frac{F_o - F_c}{N - F_c}$$

where Fo is the observed number of agreement, F_c is the expected number of agreement by chance alone, and N is the total number of units coded by each coder. Cohen's kappa values range from 0 to 1, where 1 means perfect agreement and 0 no agreement between coders other than chance agreement. In general, values higher than 0.6 or 0.7 are regarded as acceptable (e.g., Harris *et al*., 1997; Krause, Muller-Benedict, and Wisemann, 2000; Landis and Koch, 1977). Cohen's kappa values were obtained through a Crosstab Analysis (see Table A3.1 to A3.6).

For Web content, coding items were divided into two groups: dichotomous items (presence and absence, 14 items) and three-point scale items (description, category only, and absence, 16 items). The kappa values obtained (0.802 and 0.775, respectively)

demonstrated substantial levels of inter-coder reliability (e.g., Stemler, 2001). On the basis of the pretest, coding rules were slightly modified and one item was eliminated. The finalised coding book for Web site content is shown in Table A2.1.

The kappa value of Web site structure items (all of which were dichotomies) was 0.856, which showed an almost perfect agreement (e.g., Stemler, 2001). The draft coding book was therefore not modified following this pretest. The final coding book for Web site structure is shown in Table A2.2. On the basis of the pretesting, and subsequent revision to the coding books, it can be concluded that the inter-coder reliability of both Web site content and structure were acceptable.

3.2.4 Statistical Analysis

To develop the functional and structural typologies of corporate Web sites, the content analysis results were subjected to a cluster analysis in order to identify meaningful homogeneous groupings of Web sites. The differences between the groups so obtained were tested for statistical significance using the non-parametric Mann-Whitney *U* test. For this test, the significance was set at the 0.05 level for a two-tailed test of significance. All analyses were performed using SPSS for 11.0 Windows.

3.3 Results

3.3.1 Web Site Content

(1) Functions of a Corporate Web Site

In general, corporate Web sites were found to deliver five functions of marketing communication: advertising, public relations, sales promotion, online selling, and customer service. The analysis of home page functions found that while advertising, public relations, and customer service were frequently used, online selling, and sales promotion functions were much less frequently used. As shown in Table 3.5, public relations (97.4% of the home pages sampled used more than 1 item) was the most frequently used function, followed by customer service (94.5%) and advertising (83.6%). In contrast, online selling (21.1%) and sale promotion (13.3%) were still used infrequently. In the category of public relations, there were more individual items than for any other functions; that is, around 60% of corporate Web sites used more than four items.

Table 3.5 Frequency of Web Site Content Items by Function

Function	Number of Items	Frequency		
		Count	Percent	1+
Advertising	0	63	16.4	
	1	223	58.1	83.6%
	2	69	18.0	
	3	27	7.0	
	4	2	.5	
Public Relations	0	10	2.6	
	1	27	7.0	
	2	56	14.6	97.4%
	3	69	18.0	
	4	87	22.7	
	5	62	16.1	
	6	32	8.3	
	7	24	6.3	
	8	13	3.4	
	9	3	.8	
	10	1	.3	
Sales Promotion	0	333	86.7	
	1	39	10.2	
	2	6	1.6	13.3%
	3	6	1.6	
Online Selling	0	303	78.9	
	1	62	16.1	21.1%
	2	19	4.9	
Customer Service	0	21	5.5	
	1	136	35.4	94.5%
	2	127	33.1	
	3	59	15.4	
	4	21	5.5	
	5	15	3.9	
	6	5	1.3	

Table 3.6 shows the use of specific items under each function. Items of customer service, public relations and advertising were the most frequently used, i.e., contact information (84.9%), company profile (81.5%), and company news (71.1%) were the most frequently used items. These were followed by financial information (57.8%), product catalogue (47.9%), customer feedback (42.4%), and product description (39.3%). From these results it can be concluded that a corporate Web site is more of an

integrated marketing communication tool rather than a sole advertising tool or a basic information source.

Table 3.6 Frequency of Web Site Content Items

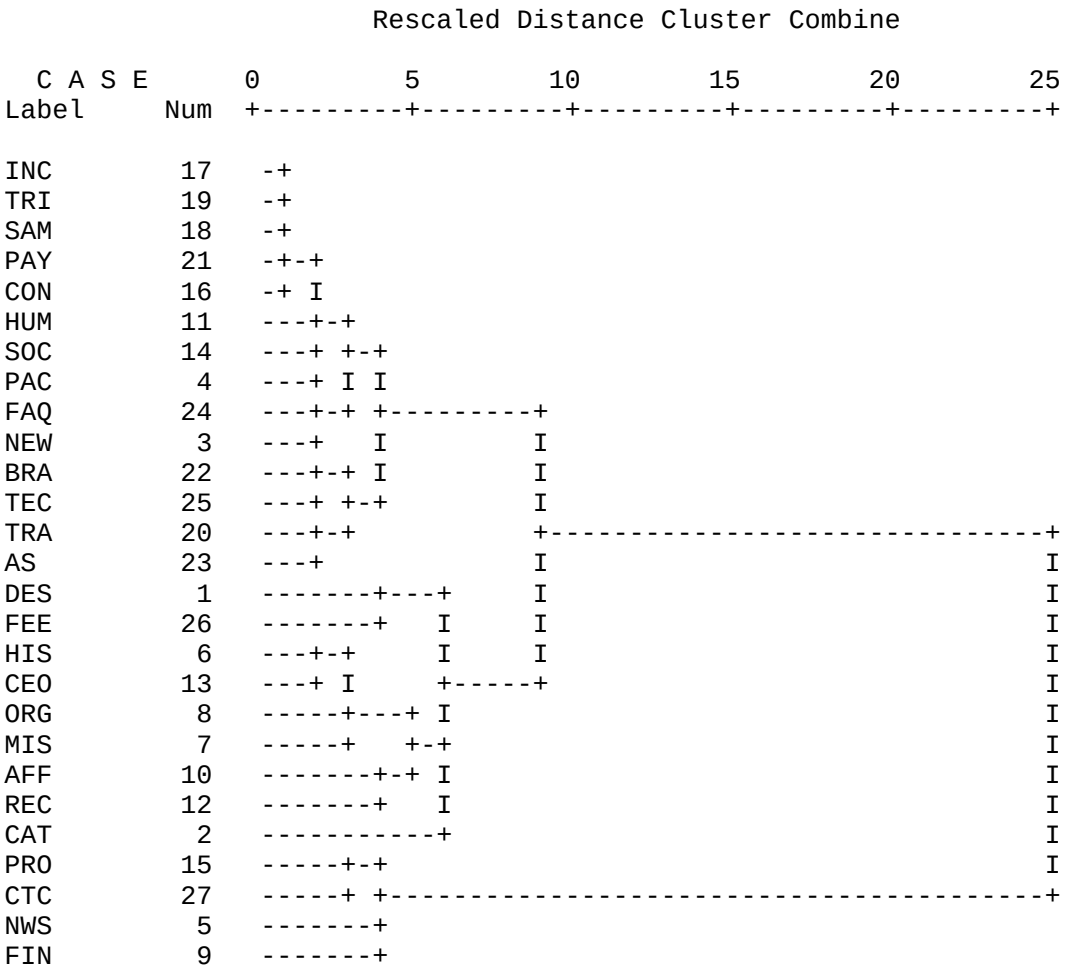
Function	Item	Frequency (Count/%)	
		Yes	Description[a]
Advertising	1. Product/service description	151(39.3)	20 (5.2)
	2. Product catalogue	184 (47.9)	28 (7.3)
	3. Product/service news	62 (16.1)	34 (8.9)
	4. Product package	53 (13.8)	NA
Public Relations	5. Company news	273 (71.1)	156 (40.6)
	6. Company history	73 (19.0)	3 (0.8)
	7. Mission statement	98 (25.5)	67 (17.4)
	8. Company organisation	112 (29.2)	6 (1.6)
	9. Financial information	222 (57.8)	26 (6.8)
	10. Affiliated company	120 (31.3)	6 (1.6)
	11. Human resources	44 (11.5)	3 (0.8)
	12. Recruiting	121 (31.5)	5 (1.3)
	13. CEOs	79 (20.6)	11 (2.9)
	14. Social activity	50 (13.0)	1 (0.3)
	15. Company profile	313 (81.5)	94 (24.5)
Sales Promotion	16. Contest	30 (7.8)	NA
	17. Financial incentives	18 (4.7)	NA
	18. Sampling	16 (4.2)	NA
	19. Product demonstration	5 (1.3)	NA
Online Selling	20. Transaction process	72 (18.8)	NA
	21. Online payment	28 (7.3)	NA
Customer Service	22. Branch locations	61 (15.9)	NA
	23. After sales service	78 (20.3)	NA
	24. FAQs	47 (12.2)	NA
	25. Technical information	75 (19.5)	NA
	26. Customer feedback	163 (42.4)	NA
	27. Contact	326 (84.9)	NA

[a] More detailed information
NA = Not applicable. Only presence and absence were counted.

(2) Classification of the Web Site Content

The grouping of the corporate Web sites was performed by cluster analysis, based on 27 Web site content variables. For the cluster analysis all items were coded using a dichotomy; i.e., 1 for presence and 0 for absence of a feature. A number of hierarchical and non-hierarchical clustering methods were explored (e.g., Ward method, average linkage, single linkage, centroid method, and k-means clustering). As this study did not set a predetermined number of clusters, an hierarchical method was preferred (Malhotra *et al*., 1996; Punj and Stewart, 1983). It was found that the hierarchical Ward's procedure produced the more stable and useable cluster solution (see also Klastorin, 1983; Punj and Stewart, 1983), so it was decided to use this method based on the squared Euclidean distance between the variables. A two-cluster solution was selected as most appropriate because, as shown in Figure 3.1, a dendrogram demonstrated a big jump in the distance between clusters (Hair *et al*., 1995; Malhotra *et al*., 1996). The larger cluster included mainly the public relations criterion such as company profile (PRO), contact (CTC), company news (NWS), and financial information (FIN), on the contrary, the smaller group included integrated information such as advertising (i.e., DES, CAT, and PAC), public relations (i.e., HIS, AFF, REC, etc.), sales promotion (i.e., CON, INC, etc.), online selling (i.e., TRA and PAY), and customer service (i.e., FEE, ASS, etc.).

Figure 3.1 Dendrogram Using Ward Method



The Mann-Whitney *U* test was used to test significance between each pair. As shown in Table 3.7, “type 1” represented 38.5% and “type 2” 61.5 % of the total sample. Type 1 used all the functions and most possible items from each function except product description and company profile. On the other hand, type 2 contained product description and company profile exclusively with couple of common items. Accordingly, type 1 sites likely to have more central features than type 2 sites. For four

items (i.e., company news, financial information, human resources, and contact information) there was no statistically significant difference in usage between the two clusters.

Based on the results of the Mann-Whitney *U* test, type 1 was named the "integrated communication" type, which used more items of all the functions (i.e., advertising, public relations, sales promotion, online selling, and customer service) excluding product/service description and company profile. Type 2 was titled the "basic information" type, which used more items in advertising (i.e., product/service description) and public relations (i.e., company news, financial information, human resources, and company profile from public relations). Company news, financial information, and contact were commonly included in both types. Specific categories and items of each type are as follows:

- **Type 1 = "Integrated communication" type (38.5%)**: This type included advertising (i.e., product catalogue, product/service news, and product package), public relations (i.e., company news, company history, mission statement, company organisation, financial information, affiliated company, human resources, recruiting, CEOs, and social activity), sales promotion (i.e., contest, financial incentives, sampling, and product demonstration), online selling (i.e., transaction process and online payment), and customer service (i.e., branch locations, after sales service, FAQs, technical information, customer feedback, and contact).

- **Type 2 = "Basic information" type (61.5%)**: This type encompassed advertising (i.e., product/service description), public relations (i.e., company news, financial information, human resources, and company profile), and customer service (i.e., contact).

Table 3.7 Result of the Mann-Whitney *U* Test for Web Site Content

Function and Item		Type (yes %)		Mann-Whitney *U* test[a]
		1 (n=148)	2 (n=236)	
Advertising	1. Product/service description	31.3	44.5	**
	2. Product catalogue	69.6	34.3	***
	3. Product/service news	37.8	2.5	***
	4. Product package	20.9	9.3	**
Public Relations	5. Company news	75.7	68.2	NS
	6. Company history	37.8	7.2	***
	7. Mission statement	31.1	22.0	*
	8. Company organisation	37.8	23.7	**
	9. Financial information	59.5	56.8	NS
	10. Affiliated company	41.9	24.6	***
	11. Human resources	9.5	12.7	NS
	12. Recruiting	43.9	23.7	***
	13. CEOs	39.9	8.5	***
	14. Social activity	18.9	9.3	**
	15. Company profile	70.3	88.6	***
Sales Promotion	16. Contest	17.6	1.7	***
	17. Financial incentives	9.5	1.7	***
	18. Sampling	7.4	2.1	*
	19. Product demonstration	3.4	0.0	**
Online Selling	20. Transaction process	31.8	10.6	***
	21. Online payment	14.2	3.0	***
Customer Service	22. Branch locations	25.0	10.2	***
	23. After sales service	28.4	15.3	**
	24. FAQs	23.6	5.1	***
	25. Technical information	28.4	14.0	**
	26. Customer feedback	74.3	22.5	***
	27. Contact	86.5	83.9	NS

[a]. * $p < .05$ ** $p < .01$ *** $p < .001$
NS = No significant difference

3.3.2 Web Site Structure

(1) Structure of a Corporate Web Site

Table 3.8 presents the overall use of the Web design items in corporate home pages. As discussed in the previous chapter, text was defined as written language including alphabets and numbers, expressed in a static visual form. In the study, text included headlines (i.e., short words, slogans, and catch phrases) and descriptive information about a product or a company. An image was defined as non-lingual, static, and visual element of a Web site, including a company logo, photograph, picture, and drawing. Video was defined as a dynamic visual element such as a film and an animated image including animated text. When there was an icon for video elements (e.g., flash, media player, and etc.), it was counted as the presence of video. Audio was defined as any kind of sound including music and other special effects. Audio icons such as speaker, real audio, and so on were recognised as the presence of audio in a Web site. A link was defined as a connection between two or more sets of information in a Web site, and included both internal and external links.

In general, corporate home pages are found to deliver all forms of hypermedia items: text, static images, video, audio, and links. The most commonly used elements were images (around 90 %), and text (around 85%). Animated images and the links were moderately applied (up to 58%). On the other hand, audio was very low in its use.

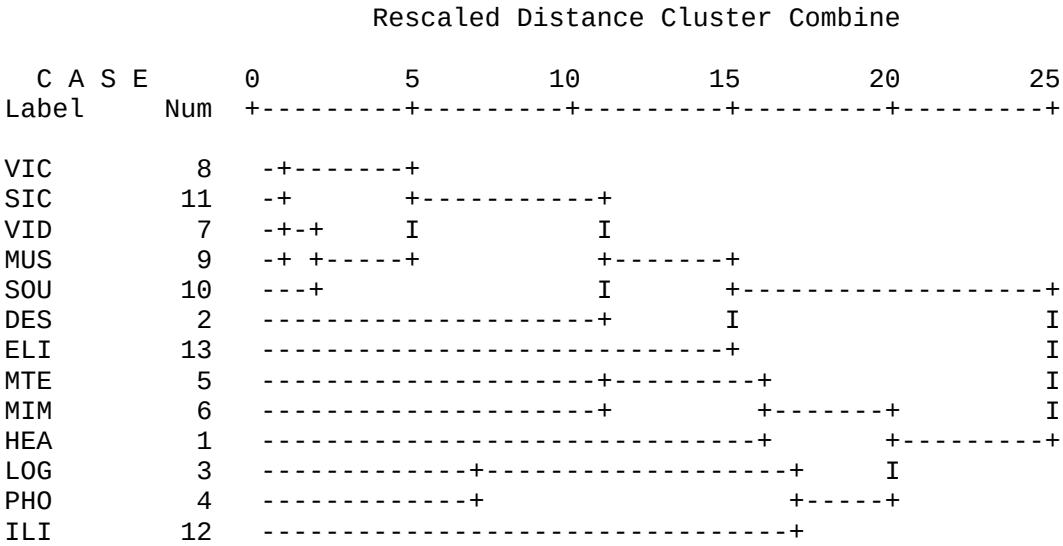
Table 3.8 Frequency of Web Site Structure Items

Category	Item	Yes (%)
Text	1. Headline	47.8
	2. Description	37.9
Image	3. Logo	92.2
	4. Photo	90.3
Video	5. Moving text	58.0
	6. Moving image	54.8
	7. Video	.5
	8. Video icon	12.8
Audio	9. Music	2.3
	10. Sound	3.7
	11. Audio icon	13.1
Links	12. Internal links	57.2
	13. External links	47.0

(2) Classification of the Web Site Structure

The grouping of the Web site structure type was examined by cluster analysis, based on 13 Web variables. Like the classification of the Web site content, a number of hierarchical and non-hierarchical clustering methods were explored. As there was no predetermined number of clusters, a hierarchical clustering method was selected. It was found that the Average Linkage (within group) method produced the closest and more stable solution. Accordingly, it was decided to use the Average Linkage method based on the squared Euclidean distance between the variables. A two-cluster solution was selected as most appropriate because, as shown in Figure 3.2, a dendrogram showed a big jump in the distance between clusters. The larger cluster included short text (HEA), moving images (i.e., MTE and MIM), static images (i.e., LOG and PHO), and internal links (ILI). In contrast, the smaller group contained descriptive text (i.e., DES), audio (i.e., SIC, MUS, and SOU), video (i.e., VIC and VID), and external links (i.e., ELI).

Figure 3.2 Dendrogram Using Average Linkage (Within Group)



The Mann-Whitney *U* test was used to test significance between each pair. As shown in Table 3.9, “type 1” represented 55.1% and “type 2” 44.9 % of the total sample. While type 1 used all the hypermedia items except descriptive text, type 2 utilised mainly descriptive text. Therefore, type 1 sites likely to have more central features than type 2 sites. For three items (i.e., logos, video, and external links) there was no statistically significant difference in usage between the two clusters. Logos and external links were commonly frequently used, whereas video was commonly little used.

Table 3.9 Result of the Mann-Whitney *U* Test for Web Site Structure

Variable		Type (yes/%)		Mann-Whitney *U* test
		Type1 (n=211)	Type2 (n=172)	
Text	1. Headline	86.7	.0	***
	2. Description	4.7	78.5	***
Image	3. Logo	94.3	89.5	NS
	4. Photo	95.3	84.3	***
Video	5. Moving text	76.8	34.9	***
	6. Moving image	73.9	31.4	***
	7. Video	0.9	.0	NS
	8. Video icon	17.1	7.6	**
Audio	9. Music	4.3	.0	**
	10. Sound	5.7	1.2	*
	11. Audio icon	18.0	7.0	**
Links	12. Internal links	67.3	44.8	***
	13. External links	45.5	48.8	NS

* $p < .05$ ** $p < .01$ *** $p < .001$ NS = No significant difference

Reflecting the results of the Mann-Whitney *U* test, type 1 was named the "hypermedia" type, which includes almost all the hypermedia elements (i.e., text, static images, animated images, audio, and internal links) except some items description (from text) and video (from video). Type 2 was called the "static image" type, which mainly utilises the descriptive text and static images. Logos, photographs and external links were commonly included in both types. Specific categories and items are as follows:

- **Type 1 = "Hypermedia" type (55.1%)**: This type included text (i.e., headline), images (i.e., logos and photos), video (i.e., moving text, moving images, video, and video icons), audio (i.e., music, sound, and audio icons), and links (i.e., internal links and external links).
- **Type 2 = "Static image" type (44.9%)**: This type utilised text (i.e., description), images (i.e., logos and photos), and links (i.e., external links).

3.4 Summary

This chapter described an empirical study to develop a Web site typology in terms of content and structure. To develop the typology, 386 Web site home pages of Australian and Korean companies were selected in the analysis using systematic sampling, which ensured a wide variation in company sizes and types of industries. On the basis of a literature review of Web-mediated marketing studies, a coding frame was prepared. The Web site content typology included five general categories (i.e., advertising, public relations, sales promotion, online selling, and customer service) with 27 items. The Web site structure typology encompassed five general categories (i.e., text, static images, video, audio, and hyperlinks) with 13 items. After developing a draft coding book, a series of pretests were carried out, which allowed slight modification of coding rules.

The content analysis identified two meaningful homogeneous groups (i.e., the "integrated communication" and " basic information" type) of Web site content, which was also confirmed by the Mann-Whitney *U* test. The integrated communication type, which used all the functions and most of possible items from each function except product description and company profile, represented 38.5% of the total sample. The basic information type, which utilised more items in advertising (i.e., product/service description) and public relations (i.e., company news, financial information, human resources, and company profile from public relations), represented 61.5% of the total sample. Company news, financial information, and contact were commonly used in both types.

Web site structure was classified into two types: “hypermedia” and “static image”. The hypermedia type, which included almost all the hypermedia elements (i.e., text, static images, animated images, audio, and internal links) except some items (i.e., descriptive text and video), represented 55.1%. Whereas, the static image type, which mainly used descriptive text and static images, represented 44.9%. Company logos, photos and external links were commonly included in both types.

Based on this typology, four-types of Web site (2 content x 2 structure types) will be created and used to investigate the effects of the Web site typology on communication through social interaction in the second part of the study.

CHAPTER 4. RESEARCH MODEL AND HYPOTHESES

4.1 Introduction

Despite the growing interest in WMC among marketing researchers and practitioners (e.g., Dholakia and Rego, 1998; Stevenson *et al*., 2000; Loiacono, Watson and Goodhue, 2002), we still have much to learn about this medium. An initial priority is to develop a comprehensive method for understanding and assessing WMC. The importance of this has been reinforced in a study by Bush, Bush, and Harris (1998) which revealed that marketing practitioners often build, develop and maintain their corporate Web sites without adequate Web-related knowledge and competencies. Exacerbating this trend is that currently very little is known about what contributes to Web site effectiveness, or even about how marketers interact with consumers via the Web. Contributing to this knowledge gap, this chapter presents a new conceptual model, the "Web Acceptance Model (WAM)", for understanding and measuring consumer acceptance and use of corporate Web sites.

This chapter is composed of two sections: Research model and hypotheses. First of all, this chapter commences with general description of the model structure. Given that conventional advertising evaluation models are not suited to WMC, the WAM model put an emphasis on social interaction and the active participation of Web users. The WAM includes four groups of variables: predictor, mediator, moderator and criterion variables. This chapter explains the role of each variable. Finally, the hypotheses

derived from the model are discussed. The hypotheses will be empirically tested through an experiment, as well be discussed in Chapter 6.

4.2 The Web Acceptance Model (WAM)

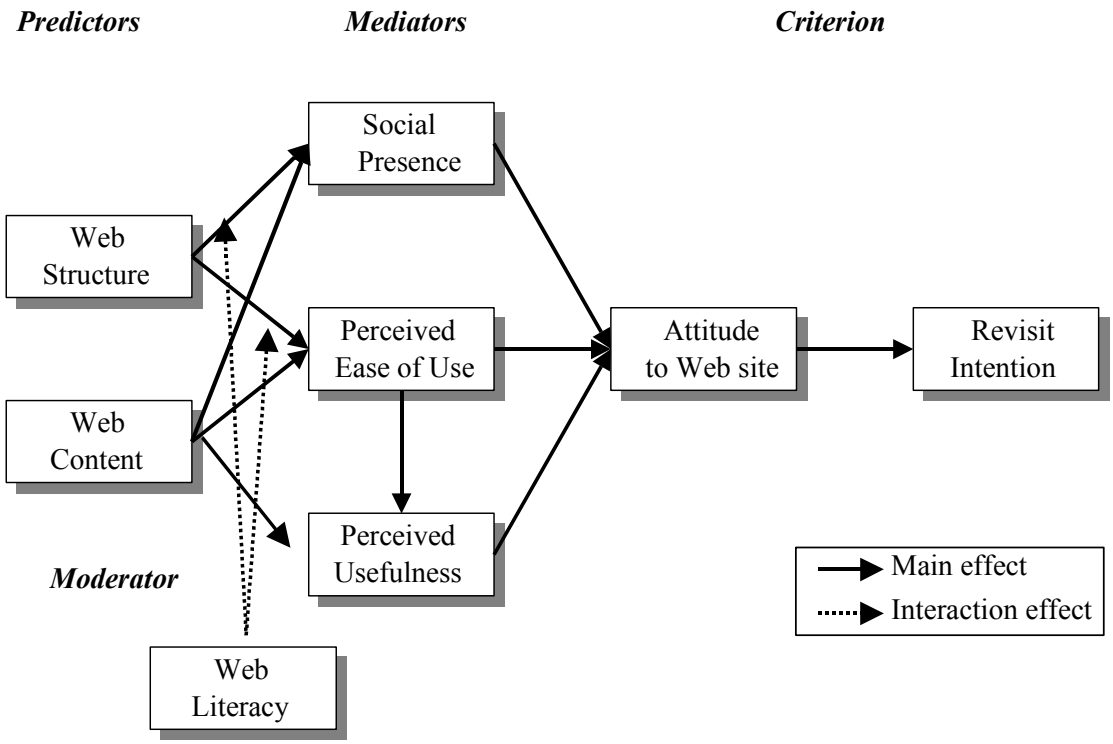
4.2.1 Model Overview

Recently, there have been many attempts at assessing corporate Web sites as tools for marketing communication. Much of the research on Web site marketing effectiveness to date has focused on the Web as an advertising medium and so has adopted conventional advertising evaluation models (e.g., Bruner and Kumar, 2000; Choi *et al*., 2001; Luo, 2002; Goldsmith and Lafferty, 2002). A fundamental shortcoming of this approach is that it does not adequately address the reciprocal social interaction provided by Web-mediated communication (Suh, Couchman, and Park, 2003). Neither does it adequately address the active role that users play in interacting with this medium. It is argued that, as Web sites are new interactive media very different from traditional marketing communication media, new approaches to their assessment should be employed.

To address the limitations of previous studies, a new theoretical model, the "Web Acceptance Model (WAM)," was developed to explain consumer responses to corporate Web sites. As noted previously, this model is premised on two central phenomena of WMC: social interaction between a Web site and users, and the active participation of users. In the model, the phenomenon of social interaction is captured by mediating variables, and the active participation of users by the inclusion of a moderating variable.

Two dimensions of social interaction, emotional and task-related, are invoked to explain why a particular type of Web site causes a certain type of outcome. In other words, emotional and task-related interaction can help explain "why" a specific type of Web site is likely to be more effective. But it is unlikely that a particular type of Web site (e.g., one which has high information intensity and full hypermedia content) will be effective all of the time. For example, under certain conditions with particular types of users, a simple type of Web site may well be more effective. Therefore, this study developed a conceptual framework that seeks to explain "when" a Web site is more likely to be effective. Introducing individual user differences as a moderator can help explain "who does what" (Baron and Kenny, 1986), and reflects the active role of customers in WMC systems. On the basis of this contingency approach, this study examines the moderating role of individual differences to identify the conditions under which a Web site is more effective. Finally, the model addresses all three elements of consumer attitudes, i.e., affective, cognitive, and conative. In the model, Web site acceptance is conceptualised not only in terms of behavioural (i.e., behavioural intention) and cognitive (i.e., perceptual) dimensions, but also in terms of the affective (e.g., feeling or emotional) element of consumer attitudes. The Web Acceptance Model is depicted in Figure 4.1 below.

Figure 4.1 The Proposed Web Acceptance Model (WAM)



As can be seen in the figure, the predictor (independent) variables in the model are Web site content (i.e., the range of functions supported) and Web site structure (i.e., the presentation media used). Both of these are measured in terms of dichotomies. For Web site structure, the two levels are "hypermedia" (the Web site has multi-media, including moving images, sounds, pop-ups, etc.) and "static image" (the Web site has only text and static images). For Web site content, the levels are "integrated communication" (all marketing functions are supported by the Web site, including advertising, company/product information, sales promotion, online sales, etc.) and "basic information" (only basic information is provided by the Web site, about the company and its products, as well as contact details). In the model, the communication effects achieved by a Web site (i.e., the criterion variables) are measured in terms of overall

attitude towards the Web site and the intention to revisit it. But the model also has three mediators between the predictor and criterion variables. Thus, social presence serves as an affective bridge, while perceived ease of use and perceived usefulness serve as cognitive bridges between the predictor and criterion variables. Finally, a moderator affects the direction or strength of the relationships between the predictors and mediators, and this study postulates that degree of social interaction will vary according to the levels of Web literacy (which is the moderating variable in the model).

In brief, the Web Acceptance Model proposes that Web site structure and Web site content, together determine users' affective responses to a Web site and their ability to perform tasks using it (e.g., access required information). Affective responses to a Web site are captured in the model through the construct of "social presence" (Short *et al*., 1976), the feeling that a user is communicating via the Web site with other human beings. This study postulates that corporate Web sites with hypermedia and integrated communication will have a higher social presence. Task-related interaction in the model is assessed according to two inter-related constructs: perceived ease of use and perceived usefulness. This study postulates that static image Web sites will be easier to use than those with hypermedia, and that integrated communication Web sites will be seen as more useful than those which provide basic information only. According to the model, the greater the social presence of a Web site, the easier it is to use and the greater its perceived usefulness, the more positive the attitude of users towards it will be. In turn, the more positive the attitude toward the Web site, the greater will be the revisit intention. Web literacy will moderate the relationships between the predictor and mediating variables, for example users who are more Web experienced will see integrated communication Web sites to be higher in social presence than Web sites with

basic information only; conversely, inexperienced users will see basic information Web sites as having a higher social presence.

4.2.2 Predictor Variables: The Web Site Typology

Content and structure are the basic units for the analysis of communication messages. Simply speaking, content refers to what is communicated and structure to how it is communicated. Two major differences of the Web compared to traditional advertising media are its multi-functional content and its multi-modal structure (Suh, Couchman, and Lee, 2002a and b). Content is important in marketing because different types of content have different purposes and aim at different target audiences. The content of corporate Web sites can be very diverse, and reach beyond the basic communication of information. Also with Web sites, various structural features such as animation, graphics, and sound can elicit different consumer responses. To date, there has been no study that considers both the content and structure of Web sites, and the model seeks to address this knowledge gap. Furthermore, the model adopts an holistic rather than an atomistic approach. Most Web studies to date have been based on an atomistic approach, in that they focus on the presence or absence of particular elements of a Web site (e.g., Bezjian-Avery *et al.*, 1998; Dholakia and Rego, 1998; Li and Bukovac, 1999). A major shortcoming of the atomistic or mechanical view is that it ignores interaction effects between the individual elements. On the other hand, an holistic approach treats a Web site as an organised whole (Zanden, 1984), and is therefore centrally concerned with relationships among elements.

Structure refers to the combination or organisation of the executable elements of a Web site, encompassing text, graphics, audio, video and hyperlinks. There have been only a few studies on the overall organisation of Web sites (e.g., Chen and Wells, 1999), and these do not clearly define what "organisation" is, how it is classified, and how marketers can organise the elements to create good Web sites. Although previous studies on the individual elements of a Web site can partially explain the effects achieved, they cannot provide comprehensive guidelines for good Web site design. As reported in the previous chapter, to address this issue, an analysis of existing corporate Web sites was conducted. On the basis of this study, Web site structure was classified into two types: "hypermedia" and the "static image". The hypermedia type deployed all multimedia elements (such as graphics, audio, and video) as well as internal links (such as a site map or search function). By contrast, the static image type was restricted to descriptive text and some static images. Both types commonly included external links to other Web sites.

Content refers to the information or message presented in a medium. One way of classifying Web site content is the functional approach, which focuses on the different activities of companies (McQuail, 1989). In the analysis of corporate Web sites, five distinctive functions performed by a site were identified: advertising, public relations, sales promotion, online selling, and customer service. Usually, a corporate Web site does not serve a single function, rather it is intended to perform multiple functions. Hence, the traditional method of grouping message content based on the presence or absence of specific elements may fail to provide a rich understanding of the complex characteristics of Web site content. For the model, this study reduced corporate Web site content to two main types: "integrated communication" and "basic information".

These categories were determined by the range of functions supported by a site. For example, the integrated communication type included more extensive content serving all five functions, while the basic information type provided only minimal information for advertising and customer service (e.g., product descriptions, company news, financial information, a company profile, and contact information).

4.2.3 Moderator Variables: The "When" of Web Site Effectiveness

Only a few empirical studies of Web site effectiveness to date have taken into account individual user differences (e.g., Bruner and Kumar, 2000; Palmquist and Kim, 2000; Raman and Leckenby, 1998). A review of the information technology literature (e.g., Abdul-Gader, 1996; Agarwal and Prasad, 1999; Raman and Leckenby, 1998; Bruner and Kumar, 2000; Palmquist and Kim, 2000; Venkatesh and Davis, 2000) confirmed that previous experience and skills are critical factors influencing Web interaction performance. The Web, as a hypermedia tool, provides an enormous amount of user control (e.g., Horton, 1990; Nielsen 1993). It is generally considered that if users have high levels of control, they can achieve a great deal of interaction with a Web site, and in turn they will be able to derive a high level of satisfaction. But the degree of a user's Web literacy, the ability to actively explore and obtain information from the Web (December 1996), will influence the experience of interaction and so will affect the direction or strength of the relationship between the type of Web site and its perceived effectiveness.

4.2.4 Mediator Variables: The "Why" of Web Site Effectiveness

Almost all marketing studies of Web site effectiveness to date have examined the relationship between specific Web site features and measures of advertising effect such as attitude toward the ad, attitude toward a brand, or purchase intention (among the few exceptions are Choi, 2000, Choi *et al*., 2001). But while this type of study can tell us "what" type of Web site is more effective in terms of affective or behavioural responses, they cannot explain "why" a specific type of Web site is more effective than other types. To answer this question, the nature of attitudes needs to be examined more closely. From a social psychological point of view, attitudes have three dimensions: cognitive, affective, and conative. While the three dimensions of attitudes are not separable, it is generally accepted that there is a need to distinguish between them to gain a better understanding of a particular attitude (e.g., Eagly and Chaiken, 1993; Vygotsky, 1962). The conative dimension is related to the behavioural propensity or action associated with an attitude object, and it can only be explained in terms of the cognitive and affective dimensions. So, without understanding the cognitive and affective dimensions of an attitude, we cannot fully understand the behaviour associated with it. Furthermore, as Morris, Woo, Geason, and Kim (2002) have emphasised, rather than simply measure an overall affective response, such as attitude toward the ad, more specific affective responses need to be examined in order to gain a better understanding of behavioural intentions.

Suh, Hasan, and Couchman (2003) have argued that two dimensions of social interaction, task-related (a cognitive dimension) and emotional (an affective dimension), are key indicators for consumer attitudes towards a company or brand. These two

dimensions are incorporated as mediating variables in the model, and they help explain the "why" of the relationship between Web site characteristics and consumer responses to them (i.e., why a given feature is associated with a particular response). The specific constructs that are deployed in the model to represent these two dimensions, and hence play a mediating role, are the social presence of a Web site (affective dimension), as well as a Web site's perceived usefulness and perceived ease of use (cognitive dimension). A widely used measure of affective interaction is social presence, which can be defined as "a user's feeling that she or he is interacting with others" (Champness, 1973a; Short *et al*., 1976), so this construct was incorporated. Both perceived usefulness and perceived ease of use of a Web site are popular measures of task-related interaction. Perceived usefulness is defined as "the degree to which a user believes that using a particular Web site would increase task performance" (Davis, 1989). Perceived ease of use is defined as "the degree to which a user believes that using a particular Web site would be free of effort" (Davis, 1989).

4.2.5 Criterion Variables: Communication Effects

As typical brand advertising usually aims at delivering messages to persuade potential customers to choose a specific brand, the communication effects of attitude toward the ad, attitude toward the brand, and purchase intention, the communication effects, have been utilised as the main measures of advertising effectiveness (Kalwani and Silk, 1982; MacKenzie *et al.*, 1986; Heath and Gaeth, 1994). However, as has been noted, a corporate Web site differs from traditional advertising media in its multi-functionality. Corporate Web sites can perform multiple functions, including advertising, public relations, sales promotion, customer service, and even online selling for more specific

target audiences. Accordingly, the purpose of a corporate Web site can extend beyond the creation of a favourable brand attitude or the facilitation of on-line purchasing to the building and maintenance of relationships with customers.

Reflecting this potential, two main measures of communication effect have been adopted for this new marketing medium. For example, attitude toward the Web site has been widely adopted as a useful indicator of Web site effectiveness (e.g., Bruner and Kumar, 2000; Chen and Wells, 1999; Choi, 2000; Yoo and Donthu, 2001; Luo 2002). Attitude toward the Web site can be defined as "a learned predisposition to respond to the attitude object in a consistently favourable or unfavourable way", which represents a Web user's overall feelings toward the Web site (Belch and Belch, 1999). Complementing this has been a behavioural measure, revisit intention, which is also widely regarded as a further criterion of Web site effectiveness (the more the positive response to a Web site, and the more it is seen as useful and easy to use, the more likely a user will be to revisit it). In the model both attitude toward the Web site and revisit intention have been adopted as criterion variables, equivalent to the communication effects arising from more traditional media. Many advertising evaluation studies have found a consistent pattern that follows a path of attitude towards an advertisement determines the attitude towards a brand, which, in turn determines purchase intention, and a similar pattern of cause and effect has been found in Web site effectiveness studies (e.g., Bruner and Kumar; 2000; Choi, 2000; Choi *et al.*, 2001). Thus, in this model it is postulated that the attitude toward the Web site will precede a behavioural decision, revisit intention, about it.

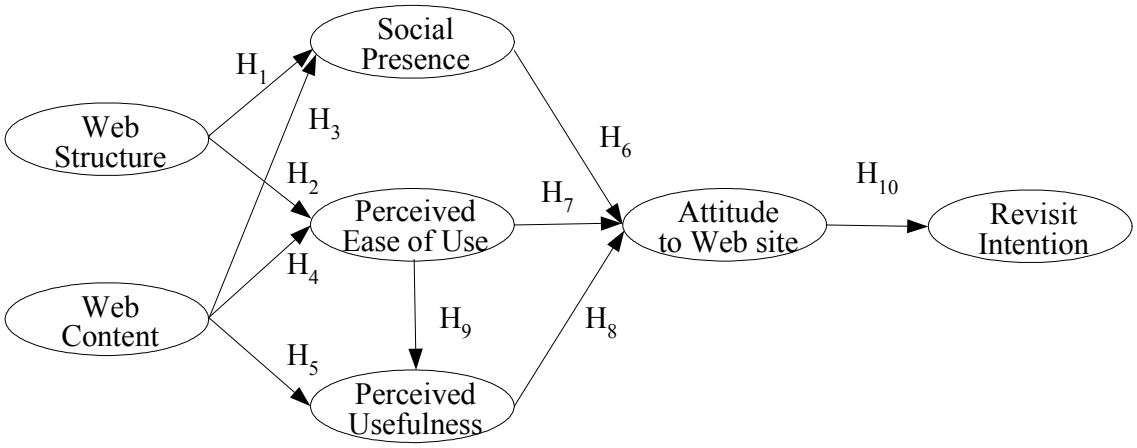
In sum, this chapter proposes the Web Acceptance Model (WAM) as a conceptual framework for understanding consumer acceptance and use of a corporate Web site, and which includes predictor, criterion, mediator, and moderator variables. Like a traditional advertising study, the Web site typology serves as a predictor and communication effects are criterion variables. Meanwhile, individual differences, as moderators, explain "when" the effectiveness of a Web site is different. Finally, both affective and cognitive dimensions of social interaction, as mediators, describe "why" certain behaviour occurs. It is argued that, using this framework, marketers will be able to better understand the relevant consumer attitudes and so assess Web site effectiveness from a user perspective.

4.3 Hypotheses

4.3.1 Main Effects and Associated Hypotheses

Figure 4.2 illustrates the effects of the Web site typology (e.g., Web site structure and content) on communication effects through social interaction. As specific affective and cognitive responses to the Web site typology, the social interaction constructs (e.g., social presence, perceived ease of use, and perceived usefulness) play a diagnostic role in explaining "why", that is the reasons behind communication effects. Accordingly, hypotheses derived from these relationships reflect the research question, "What satisfies Web users and make them revisit a corporate Web site?"

Figure 4.2 Main Effects and Associated Hypotheses



(1) Web Site Typology and Social Interaction

Generally, it is argued that Web site structure and content are closely related to social interaction. More specifically, the types of Web site structure and content have an effect on consumers' interaction with Web sites via affective and cognitive responses.

Previous research has argued that Web site structure influences feelings of social presence (e.g., Heeter, 1995; Ijsselsteijn, Ridder, Freeman, and Avons, 2000; Kubey and Larson, 1990; Lombard and Ditton, 1997). Web site structure can enhance the level of social presence through its multimedia capability allowing for the more realistic presentation of marketing information. For example, the combined use of various multimedia elements such as sound, video and graphic images can enhance the sensory quality of information provided on a Web site, which will ultimately create a rich sense of social presence (e.g., Reeves, Detenber, and Steuer, 1993; Bocker and Muhlbach, 1993; Lombard, 1995; Lombard and Ditton, 1997). By comparison, the limited use of

dynamic elements on a Web site results in comparatively poor sensory quality**.** Furthermore, multimedia techniques can also create profound emotional experiences through bodily and physical expressions such as facial, vocal, gestural and postural cues. In other words, the use of full range of multimedia elements can deliver more social context cues, which increase social presence (e.g., Choi *et al*., 2001).

The use of hypermedia implies not merely multi-modal representation of information, but also interactivity. Although there is no uniform definition, feedback and control are generally considered as two essential elements of interactivity. When consumers are in control of their communication environments and can exchange feedback with each other through the hyperlink facility of the communication media, they feel a sense of online community (e.g., Choi *et al*., 2001; Suh, Hasan, and Couchman, 2003).

Therefore, through interactivity and realistic representation, the use of hypermedia elements can enhance a higher level of social presence (e.g., Choi *et al*., 2001; Schubert, Friedmann, and Regenbrecht, 2001; Suh, Hasan, and Couchman, 2003). Recent studies support this proposition. De Greef and Ijsselsteijn (2000) found that the inclusion of video and audio in a communication channel created higher social presence than an audio-only environment. Similarly, Choi (2000) and Choi *et al*., (2001) revealed that a Web site with a voice-activated animated character generated a higher level of presence than a Web site without a character.

Thus, it is expected that:

$H1_1$: The "hypermedia" type of Web site will have higher social presence than the "static image" type.

Web site structure also has an effect on consumers' cognitive responses, notably on perceived ease of use. While the use of dynamic multimedia (e.g., audio, animation and video) facilitates realistic presentation of marketing information, it usually takes more time to download, which can cause a negative effect on consumer attitudes (Chen and Ford, 1997). Another negative effect comes from the concepts of interactivity and user control. As a Web site is inherently an interactive medium, users need basic skills to control the medium. When full hypermedia elements are adopted, users can get distracted or lost in cyberspace.

As a result, the following hypothesis is also proposed:

H_2: The "static image" type of Web site will have higher perceived ease of use than the "hypermedia" type.

The primary function of Web site content is to fulfil users' needs (Hallahan, 2001). Different content serves different needs. Therefore, it is expected that consumers' attitudes toward the Web site will depend on the content a Web site provides. However, no attempts have yet been made to identify the influence of Web site content on social interaction. Nevertheless there are some indications that it plays an important role in affecting social presence. Bone and Ellen (1993, p. 94) argue that "the more available

the information is at the time of the judgement, the stronger will be its effect on attitudes and behavioural estimates." For instance, Singh, Balasubramanian, and Chakraborty (2000) found that a hybrid form of marketing communication and direct experience is more effective than a conventional advertising format. More specifically, they compared three dimensions of communication content: advertising, "infomercials" (or informational commercials), and direct experience. The infomercial was defined as a long commercial message (15 and 30 minute) that contains a detailed description and demonstration of a particular product like television program content. Direct experience was defined as the "trial use of exercise equipment on display at a store while considering its purchase" (p. 59). For direct experience, product messages were provided to respondents in audio and text formats. The results showed that infomercials and direct experiences were more effective in television commercials.

The inclusion of sales promotion (e.g., trial and demonstration) and public relations functions (e.g., corporate/product news) can enhance Web site effectiveness. One of the advantages of a Web site is the ability to deliver a variety of marketing information through one communication channel. This means that a Web site provides more opportunities for consumers to access information to meet their needs. A Web site also allows more detailed messages to be provided for users. These features of Web site marketing communication can create an impression of more support by marketers or sales representatives and the information can be seen as more useful. Given these features, it is expected that more integrated information on a Web site results in higher social presence and perceived ease of use. On the other hand, if more information is provided on a Web site, it may become harder for users to manage.

Thus, it is hypothesised that:

H_3: The "integrated communication" type of Web site will have higher social presence than the "basic information" type.

H_4: The "basic information" type of Web site will have higher perceived ease of use than the "integrated communication" type.

H_5: The "integrated communication" type of Web site will have higher perceived usefulness than the "basic information" type.

(2) Social Interaction and Communication Effects

Before the advent of the Web, many researchers asserted that consumer interaction with communication media (e.g., imagery, vividness, presence, etc.) had a tendency to increase positive attitudes and behavioural intentions (e.g., Bone and Ellen, 1992; Huang, 1999; Kim and Biocca, 1997). For example, Bone and Ellen (1992) argued that when consumers had more vivid images after exposure to an advertisement, they would have a more positive attitude toward the ad and behavioural intention to purchase the advertised product.

The study of the relationship between social presence and communication effects of a Web site is an underdeveloped area. To date, only a few studies have been conducted and they have revealed that social presence has a positive influence on attitudes toward a Web site and revisit intention (e.g., Choi, 2000; Choi *et al*., 2001). Some studies have

also shown that consumers' cognitive responses to a Web site have a positive impact on their attitudes (e.g., Agarwal and Prasad, 1999; Davis, Bagozzi, and Warshaw, 1989; Hong, Thong, Wong, and Tam, 2001-2002; Hu, Chau, Sheng, and Tam, 1999). For instance, Gefen and Straub (2000) found that the more people perceived a Web site as useful, the greater their purchase intention was. Pavlou (2003) identified a positive relationship between user's perception of a Web site (in terms of perceived usefulness and perceived ease of use) and intention to conduct transactions online. Moon and Kim (2001) also have supported this finding; that is, when consumers perceive the Web to be more useful and easier to use, their attitudes and intentions to use are correspondingly high.

In terms of the relationship between the cognitive responses of perceived usefulness and ease of use, almost all studies have suggested a positive association (e.g., Hong *et al*., 2001-2002; Moon and Kim, 2001; Pavlou, 2003). In other words, if people perceive a Web site to be easy to use, they also perceive it as useful.

Given the findings discussed above, it is posited that:

H_6: The more positive the social presence of a Web site is, the more positive the attitude toward the Web site will be.

H_7: The more positive the perceived ease of use of a Web site is, the more positive the attitude toward the Web site will be.

H_8: The more positive the perceived usefulness of a Web site is, the more positive the attitude toward the Web site will be.

H_9: The more positive the perceived ease of use of a Web site is, the greater the perceived usefulness will be.

Advertising studies have found a positive relationship between the attitude toward the ad and purchase intention. Similarly, Web advertising studies have revealed a similar effect (e.g., Bruner and Kumar, 2000; Choi, 2000; Choi *et al*., 2001; Stevenson *et al*., 2000). In particular, Bruner and his colleagues (Bruner and Kumar, 2000; Stevenson *et al*., 2000) found that people who had a positive attitude toward the Web site showed a high level of intention to purchase the advertised product. Choi and his colleagues (Choi, 2000; Choi *et al*., 2001) also discovered that when users' attitudes toward a Web site was high, the intention to revisit the Web site was also high.

Consequently, the following hypothesis is proposed:

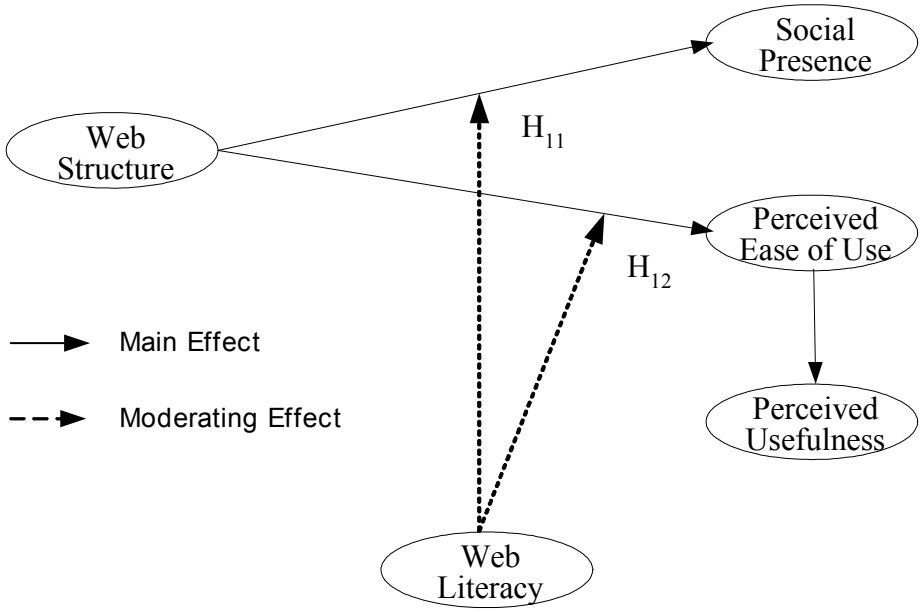
H_{10}: The more positive the attitude toward the Web site is, the higher the revisit intention will be.

4.3.2 Moderating Effects and Associated Hypotheses

The research model includes Web literacy, one of the key differences among individual users, as a moderating variable (See Figure 4.3).

As discussed before, the hypermedia structure of the Web provides an enormous mount of user control. If users with a high ability to control information on a Web site can achieve a great deal of interaction with a Web site, in turn, they will have high level of satisfaction with the Web site. However, a lack of control will have a negative effect on their affective and cognitive judgments. Thus, Web site effectiveness depends upon user ability to deal with hypermedia navigation (e.g., Chen and Ford, 1997; Heeter, 1995; Ijsselsteijn *et al*., 2000; Kubey and Larson, 1990; Lombard and Ditton, 1997; Wood, 1982). Web literacy represents a users' ability to control their interaction with the Web, which encompasses a complex set of experience, confidence, and familiarity with the Web, its constituent sites and the means available for "navigating" it.

Figure 4.3 Moderating Effects and Associated Hypotheses



Although many researchers assert that individual differences such as Web literacy should be included in any study of Web site effectiveness, at present only a few studies have been conducted (e.g., Bruner and Kumar, 2000; Raman and Leckenby, 1998). Given the limited numbers of studies to date, this study has only addressed the role of Web literacy in the formation of attitudes towards the Web site. First of all, in terms of social presence, Bruner and Kumar (2000) identified that users' Web experiences have a positive influence on communication effects. Similarly, Steinfield (1986) found that prior experience with electronic E-mail was positively associated with the social uses of E-mail. From the results of these studies it can be concluded that unfamiliarity with hypermedia frustrates novices and discourages a sense of social presence. Conversely, for experts who are familiar with hypermedia, the new technology will encourage a sense of social presence (e.g., Bone and Ellen, 1992; Lombard and Ditton, 1997).

Based on these findings, it is hypothesised that:

H_{11a}: People with high Web literacy will feel the "hypermedia" type of Web site to be higher in social presence than the "static image" type.

H_{11b}: People with low Web literacy will feel the "static image" type of Web site to be higher in social presence than the "hypermedia" type.

Consistent with previous findings, recent studies on the relationship between Web literacy and search performance revealed that people with high Web literacy spent less time to navigate a Web site, whereas people with low literacy surf a longer time on a Web site (Lazonder *et al*., 2000; Raman and Leckenby, 1998). One possible reason for

this is that the lack of prior experience or knowledge might cause navigation problems so it took more time for beginners to meet their needs (McDonald and Stevenson, 1998). Accordingly it is assumed that people with low literacy will consider a simple Web site to be easier to use than are with a complex hypermedia format. On the other hand, users with high literacy will not face as many difficulties in searching any type of Web site because they are familiar with hypermedia features.

Consequently, the following hypotheses are proposed:

H_{12a}: People with high Web literacy will perceive no difference in ease of use between the "hypermedia" type and the "static image" type of Web site.

H_{12b}: People with low Web literacy will perceive the "static image" type of Web site to be easier to use than the "hypermedia" type.

CHAPTER 5. RESEARCH METHODOLOGY

5.1 Introduction

This chapter describes the methodology applied in this study to empirically test the hypotheses derived from the research model as discussed in the previous chapter. In order to test the research hypotheses, this study employed an experiment because of the ability of this method, widely recognised among social and behavioural scientists (Boruch, 2001; Bryman, 1989), to establish cause and effect relationships as proposed in the theoretical model and formalised in the research hypotheses. One of the primary advantages of an experiment is that it allows researchers to manipulate or control variables, and by doing so the influence of extraneous factors can be minimised or eliminated (e.g., Malhotra, Hall, Shaw, and Crisp, 1996; Shaughnessy and Zechmeister, 1994; Zikmund, 1991). This experimental study involved three stages: (1) the development of the instrument, (2) the main experiment, and (3) statistical analysis. This chapter describes these three stages in detail.

This chapter begins with the development of the instrument. Each of the variables in the proposed model was operationalised. The instrument format is discussed. Then, a two-stage pilot testing procedure to refine the measurement instrument and the experimental procedures is discussed. The second stage involved the main experiment in which participants rated their responses to a test Web site. This chapter describes the experiment along with the research design, participants, test Web sites, and

experimental procedure. Finally, statistical techniques for analysing the data gathered from the experiment are discussed.

5.2 Development of the Instrument

Development of the instrument involves three stages: operationalisation of the constructs, instrument design, and the pilot test of the instrument used to measure consumer reactions to corporate Web sites.

5.2.1 Operationalisation of the Constructs in the Model

As discussed in the previous chapter, the research model has eight constructs: Web site structure, Web site content, social presence, perceived usefulness, perceived ease of use, Web literacy, attitude toward the Web site, and revisit intention. This section discusses each of the scale items for measuring the constructs used in this study. The measures were drawn from preliminary research (e.g., Web site structure and content) and existing measurement scales through a review of relevant literature (e.g., social presence, perceived usefulness, perceived ease of use, Web literacy, attitude toward the Web site, and revisit intention). These measures were used for designing a self-report instrument to assess Web site effectiveness.

(1) Predictor Variables

As discussed in Chapter 3, the two predictors in the model, Web site structure (i.e., presentation media used) and Web site content (i.e., the range of functions supported),

were operationalised in terms of dichotomies. For web site structure, the two levels were "hypermedia" (the Web site has multi-media, including moving images, sounds, pop-ups, etc.) and "static image" (the Web site has only text and basic images). For Web site content, the levels were "integrated communication" (all marketing functions are supported by the Web site, including advertising, company/product information, sales promotion, online sales, etc.) and "basic information" (only basic information is provided by the Web site, about the company and its products, as well as contact details).

(2) Moderator Variable

The Web literacy of users (defined as a user's ability to manage the distinctive features of the Web, including hypermedia and interactivity) was measured in terms of the level of web browsing experience and self-assessed capability as determined by 5 questions (each with 7-point summated scales) derived from Raman and Leckenby (1998). In order to assess a self-efficacy belief, an additional item was added to the instrument (see Table 5.1).

Table 5.1 Web Literacy Items and Scales

Item	Response Scale	
	1	7
1. How frequently do you access the Web (e.g., to search for information)?	Never	Extremely frequently
2. How familiar are you with the Web?	Not at all familiar	Extremely familiar
3. How would you rate your level of usage of the Web?	Extremely low	Extremely high
4. How confident are you with your ability to navigate the Web?	Not at all confident	Extremely confident

(3) Mediator Variables

Social presence was defined as a user's feeling that he or she is interacting with other people, and was measured using a 5-item summated scale derived from previous studies (Champness, 1973a; De Greef and Ijsselsteijn, 2000; Short *et al*., 1976). For the purpose of this study, the original measurement scales were adapted to fit the context of the study (Table 5.2).

Table 5.2 Social Presence Items and Scales

Item	Response Scale	
	1	7
1. When exploring this Web site, I felt that I got to know the people in the company.	Strongly disagree	Strongly agree
2. This Web site gives me a realistic impression of the company.	Strongly disagree	Strongly agree
3. When exploring this Web site, it felt like I was in personal contact with people in the company.	Strongly disagree	Strongly agree
4. When exploring this Web site, I felt good about the people in the company.	Strongly disagree	Strongly agree
5. Exploring this Web site was like being in a face-to-face meeting with people in the company.	Strongly disagree	Strongly agree

Perceived usefulness was defined as the degree to which a user believes that using a particular Web site would enhance task performance. Perceived ease of use was defined as the degree to which a user believes that using a particular Web site would be free of effort. For perceived Web site usefulness and ease of use, 5-item summated scales derived from previous studies (e.g., Chau, 1996; Davis, 1989; Moore and Benbasat, 1991; Seddon and Kiew, 1996) were used. Given that the subject in the study were to respond in terms of specific information task, the original scale items were modified to

accommodate this. All items were rated using 1-7 response scale, as shown in the table below (Table 5.3 and 5.4).

Table 5.3 Perceived Usefulness Items and Scales

Item	Response Scale	
	1	7
1. This Web site would help me to search more quickly for information about personal computers to buy.	Strongly disagree	Strongly agree
2. This Web site would improve my search for information when buying a personal computer.	Strongly disagree	Strongly agree
3. This Web site would not make my search for information about personal computers more productive.	Strongly disagree	Strongly agree
4. This Web site would make my search for information about personal computers more effective.	Strongly disagree	Strongly agree
5. Overall, this Web site would be useful for obtaining information about available products when buying a personal computer.	Strongly disagree	Strongly agree

Table 5.4 Perceived Ease of Use Items and Scales

Item	Response Scale	
	1	7
1. Learning to use this Web site was easy for me.	Strongly disagree	Strongly agree
2. I could not easily get this Web site to do what I wanted it to do.	Strongly disagree	Strongly agree
3. This Web site was straightforward and easy to understand.	Strongly disagree	Strongly agree
4. It was easy for me to become skilled at using this Web site.	Strongly disagree	Strongly agree
5. Overall, I found this Web site to be easy to use.	Strongly disagree	Strongly agree

(4) Criterion Variables

Attitude toward the Web site (defined as a predisposition to respond to a Web site as a communication medium or a partner) and revisit intention (defined as a consumer's propensity to revisit a particular Web site) were the criterion variables. First of all, as can be seen from Table 5.5, attitude toward the Web site was measured in terms of a user's overall impression using a 7-item summated scale with items derived from recent Web studies (e.g., Bruner and Kumar, 2000; Choi, 2000; Choi *et al*., 2001; Wu, 1999).

Table 5.5 Attitude Toward the Web Site Items and Scales

Item	Response Scale	
	1	7
1. I think this is a good Web site.	Strongly disagree	Strongly agree
2. I like this Web site.	Strongly disagree	Strongly agree
3. This is an attractive Web site.	Strongly disagree	Strongly agree
4. This is an enjoyable Web site.	Strongly disagree	Strongly agree
5. This Web site is pleasant to use.	Strongly disagree	Strongly agree
6. This Web site is recommendable to my friends.	Strongly disagree	Strongly agree
7. Overall, this is a user-friendly Web site.	Strongly disagree	Strongly agree

The behavioural measure of a user's response to the Web site, revisit intention, was measured in terms of a single 8-point symmetrical propensity scale ranging from "Extremely unlikely" to "Extremely likely in response to the question: "If you were searching for information about personal computers for sale on the Web, how likely is it that you would revisit this Web site?"

5.2.2 Instrument Design

As the measures have already been discussed in Chapter 4, this section explains the instrument format. As shown in Appendix 4, the instrument consisted of three sections: (1) participants' reaction to the Web site, (2) Web experience measures, and (3) participant background information. The first section was developed to obtain measures of the mediator (e.g., social presence, perceived ease of use, and perceived usefulness) and criterion variables (attitude toward the Web site and revisit intention). The second section collected data on the moderator variable (e.g., Web literacy). The final section collected demographic information about the participants.

In order to avoid response bias and acquiescence bias among the subjects, the instrument included both positive and negative items in each of the scales (e.g., Anastasi, 1988; Dillon, Madden, and Firtle, 1993; Guy, Edgley, Arafat, and Allen, 1987; Kerlinger, 1964; Zikmund, 1991).

Those questions were "When exploring this Web site, I did *not* feel good about the people in the company" (for social presence), "This Web would *not* make may search for information about personal computers more productive" (for perceived usefulness), "I could *not* easily get this Web site to do what I wanted it to do" (for perceived ease of use), and "This is *not* a good Web site" (for attitude toward the Web site).

5.2.3 Pilot Test of the Instrument

This section describes the pilot test of the instrument to measure consumer reactions to corporate Web sites, an instrument called the "Web Acceptance Model (WAM) Questionnaire". The development of this questionnaire was part of a larger experimental study investigating the determinants of corporate Web site effectiveness.

(1) Rationale for the Pilot Test

The pilot testing of questionnaires is universally considered to be essential because responses to what may be misunderstood, ambiguous or incomprehensible questions can lead to problems of interpretation in data analysis as well as concerns about instrument validity and reliability (e.g., De Vaus, 1991, Churchill, 1999). Therefore, the pilot testing of the draft questionnaire was an important part of this experimental study (e.g., Straub, 1989; Sethi and King, 1991). The concern was to ensure that the instrument used would be both reliable and valid. The issue of instrument rigour was addressed in two ways. Firstly, this study employed measurement scales that had been used in previous studies and which already had known levels of reliability and validity. Secondly, and responding to the lament of Hunt, Sparkman, and Wilcox (1982, p. 269) that "Despite the generally accepted importance of pretesting, the pretesting process is given short shrift in both the marketing research literature and marketing research practice", this study subjected the initial draft instrument to a two-stage pilot testing procedure.

(2) The Pre-Pilot Test

For the pre-pilot test a panel of 10 "experts", including research students and academics in the disciplines of Marketing and Information Systems at the University of Wollongong, was asked to review the draft questionnaire. Panel members were then interviewed and asked to comment on the questionnaire in terms of its ease of use, comprehensibility, meaningfulness, likely effectiveness, content validity (i.e., that the scale items appeared to measure what they were intended to measure) and overall suitability. As a result of the feedback received, some minor modifications were made (e.g., to individual questions and to the instructions for subjects) and the revised questionnaire was then submitted to the next stage of the pilot test. On the basis of the expert assessment, it was concluded that the measurement scales in the draft questionnaire had an acceptable level of content or face validity.

(3) The Pilot Test

In the second stage, a quantitative approach was used to assess the reliability and validity of the instrument. Although there is no widely agreed upon sample size for a pilot test, between 12 and 30 subjects is generally recommended (e.g., Hunt *et al*., 1982). Therefore, a convenience sample of n = 37 was obtained (through word of mouth and other calls for volunteers at the University) from the population of interest for the study, i.e., university students. Following a pre-defined experimental protocol, the pilot test participants were taken to a testing laboratory and asked to explore a fictitious computer company Web site in terms of a hypothetical task (i.e., to obtain information to help make a decision about a possible personal computer purchase). Personal

computers were chosen as the focus for the experimental task because university students constitute a major market segment for this product, and the hypothetical task was well within the recent experience of most students. A fictitious company Web site was created to avoid any potential confounding effects due to prior knowledge and experience with existing brands (Zhang and Gelb, 1996; Choi, 2000).

Each participant was randomly assigned to one of four variants of the company Web site, where the variants were the four combinations of the Web site structure and Web site content levels (i.e., from a "simple" variant which had only static images and basic information, to a "complex" variant with hypermedia and integrated communication). After completing the information search task at their own pace, participants were then asked to complete the draft questionnaire. When they had done so, they were debriefed on the experiment and given the opportunity to comment on the questionnaire. No problems were reported, and all participants considered that the questionnaire was comprehensible, meaningful and easy to complete. Data from the completed questionnaires was entered into the statistics program SPSS. The data file so created was checked for accuracy, and then analysed to assess the reliability and validity of the piloted draft questionnaire.

(4) Statistical Analysis

Data from the completed questionnaires was entered into a personal computer and statistical analysis was performed using SPSS 11.0 for Windows. Basic frequencies were calculated for descriptive purposes. The validity and internal consistency of the instrument were assessed through a statistical analysis.

The statistical analysis procedure involved three main analyses (e.g., Hair *et al*., 1998). Firstly, a factor analysis was conducted to determine whether each summated scale was unidimensional. In other words, a factor analysis on the multi-item measures was conducted in order to identify whether these items represent only one dimension of a construct or whether there are several dimensions within a set of questions (Anderson, 1987; Gebotys, 2001). This analysis commenced with the creation of a correlation matrix for the items in each scale to ensure that there were a substantial number of significant correlation coefficients in the matrix. The extraction of factors was carried out using Principal Components Analysis. Only factors with eigenvalues of 1.0 or higher were extracted, and this was confirmed with a scree plot. The factorability of the correlation matrices was assessed using the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Accuracy and Bartlett's Test of Sphericity (Coakes and Steed, 1999).

Secondly, the construct validity of each scale was assessed by examining the correlations between a total scale score and each of its constituent item scores. To avoid spurious part-whole correlation, the total score was corrected by subtracting an item's score before examining the correlation between it and the total (Doll and Torkzadeh, 1988; Xiao and Dasgupta, 2002). Correlation analysis determined whether scale items were associated with each other.

Thirdly, reliability analysis was conducted to test internal consistency. Reliability refers to the degree which a measure yields consistent results when the same instrument is measured repeatedly. Although there are three different approaches (e.g., the test-retest, alternative (equivalent) forms, and the internal consistency) for assessing reliability, the internal consistency using Cronbach's alpha is the most popular approach (Anastasi,

1988; Aron and Aron, 1994; Guy *et al*., 1987; Kubiszyn and Borich, 1990; Malhotra *et al*., 1996; McDaniel and Gates, 1993; Zikmund, 1991). The internal consistency test was performed only once to a group of subjects.

5.3 The Experiment

5.3.1 Experimental Design

The hypotheses were tested on the basis of a 2 x 2 between subject factorial design (having a total of 4 cells), which allowed all possible combinations and conditions of the Web site design factors, Web site content (integrated communication vs. basic information) and Web site structure (hypermedia vs. static image), as shown in Figure 5.1. Therefore, the experiment investigated not only main effects of Web site content and structure, but also the effect of their interaction. There were three mediating variables: social presence, perceived ease of use, and perceived usefulness. Attitude toward the Web site and revisit intention were proposed as criterion variables. For the experiment, culture (Australian) and motivation (search for information) were held constant (control variables).

Each subject was allowed to navigate only one of the four Web sites. Subjects were randomly assigned to a cell using a Random Number Generator Program (Graziano and Raulin, 1999). As the total sample was 160, the random number table had 40 blocks, each of which contained 4 numbers. The block randomisation ensured that equal numbers of subjects were allocated to each experimental condition.

Figure 5.1 Experimental Design

Structure	Content: Integrated Communication	Content: Basic Information
Hypermedia	Cell 1 ($n_1 = 40$)	Cell 3 ($n_3 = 40$)
Static Image	Cell 2 ($n_2 = 40$)	Cell 4 ($n_4 = 40$)

5.3.2 Participants

One hundred and sixty students at the University of Wollongong were recruited for the experiment. Participants were compensated in the form of $15-coupons for their voluntary participation. The participants were composed of 44% undergraduate and 55.6% postgraduate students. 65% of the participants were male and 34.4 % female. The experimental subjects were allocated equally across each of the four treatment cells (n=40), a number widely considered to be adequate for desirable and stable results (e.g., Dominik, 1997; Hair, Anderson, Tatham, and Black, 1995).

With respect to the sample, university students were valid subjects for this study in many respects. First of all, they were major users of the product (a personal computer) and the marketing communication medium (a Web site) being tested in the experiment. In other words, university students are typical consumers for this product and marketing

communication medium. In addition, although there has been much debate on using convenience samples of university students, many scholars have advocated students as valid subjects (e.g., Calder and Tybout, 1999; Chow, 1999). Furthermore, based on the argument suggested by Lynch (1999), it is argued that when a moderator variable (e.g., Web literacy) is an important factor in a model, a homogeneous population (e.g., students) can be a good source of sample subject. In particular, this study concerns the difference of Web literacy, which is mainly influenced by users' experience in navigating Web sites, a total amount of time spent on Web sites, and users' relevance to the Web in accomplishing their task. University students have various homogeneous groups in terms of Web literacy according to their year levels and majors. Therefore, university students are more likely to provide variation in Web literacy (i.e., from low to high).

5.3.3 The Test Web Sites

(1) Product Category and Brand

A personal computer was selected as the product category for the corporate Web sites, because a personal computer is a product high involvement product, which involves intensive information search in purchase decision (e.g., Assael, 1992; Hawkins, Neal, Quester, and Best, 1998). As the experiment was conducted in the context of information search, a personal computer was appropriate to the purpose of the experiment. Moreover, a personal computer is one of the products that actively utilise a Web site as their marketing communication tool. Overall, a personal computer was a proper product category for this study.

A fictitious brand name (Unibel) was developed in order to control for any brand effect, which comes from the prior evaluation and attitudes of subjects towards a familiar brand name (e.g., Choi *et al*., 2000; Johnson and Eagly, 1989; Zhang and Gelb, 1996). By using just a single product category and brand, this study tried to eliminate any potential confounding effects of product-category and brand name on the experiment.

(2) Design of the Test Web Sites

Based upon the preliminary research, four-types of Web sites (Unibel 1 to Unibel 4) were created with technical support from three Web site design experts. Based on an extensive analysis of computer manufacturers' Web sites, common message and presentation formats were extracted and applied to the test sites. The use of Microsoft Front Page 2000 allowed easy creation of the Web pages. As shown in Figure 5.2, the Web sites were manipulated into four different versions in a consistent and valid way. Unibel-1 was the most complex type as a combination of "integrated communication" and "hypermedia" types, which included moving images, various content items, brief text, and hyperlinks. Unibel-2 was a mixture of "integrated communication" and "static image". Hence, Unibel-2 is different from Unibel-1 in that it utilised static images and full text. On the other hand, Unibel-3 contained moving images but very limited information content. Finally, Unibel-4 was the simplest type, which used static images and had less information content. Each type used exactly the same messages and images. As other design elements of the Web sites could cause confounding effects, the same colour, layout, typeface, and font size were used in each Web site. Only the use of

content type and hypermedia were manipulated while other design factors were held constant.

Figure 5.2 Design of Test Web Sites

Structure	Content: Integrated Communication	Content: Basic Information
Hypermedia	**Unibel-1** Moving image Internal link Various content Brief text External link	**Unibel-3** Moving image Internal link Less content Brief text External link
Static Image	**Unibel-2** Static image Various content Full text External link	**Unibel-4** Static image Less content Full text External link

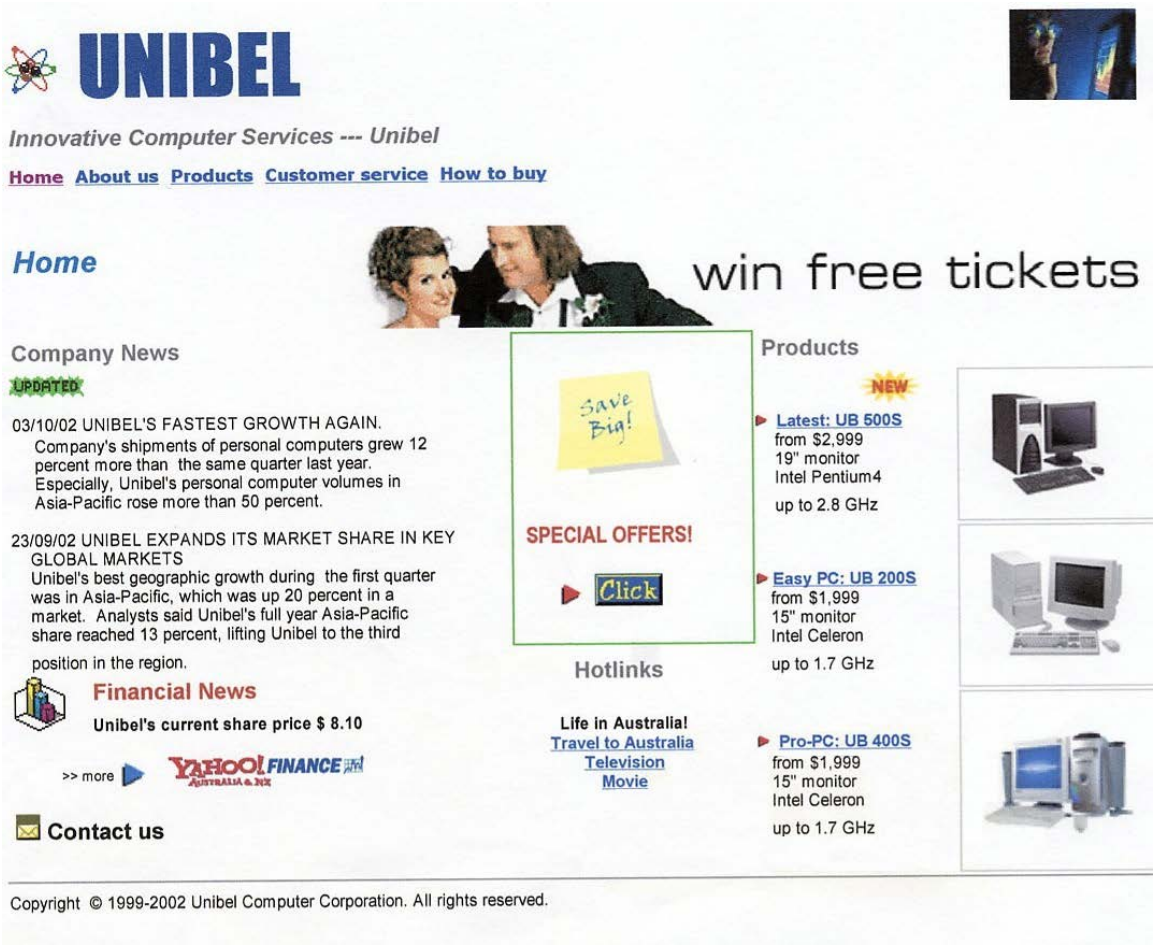
In this study, the Web site content and structure types were derived empirically and had clear criteria. However, to verify the differences between stimuli, the test Web sites were pre-tested with two panel groups: (1) a group of teaching staff in the discipline of Marketing (5 people) and (2) research students in the discipline of Marketing and Information Systems (7 people). Based on the interviews with these panel groups, which confirmed the difference among stimuli, the final Web sites were created. The specific variations of the test Web sites were as follows.

Unibel-1 included dynamic hypermedia elements (e.g., a moving logo, moving images, moving text, flickering buttons, mouse off images, sound, a pop-up menu, and a drop down menu) and various content pages (e.g., about us, products, consumer service, hot to buy, and site map). This Web site had diverse feedback facilities such as “Feedback Form” and “Online Order Form.” Accordingly, Unibel-1 was a very interactive Web site. Text was presented in brief form, which further could be retrieved by clicking on a drop down menu (e.g., “company news updated” and “products” in Figure 5.3). In addition, when “Special Offers” was clicked, a pop-up window was displayed in the top left hand corner of the screen. One banner advertisement was commonly used across all four Web sites.

Figure 5.3 Unibel-1 Home Page

Unibel-2, like Unibel-1, contained integrated information content (see Figure 5.4). However, even though it had exactly the same images, they were static. Different from Unibel-2, when “Special Offers” was clicked, it did not show a pop-up window, instead, it was connected to the “Products” page. In addition, descriptive text was utilised for information.

Figure 5.4 Unibel-2 Home Page

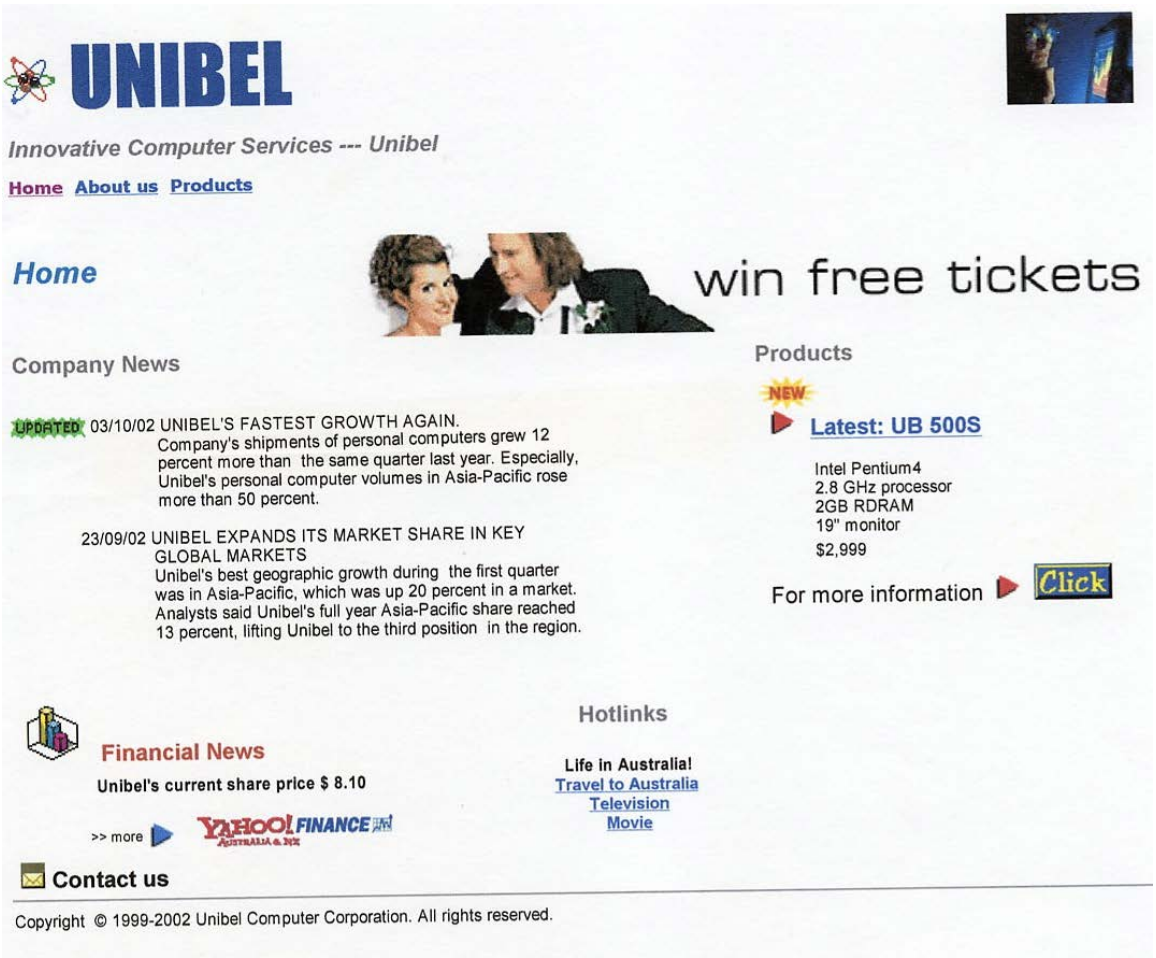


Unibel-3, similar to Unibel-1, encompassed full hypermedia elements (including a pop-up menu and a pop-up window), brief text, sound, and a site map (see Figure 5.5). However, because it had minimal content pages (e.g., “About us” and “Products”), it did not have the “Feedback Form” or “”Online Order Form”. Therefore, Unibel-3 was limited in terms of interactivity and information.

Figure 5.5 Unibel-3 Home Page

As can be seen in Figure 5.6, Unibel-4 was the simplest Web site. The content pages were only “About us” and “Products”, which provided only necessary information about the company and its products. Images were kept to a minimum.

Figure 5.6 Unibel-4 Home Page



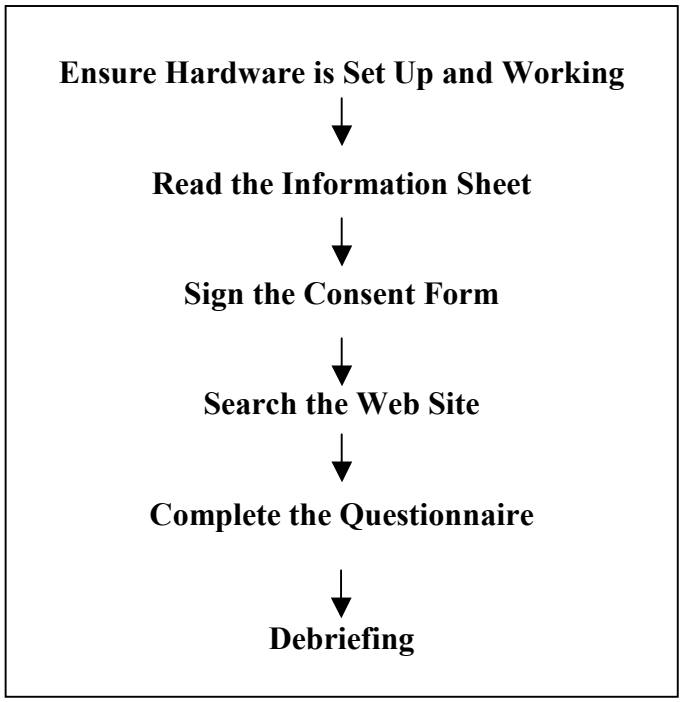
5.3.4 Experimental Procedure

The experiment was conducted in the Activity Theory Usability Laboratory at the University of Wollongong. Two standard Pentium III personal computers (each computer had a 15" monitor, standard keyboard, mouse, and Internet connection) were provided. Internet Explorer 5.0 was used for access to the test Web sites. The test was administered under the same conditions between December 2002 and January 2003.

The experiment was carried out according to a pre-determined protocol. Before the participants arrived, it was ensured that all necessary hardware was set up and working. After the participants were seated, they were asked to read the information sheet and sign the consent form. They were also informed that they had the right to withdraw from the experiment at any time they chose to and their responses would remain strictly confidential. Participants were given a specific task of searching information about the company (Unibel) and its products to purchase a personal computer in the near future.

Then, participants explored one of Unibel's Web sites in their own time to explore the information. If they had any questions or problems, they were able to ask the researcher. After browsing the Web site, they were requested to a complete questionnaire. Finally, after the questionnaire had been completed, a debriefing session followed, where the participants were informed about the study and were given a contact address for further questions and complaints. The overall procedure of the experiment is depicted in Figure 5.7.

Figure 5.7 Experimental Procedure



5.3.5 Data Preparation and Entry

The experimental data were collected between December 2002 and January 2003. There was no missing data for any of the scale items. However, two subjects failed to supply demographic details (i.e., age and gender). As this data was used for descriptive purposes only, all cases were included in the analyses.

Data was entered into a personal computer from the questionnaires in the following way. Firstly, the negatively worded items were reverse scored. Four questionnaire items has been negatively worded in order to minimise response biases. All the items were scored on a scale that ranged from "1" (Strongly Disagree) to "7" (Strongly Agree).

Item was recoded so that a value of "7" on the negatively worded item was re-coded to a value of "1", a value of "6" was re-coded to a value of "2", and so on.

Secondly, two coders checked whether any coding errors had been introduced during the data entry process. All coded data entered in the personal computer were double-checked against the original questionnaires and any incorrect codes were corrected. This process was repeated twice until no incorrect information was found. When data entry and checking were completed, statistical analysis was performed using SPSS 11.0 for Windows.

5.4 Analysis

Data analysis involved two distinct phases. The first phase analysed the relationships between Web site typology (i.e., Web site structure and content) and the social interaction measures (i.e., social presence, perceived usefulness, and perceived ease of use). In addition, moderator effects of Web literacy on the relationships between Web site typology and social interaction were included. Next, the second phase involved the analysis of relationships between social interaction (i.e., social presence, perceived usefulness, and perceived ease of use) and attitude toward the Web site, including the relationship between two communication measures: attitude toward the Web site and revisit intention.

In the first phase, a series of variance approaches (i.e., MANCOVA and ANCOVA) were performed to test hypotheses 1 to 5. Based on a 2x2 factorial design, a Multivariate Analysis of Variance test with Web literacy as a covariate (Multivariate

Analysis of Covariance Analysis: MANCOVA) was performed. A MANCOVA was utilised to eliminate bias in the analysis by statistically controlling the influence of an extraneous variable (i.e., Web literacy) on the dependent variables (Coakes and Steed, 1999). Subsequently, when there was an interaction effect of Web site typology on individual variables, a separate univariate Analysis of Covariance Analysis (ANCOVA) was performed. On the other hand, when there was no interaction effect, a separate MANCOVA was conducted.

To test hypotheses 11 and 12, Multiple Regression Analysis and Analysis of Variance (ANOVA) were performed. Based on the Baron and Kenny's (1986) approach, first of all, functions of Web literacy on social interaction measures were examined through Multiple Regression Analysis, which determined the level of Web literacy (i.e., low and high). Then, a 2x2 ANOVA test was conducted to investigate the moderator effects of the two levels of Web literacy.

The variance approaches (e.g., MANCOVA, ANCOVA, and ANOVA) determined whether different levels of the predictor variables (e.g., Web site structure and content) and moderator variable (e.g., Web literacy) were the same with regard to mediator variables (e.g., social presence, perceived ease of use, and perceived usefulness). When there was a significant difference (at a significance level of 0.05) the null hypothesis was rejected and the alternative hypothesis accepted.

In the second phase, a multiple linear regression analysis was used to test hypotheses 6 to 10, while a simple regression analysis was employed to test hypothesis regarding attitude toward the Web site and revisit intention. Linear regression analysis identified

the relationships between the mediator variables (e.g., social presence, perceived ease of use, and perceived usefulness) and the criterion variables (e.g., attitude towards the Web site and revisit intention). Again the significance level was set at 0.05.

CHAPTER 6. RESULTS AND ANALYSIS

6.1 Introduction

In Chapter 4, the research model and a set of hypotheses were developed. To test the hypotheses, this research employed an experiment, which best explains causal relationships in the model. Chapter 5 presented the process of the experimental study, which involved three stages: (1) the development of the instrument, (2) the main experiment, and (3) statistical analysis. This chapter describes the results of the statistical analysis of the instrument pilot test and that of the main experiment.

This chapter begins with the results of the instrument pilot test, which involved three main analyses: (1) a factor analysis for unidimensionality, (2) the corrected-total correlation analysis for construct validity, and (3) Cronbach's alphas for scale reliability. The following section describes the results of each analysis in detail, and the final instrument is presented.

The last section of this chapter explains the results of the experiment, which involved assumption testing and hypothesis testing. As a series of variance and linear regression analysis were applied, the assumptions of the statistical methods were tested. Then, the results of the hypothesis tests are reported in three parts: (1) Web site typology and social interaction, (2) moderator effects of Web literacy, and (3) social interaction and communication effects.

6.2 Results of the Instrument Pilot Test

6.2.1 Descriptive Statistics

The descriptive statistics for the pilot test are displayed in Table 6.1. The pilot test sample (n = 37) was made up of 57% females and 43% males. Most were full-time (95%) and undergraduate (62%) students. The age of participants ranged from 19 to 35 years, while more than half (57%) were aged 21 – 25 years. As would be expected of members of this population, most had a high level of web literacy (i.e., the mean summated score on the scale, which had a maximum value of 28, was 22). Given these characteristics, it was concluded that the pilot test sample was reasonably representative of the population from which it was drawn.

Table 6.1 Distribution of Pilot Test Respondents

Parameter	Percentage
Sex	
Male	56.8
Female	43.2
Mode of Study	
Full-time	94.6
Part-time	5.4
Year Level	
Undergraduate	62.2
Postgraduate	37.8
Age[a]	
19-20	21.6
21-25	56.8
26-30	8.1
31-35	10.8
Web Literacy[b]	
4-7 (extremely low)	0
8-11	0
12-15	13.5
16-19 (moderate)	18.9
20-23	24.3
24-27	21.6
28 (extremely high)	21.6

Notes: [a]. Total 97.3%: 1 missing [b]. Total 97.7%: rounding error

6.2.2 Scale Unidimensionality

Table 6.2 shows the scales in the draft instrument. There were a total of 26 scale items in the questionnaire including social presence scales (5 items), perceived usefulness (5 items), perceived ease of use (5 items), attitude toward the Web site (7 items), and revisit intention (4 items). Each of these scales was examined in the pilot test.

Table 6.2 Web Acceptance Model Construct Measurement Scales

Construct	Code	Statement
Social Presence	A1	When exploring this web site, I felt that I got to know the people in the company.
	A2	This web site gives me a realistic impression of the company.
	A3	When exploring this web site, it felt like I was in personal contact with people in the company.
	A4	When exploring this web site, I felt good about the people in the company.
	A5	Exploring this web site was like being in a face-to-face meeting with people in the company.
Perceived Usefulness	B1	This web site would help me to search more quickly for information about personal computers to buy.
	B2	This web site would improve my search for information when buying a personal computer.
	B3	This web would make my search for information about personal computers more productive.
	B4	This web would make my search for information about personal computers more effective.
	B5	Overall, this web site would be useful for obtaining information about available products when buying a personal computer.
Perceived Ease of Use	C1	Learning to use this web site was easy for me.
	C2	I could easily get this web site to do what I wanted it to do.
	C3	This web site was straightforward and easy to understand.
	C4	It was easy for me to become skilled at using this web site.
	C5	Overall, I found this web site to be easy to use.
Attitude Toward the Web Site	D1	This is a good web site.
	D2	I like this web site.
	D3	This is an attractive web site.
	D4	This is an enjoyable web site.
	D5	The web site is pleasant to use.
	D6	This web site is recommendable to my friends.
	D7	Overall, this is a user-friendly web site.
Web Literacy	F1	How frequently do you access the web (e.g., to search for information)?
	F2	How familiar are you with the web?
	F3	How would you rate your level of usage of the web?
	F4	How confident are you with your ability to navigate the web?

(1) Social Presence

First, Pearson product moment correlation coefficients were computed and the significance values scanned (see Table 6.3). The results revealed that the correlation coefficients between items A1 and A2, A1 and A4 were less than 0.3, which indicated they were seemed not suitable for factor analysis. Moreover, the significance value of the association between A1 and A4 was greater than 0.05, an unacceptable level (Coakes and Steed, 1999). A preliminary conclusion was that items A1, A2, and A4 were problematic and should be eliminated from the scales.

Table 6.3 Correlation Matrix for the Initial Social Presence Scale Items[a]

		A1	A2	A3	A4	A5
Correlation	A1	1.000	.274	.454	.152	.461
	A2	.274	1.000	.690	.653	.528
	A3	.454	.690	1.000	.526	.654
	A4	.152	.653	.526	1.000	.471
	A5	.461	.528	.654	.471	1.000
Sig. (1-tailed)	A1		.050	.002	.184	.002
	A2	.050		.000	.000	.000
	A3	.002	.000		.000	.000
	A4	.184	.000	.000		.002
	A5	.002	.000	.000	.002	

[a] Determinant = .117

For a more accurate judgment, further analyses were conducted. First of all, to examine whether the data set was appropriate for a factor analysis, the Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy and Barlett's Test of Sphericity were utilised. As shown in Table A6.1 (Appendix 6), the KMO statistic showed 0.782 at a significance level of 0.001. Although a more rigorous cut-off point is 0.6 (Garson, 2001), generally the KMO measure should be greater than 0.5 (De Vaus, 1991; Field,

2000). In comparison with these cut-off levels, the KMO result was very high. Barlett's Test of Sphericity was also highly significant (chi-square = 71.9 with 10 degree of freedom, at $p < 0.001$). Therefore, it was concluded that a factor analysis of the scale items would be appropriate.

Next, the eigenvalue and the scree plot were investigated to determine the number of factors. An initial Principal Component Analysis for the five-item social presence scales generated one component with an eigenvalue of 2.996. As shown in Figure A5.1 (Appendix 5), the scree plot also identified one component resulting in a distinct break between the first component and other components (Gebotys, 2001).

Finally, factor loadings (component loadings in PCA) and communalities were investigated. Generally, factor loadings below 0.4 are considered low, and low-loading items should be suppressed (e.g., De Vaus, 1991; Field, 2000; Garson, 2001; Hair *et al*., 1995; Stevens, 1992). However, a more rigorous cut-off score is 0.6 (e.g., McCroskey and Young, 1979; Sankaranarayanan, Bhor, and Murawski, 2002). In this pilot study, the factor loading for item A1 (0.559) was slightly lower than the strict cut-off, but the other items were higher than 0.7 (see Table 6.4). Communality is also a useful measure for examining the interrelations between items. A good factor should have a minimum communality value of 0.4 (De Vaus, 1991; Field, 2000; Miles and Huberman, 1994). The result showed that, while communality values of most of the items exceeded the cut-off level, the value of A1 was below the generally accepted minimum of 0.4 (i.e., it was 0.313).

Clearly, the item A1 ("When exploring this Web site I felt that I got to know the people in the company") was unacceptable in that it was not well related to the other items in the scale, and so it was eliminated.

Table 6.4 Results of Factor Analysis for the Initial Social Presence Scale

Item	Factor Loadings	Communalities
A1	.559	.313
A2	.838	.702
A3	.878	.772
A4	.740	.548
A5	.813	.661

After reducing the scale to 4 items, the analysis was repeated. The correlations between the 4 items had coefficients of 0.471 and above (all were highly significant), a distinctly improved result (Table A5.2 in Appendix 5). The Principal Component Analysis extracted a single factor with an eigenvalue of 2.766 (this was also supported by the scree plot as shown in Figure A5.2). Furthermore, the KMO measure (0.764 with a significance of 0.001) and Bartlett's Test of Sphericity (chi-square = 61.7 with 6 degrees of freedom, a highly significant result) indicated that a factor analysis of the scale items would be appropriate. Factor loadings ranged from 0.792 to 0.869 as shown in Table 6.5 below. The communalities for all items were 0.627 and higher, a very satisfactory outcome. From this analysis it could therefore be concluded that the revised 4-item scale measuring social presence was unidimensional and represented a single concept.

Table 6.5 Results of Factor Analysis for the Revised Social Presence Scale

Item	Factor Loadings	Communalities
A2	.869	.756
A3	.869	.755
A4	.793	.627
A5	.792	.628

(2) Perceived Usefulness

The correlation matrix for the 5 scale items showed that the Pearson Product Moment correlation coefficients were all greater than 0.4, ranging from 0.465 to 0.768 (see Table A5.3 in Appendix 5) and all were highly significant (i.e., at the level $p < 0.01$). Both the KMO analysis (0.865, a highly significant result) and the Bartlett's test (chi-square = 119 with 10 degrees of freedom, highly significant) indicated that a factor analysis would be appropriate (see Table A5.1). The Principal Component Analysis generated one factor with an eigenvalue of 3.708, and the scree plot confirmed this (Figure A5.3). As shown in Table 6.6, the factor loadings of the items were 0.745 or higher, and the communalities ranged from 0.556 to 0.810 (i.e., showed that all items were highly inter-related). It was therefore concluded that the 5-item scale measuring the perceived usefulness of a Web site was unidimensional.

Table 6.6 Results of Factor Analysis for the Perceived Usefulness Scale

Item	Factor Loadings	Communalities
B1	.745	.556
B2	.886	.785
B3	.871	.758
B4	.900	.810
B5	.894	.800

(3) Perceived Ease of Use

As can be seen from Table A5.4 (Appendix 5), the correlation matrix for the 5 scale items showed that the Pearson Product Moment correlation coefficients were all greater than 0.4 (i.e., ranging from 0.448 to 0.783) and all were highly significant (at the level $p < 0.01$). Both the KMO analysis (0.836, a highly significant result) and the Bartlett's

test (chi-square = 107 with 10 degrees of freedom, highly significant) indicated that a factor analysis would be appropriate (see Table A5.1). The Principal Component Analysis generated one factor with an eigenvalue of 3.530, and the scree plot confirmed this (Figure A5.4). As can be seen from Table 6.7, the factor loadings of the items were 0.736 or higher, and the communalities ranged from 0.542 to 0.814. As a result, it was concluded that the 5-item scale measuring the perceived ease of use of a Web site was unidimensional.

Table 6.7 Results of Factor Analysis for the Perceived Ease of Use Scale

Item	Factor Loadings	Communalities
C1	.897	.804
C2	.808	.653
C3	.902	.814
C4	.736	.542
C5	.847	.717

(4) Attitude Toward the Web Site

The correlation matrix for the 7 scale items revealed some problems with this measure. As shown in Table 6.8, two of the correlations had coefficients of less than 0.3 (i.e., 0.262 and 0.148), and neither association was significant at the 0.05 level. At least one of the scale items seemed to be unacceptable. The KMO analysis (0.779, highly significant) and the Bartlett's test (chi-square = 131 with 21 degrees of freedom, highly significant) indicated that a factor analysis would be appropriate (see Table A5.1). An initial Principal Component Analysis of all scale items identified two components with eigenvalues of 3.956 and 1.174, a result which was confirmed by the scree plot (Figure A5.5). As can be seen from Table 6.9, communalities of all items were higher than the

cut-off level of 0.3. However, while the other items seemed sound, the factor loading of D7 (0.582) was very low. Thus, this analysis suggested that the scale was not unidimensional, and that the item D7 ("Overall, this is a user-friendly Web site") was problematic. That item was removed from the scale, and the analysis was repeated.

Table 6.8 Correlation Matrix for the Initial Attitude Toward the Web Site Scale Items[a]

		D1	D2	D3	D4	D5	D6	D7
Correlation	D1	1.000	.781	.406	.486	.358	.554	.262
	D2	.781	1.000	.412	.427	.407	.549	.148
	D3	.406	.412	1.000	.702	.708	.572	.483
	D4	.486	.427	.702	1.000	.498	.533	.324
	D5	.358	.407	.708	.498	1.000	.645	.582
	D6	.554	.549	.572	.533	.645	1.000	.380
	D7	.262	.148	.483	.324	.582	.380	1.000
Sig. (1-tailed)	D1		.000	.006	.001	.015	.000	.059
	D2	.000		.006	.004	.006	.000	.192
	D3	.006	.006		.000	.000	.000	.001
	D4	.001	.004	.000		.001	.000	.025
	D5	.015	.006	.000	.001		.000	.000
	D6	.000	.000	.000	.000	.000		.010
	D7	.059	.192	.001	.025	.000	.010	

[a]. Determinant = 1.865E-02

Table 6.9 Results of Factor Analysis for the Initial Attitude Toward the Web Site Scale

Item	Factor Loadings	Communalities
D1	.729	.827
D2	.709	.855
D3	.826	.757
D4	.765	.586
D5	.805	.777
D6	.817	.670
D7	.582	.657

After reducing the scale to six items, the correlation matrix showed that the correlation coefficients were all over 0.3 (i.e., they ranged from 0.358 to 0.781), and all associations were significant at the 0.05 level or higher (see Table A5.5). The Principal Component Analysis generated a single factor with an eigenvalue of 3.708, a result which was confirmed by the scree plot (Figure A5.6). Moreover, the KMO analysis (0.779, highly significant) and the Bartlett's test (chi-square = 115 with 15 degrees of freedom, highly significant) indicated that a factor analysis would be appropriate. As can be seen from Table 6.10, the factor loadings of the items were now all high (i.e., they ranged from 0.755 to 0.824) and the communalities were all well above 0.4 (i.e., they ranged from 0.569 to 0.679). It was therefore concluded that the revised 6-item scale measuring user attitudes toward the Web site was unidimensional.

Table 6.10 Results of Factor Analysis for the Revised Attitude Toward the Web Site Scale

Item	Factor Loadings	Communalities
D1	.757	.573
D2	.755	.569
D3	.813	.661
D4	.777	.604
D5	.772	.596
D6	.824	.679

(5) Web Literacy

The correlation matrix for the 4-item scale showed that the coefficients were all high (i.e., ranging from 0.625 to 0.809) and all associations were highly significant (Table A5.6). The KMO analysis (0.802, highly significant) and the Bartlett's test (chi-square = 107 with 6 degrees of freedom, highly significant) indicated that a factor analysis was

appropriate (Table A5.1). The Principal Component Analysis generated one factor with an eigenvalue of 3.708, a result confirmed by the scree plot (Figure A5.7). As shown in Table 6.11, factor loadings were all high (i.e., they ranged from 0.868 to 0.924), as were the communalities (i.e., ranging from 0.754 to 0.854). This analysis indicated that the 4-item scale measuring web literacy was unidimensional.

Table 6.11 Results of Factor Analysis for the Web Literacy Scale

Item	Factor Loadings	Communalities
F1	.868	.754
F2	.918	.843
F3	.887	.788
F4	.924	.854

6.2.3 Scale Construct Validity

To test for construct validity, the corrected item-total correlation was utilised. In other words, this study examined the correlations of each item's score with the total scale score in order to investigate whether the items measured the same construct. This method usually subtracts each item score from the total score to eliminate a spurious part-whole correlation (Doll and Torkzadeh, 1988; Xiao and Dasgupta, 2002). Each item's score is then compared with the corrected total score. Although there is no universally agreed cut-off point, the most widely adopted threshold is 0.05 (e.g., Bearden, Netemeyer, and Teel, 1989; Doll and Torkzadeh, 1988; Momani, Odedina, Rosenbluth, and Madhavan, 2000; Xiao and Dasgupta, 2002).

The corrected item-total correlations for each scale were above the cut-off point of 0.5 (i.e., they ranged from 0.556 to 0.858) and all were significant at the 0.01 level. This analysis also confirmed that it had been appropriate to delete one item from the social presence scale (that item's corrected correlation coefficient was only 0.397) and one item from the Web site attitude scale (its corrected correlation coefficient was 0.460). The findings support the results of the factor analysis described in the previous section and indicate that the scales do have construct validity. While further research and analysis is required to confirm this initial indication, the measures were considered acceptably reliable and valid for the purposes of the study.

Table 6.12 Item-Total Correlation

Construct	Item	Correlation Coefficient	*p*
Social Presence	A1	0.397	<.05
	A2	0.699	<.01
	A3	0.770	<.01
	A4	0.556	<.01
	A5	0.685	<.01
Perceived Usefulness	B1	0.629	<.01
	B2	0.811	<.01
	B3	0.793	<.01
	B4	0.786	<.01
	B5	0.771	<.01
Perceived Ease of Use	C1	0.821	<.01
	C2	0.695	<.01
	C3	0.829	<.01
	C4	0.615	<.01
	C5	0.754	<.01
Attitude Toward the Web Site	D1	0.624	<.01
	D2	0.608	<.01
	D3	0.728	<.01
	D4	0.659	<.01
	D5	0.708	<.01
	D6	0.724	<.01
	D7	0.460	<.01
Web Literacy	F1	0.769	<.01
	F2	0.849	<.01
	F3	0.796	<.01
	F4	0.858	<.01

6.2.4 Scale Reliability

After deleting two items from the original scales, Cronbach's alphas were calculated in order to assess the internal consistency of the resulting scales. Although some researchers suggest 0.7 as the accepted cut-off (Hair *et al*, 1995), a value more than 0.6 is regarded as a satisfactory level (Dinev and Hart, 2002; Hair, Bush, and Ortinau, 2000; Malhotra *et al*., 1996; Nunnally, 1978; Van de Ven and Ferry, 1980). As can be seen from Table 6.13, all of the scales had very high alpha scores, ranging from 0.8289 to 0.9206, and were well above the generally accepted lower limit of 0.7. From this finding we conclude that the scales have high levels of internal consistency and so may be considered to be suitably reliable.

Table 6.13 Cronbach's Alpha Scores for the Revised Measurement Scales

Measurement Scale	No. Items	Cronbach's alpha
Social Presence	4	.8289
Perceived Usefulness	5	.9097
Perceived Ease of Use	5	.8945
Attitude Towards Web Site	6	.8720
Web Literacy	4	.9206

6.2.5 The Final Instrument

On the basis of this pilot test analysis, it was decided to proceed with the experiment using the revised instrument to collect data (see Table 6.14).

Table 6.14 The Final Model Construct Measurement Scales

Construct	Statement
Social Presence	1. This web site gives a realistic impression of the company.
	2. When exploring this web site, it felt like I was in personal contact with people in the company.
	3. When exploring this web site, I felt good about the people in the company.
	4. Exploring this web site was like being in a face-to-face meeting with people in the company.
Perceived Usefulness	1. This web site would help me to search more quickly for information about personal computers to buy.
	2. This web site would improve my search for information when buying a personal computer.
	3. This web would make my search for information about personal computers more productive.
	4. This web would make my search for information about personal computers more effective.
	5. Overall, this web site would be useful for obtaining information about available products when buying a personal computer.
Perceived Ease of Use	1. Learning to use this web site was easy for me.
	2. I could easily get this web site to do what I wanted it to do.
	3. This web site was straightforward and easy to understand.
	4. It was easy for me to become skilled at using this web site.
	5. Overall, I found this web site to be easy to use.
Attitude Toward the Web Site	1. This is a good web site.
	2. I like this web site.
	3. This is an attractive web site.
	4. This is an enjoyable web site.
	5. The web site is pleasant to use.
	6. Overall, this Web site is recommendable to my friends.
Web Literacy	1. How frequently do you access the web (e.g., to search for information)?
	2. How familiar are you with the web?
	3. How would you rate your level of usage of the web?
	4. How confident are you with your ability to navigate the web?

6.3 Results of the Experiment

6.3.1 Descriptive Statistics

The descriptive statistics for the experiment are displayed in Table 6.15. The experiment sample (n = 160) was made up of 65% males and 35% females. While most were full-time (93%), there were 56% postgraduate and 44 % undergraduate students. The age of subjects ranged from 17 to 45 years, while around 40% were aged between 21 and 25 years. As would be expected of members of this population, most had a high level of web literacy (i.e., the mean summated score on the scale, which had a maximum value of 28, was 21). As shown in the table, a comparison of the demographic characteristics of the experiment sample and the study population indicates that the sample had significantly more male, full-time, and undergraduate students. The results of chi-square goodness-of-fit tests showed that there were statistically significant differences in distribution of subjects in each category (i.e., gender, mode of study, year level, and age) between the sample and population. Therefore, some caution is needed in generalizing the results of the study to the population.

Table 6.15 Distribution of Experiment Respondents

Parameter	Sample[a] (%)	Population[b] (%)	Chi-square test	
			χ^2	*P*
Gender[c]			16.988	.000
Male	65.0	51.2		
Female	34.4	48.8		
Mode of study			163.259	.000
Full-time	93.1	56.7		
Part-time	6.3	43.3		
Year level[c]			15.346	.000
Undergraduate Year 1 and 2 Year 3 and over	44.0 (24.5) (19.5)	70.5		
Postgraduate	55.6	29.5		
Age[d]			77.151	.000
Less than 20	16.9	19.5		
21-25	40.6	44.4		
26-30	25.0	15.9		
More than 31	16.3	20.2		
Web experience			NA	NA
4 (extremely low)	0.6	NA[e]		
5-8	1.3	NA		
9-12	7.5	NA		
13-16 (moderate)	8.8	NA		
17-20	28.1	NA		
21-24	33.1	NA		
25-28 (extremely high)	20.6	NA		

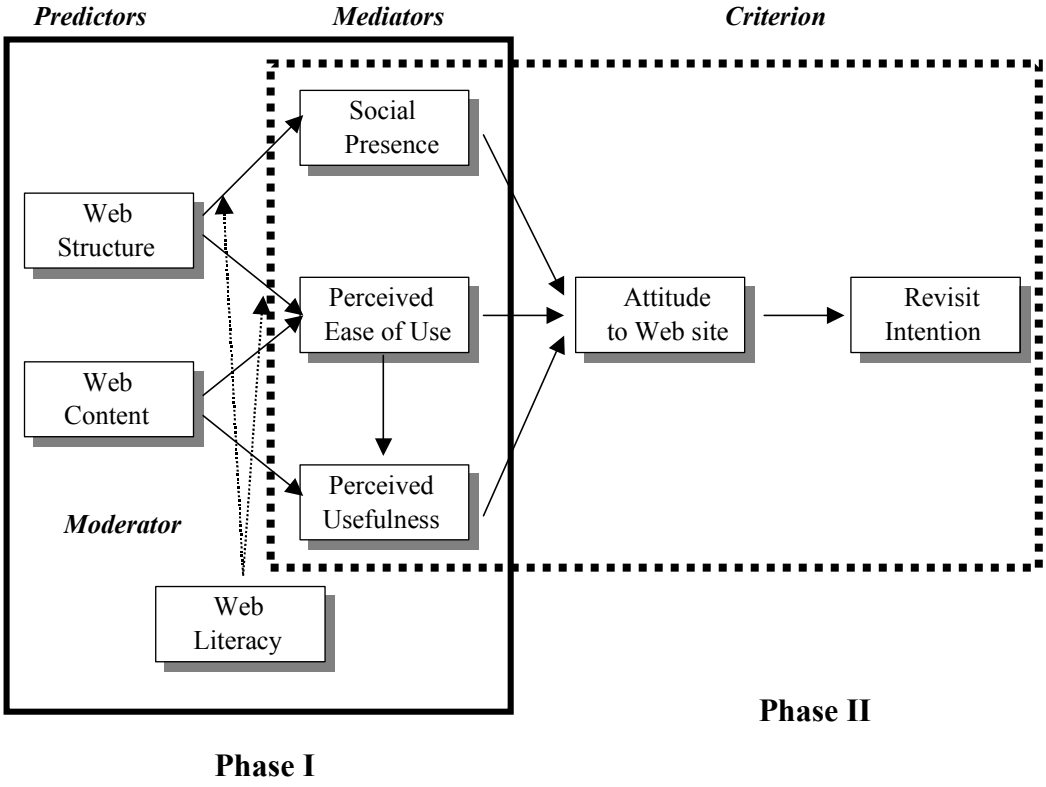
Notes:
[a]. Total 160, percentages based on the total [b]. Total 19,267, percentages based on the total
[c]. Total 99.4%: 1 missing [d]. Total 98.9%: 2 missing [e]. NA = Not Applicable

6.2.3 Approach to the Analysis

As discussed in the previous chapter, this study involved two different statistical approaches. To test hypotheses associated with the relation ships between predictors, mediators, and moderators, a series of variance approaches (i.e., MANCOVA, ANCOVA, and ANOVA) were conducted. Whereas, a series of linear regression analysis were carried out to assess hypotheses associated with the relationships between

mediator and criterion variables. Accordingly, The analysis was conducted in two phases as shown in Figure 6.1.

Figure 6.1 Two Phases of Analysis



In the first phase, the effects of Web site typology on the social interaction variables were tested (i.e., *H_1: The "hypermedia" type of Web site will have higher social presence than the "static image" type. H_2: The "static image" type of Web site will have higher perceived ease of use than the "hypermedia" type. H_3: The "integrated communication" type of Web site will have higher social presence than the "basic information" type. H_4: The "basic information" type of Web site will have higher perceived ease of use than the "integrated communication" type. H_5: The "integrated communication" type of Web site will have higher perceived usefulness than the "basic information" type*.). Based on a 2x2 factorial design with Web literacy as a covariate,

Multivariate Analysis of Covariance Analysis (MANCOVA) was performed. A MANCOVA was utilised to eliminate any bias in the analysis by statistically controlling the influence of an extraneous variable (i.e., the covariate Web literacy) on the dependent variables (Coakes and Steed, 1999). Subsequently, for understanding the effects of Web site typology on individual variables, a separate univariate 2x2 ANCOVA was performed.

Additionally, to test the moderator effects of Web literacy on the relationships between Web site typology and social interaction measures (i.e., *H_{11a}: People with high Web literacy will feel the "hypermedia" type of Web site to be higher in social presence than the "static image" type*. *H_{11b}: People with low Web literacy will feel the "static image" type of Web site to be higher in social presence than the "hypermedia" type*. *H_{12a}: People with high Web literacy will perceive no difference in ease of use between the "hypermedia" type and the "static image" type of Web site*. *H_{12b}: People with low Web literacy will perceive the "static image" type of Web site to be easier to use than the "hypermedia" type*.), Baron and Kenny's (1986) approach was adopted. They argued that when the independent variable is a categorical variable and the moderator is a continuous metric variable, it is impossible to measure moderator effects precisely because the moderator has many levels. Hence, they suggested that before measuring moderator effects, the researcher should find the level "in which the moderator changes the effect of the independent variable on the dependent variable" (Baron and Kenny, 1986, p. 1175).

As the independent variables were categorical and the moderator variable was a continuous variable, the effect of Web literacy on the social interaction measures (i.e.,

social presence, perceived usefulness, and perceived ease of use) were examined. A close investigation of the shapes of the relationships indicated that transformation of moderator variable from continuous to dichotomous (i.e., high vs. low) was necessary. Finally, a 2x2 ANOVA (Univariate Analysis of Variance) test was conducted to investigate the moderator effects of the two levels on social presence.

In the second phase, as all variable were continuous, a series of linear regression analyses were performed. In particular, multiple regression was used to examine the hypotheses in relation to the relationships between social interaction and communication effect measures (i.e., *H_6: The more positive the social presence of a Web site is, the more positive the attitude toward the Web site will be*. *H_7: The more positive the perceived ease of use of a Web site is, the more positive the attitude toward the Web site will be*. *H_8: The more positive the perceived usefulness of a Web site is, the more positive the attitude toward the Web site will be*. *H_9: The more positive the perceived ease of use of a Web site is, the greater the perceived usefulness will be*.). A simple regression analysis was employed to test the hypothesis regarding attitude toward the Web site and revisit intention (i.e., *H_{10}: The more positive attitude toward the Web site is, the higher revisit intention will be*.).

6.3.3 Data Screening and Assumption Testing

As MANCOVA, ANOVA, and linear regression are parametric analyses involving multivariate data, a data set should be explored to see if it meets the assumptions of the statistical methods applied to this study (i.e., MANCOVA, ANCOVA, ANOVA, and Linear Regression). The test statistics are reported in Appendix 6.

(1) Homogeneity of Variance

One assumption was the homogeneity of variance and covariance matrices of the dependent measures for each group. For social interaction measures, Levene's test and Box's M test assessed the homogeneity of variance of each dependent measure, which are typically used methods in MANCOVA (e.g., Hair *et al*., 1995). If Levene's test is significant, then the assumption of homogeneity of variance is violated. In this case, the null hypothesis is that the error variance of the dependent variable is equal across groups is rejected. However, as can be seen from Table 6.16, Levene's test was not significant for any of the dependent measures. Hence, it could be concluded that the homogeneity of variances assumption had not been violated.

Table 6.16 Levene's Test for Social Interaction Measures

Dependent Variable	***F***	***Sig.***
Social Presence	.728	.537
Perceived Usefulness	2.200	.090
Perceived Ease of Use	.168	.918

Box's M test examined whether intercorrelations (covariances) of multiple dependent variables are homogeneous or not. If Box's M test is significant, then homogeneity of variance is violated, thus the null hypothesis (i.e., The observed covariance matrices of the dependent variables are equal across groups.) is rejected. In this study, Box's M statistic (M = 14.661, F = 0.786) was not significant (p = .719), providing assurance that the assumption of equality of covariance matrices has not been violated. That is, social presence, perceived usefulness, and perceived ease of use were actually the same in their covariance matrix.

For the regression analyses, the scatterplots of ZRESID against ZPRED were used to detect whether the assumptions of homoscedasticity were satisfied. Figures A6.1 to A6.8 in Appendix 6 show the scatterplots of regression standardised residuals between Web literacy, social interaction (i.e., social presence, perceived usefulness, and perceived ease of use), and communication effect (i.e., attitude toward the Web site and revisit intention) measures. As can be seen from the figures, the points were randomly and evenly dispersed. Accordingly, it was concluded that variables did not violate the assumption of homoscedasticity.

(2) Normality

In MANCOVA, normality means multivariate normality, which assumes that "the joint effect of two variables is normally distributed" (Hair *et al*., 1995, p. 276). As there is no direct test for assessing multivariate normality (Hair *et al*., 1995), histograms of and normal probability plots of regression standardised residuals were examined. There were three possible combinations of the dependent variables: social presence and perceived ease of use, social presence and perceived usefulness, and perceived usefulness and perceived ease of use. As shown in Figures A6.9 to A6.14 in Appendix 6, histograms of standardised residuals provided clearer pictures of the shape of the distribution. The bell-shaped histograms approximated the normal distribution, i.e., they were approximately symmetrical and not too kurtotic. Moreover, points clustered around a straight line in each probability plot, supporting the normality assumption.

Figures A6.15 to A6.24 in Appendix 6 show the histograms of and normal probability plots of regression standardised residuals for variables (i.e., Web literacy, social presence, perceived usefulness, perceived ease of use, attitude toward the Web site, and

revisit intention) used in the linear regression analyses. As shown in the figures, all the histograms were bell-shaped and approximately symmetrical, and all points in the normal P-P plots were on straight line. These results confirmed a normal distribution of errors in testing the model.

(3) Linearity

Linearity between each pair of dependent variables was examined via scatterplots of three combinations: perceived usefulness vs. social presence, perceived ease of use vs. social presence, and perceived usefulness vs. perceived ease of use. If the residuals are randomly and evenly dispersed throughout the scatterplot, assumptions of linearity are met (Hair *et al*., 1995). It was obvious from the scatterplots (see Figures A6.25 to A6.27) that the dependent variables did not violate the assumption of linearity.

Figures A6.1 to A6.8 and A6.28 to A6.30 in Appendix 6 show the scatterplots of each pair of the variables (i.e., Web literacy, social presence, perceived usefulness, perceived ease of use, attitude toward the Web site, and revisit intention) used in the linear regression analyses. As shown in the figures, the points were randomly and evenly dispersed throughout the scatterplots, and any non-linear pattern (e.g., a curvilinear pattern or a funnel shape) was not found. It was obvious that variables did not violate the assumption of linearity.

(4) Multicollinearity

As a MANCOVA involved three dependent variables (i.e., social presence, perceived usefulness, and perceived ease of use), multicollinearity was tested, which refers to a correlation among three or more dependent variables. The most popular way of investigating collinearity is to examine the correlation matrix (Hair *et al*., 1995). Accordingly, collinearity was tested by the correlation matrix for the three dependent variables. While a general cut-off value is .90 and above (Hair *et al*., 1995), a more conservative level is .80 (Licht, 1997). Table 6.17 shows Pearson's partial correlation coefficients (*r*) between each pair of the dependent variables. The highest correlation was found between social presence and perceived usefulness (r = .658), indicating a lack of high correlations between two dependent variables.

Table 6.17 Correlation Matrix for Social Interaction Measures

	Social Presence	Perceived Usefulness	Perceived Ease of Use
Social Presence	1.000		
Perceived Usefulness	.658**	1.000	
Perceived Ease of Use	-.130	-.171*	1.000

** $p < .001$, * $p < .05$, two-tailed, n = 160

The correlation matrix examines only simple correlations between two variables. Thus, it is necessary to investigate multiple correlations among three variables, which reflect interaction effects as well as simple correlations. Two of the most widely used measures for assessing multicollinearity are the 'Tolerance' and the 'Variance Inflation Factor' (VIF). Those statistics were obtained through regression analyses by making each social

interaction variable a dependent variable and other two remaining variables independent variables (Kolacz, 2002). A low tolerance value means a high degree of multicollinearity among the corresponding variables. On the contrary, the VIF is the inverse (reciprocal) of the tolerance, so large VIF values indicate a high degree of multicollinearity. A rule of thumb is that a tolerance value less than .10 or a VIF value more than 10.0 is regarded as evidence of statistically significant multicollinearity (Hair *et al*., 1995; Kolacz, 2002). Table 6.18 shows tolerance values were not less than the cut-off level, .10 and the VIF values did not exceed 10.0. The results confirmed that multicollinearity among the variables was not a problem.

Table 6.18 Collinearity Statistics

Dependent Variable	Collinearity Statistics	
	Tolerance	VIF*
Social Presence	.971	1.030
Perceived Usefulness	.983	1.017
Perceived Ease of Use	.567	1.765

*VIF: Variance Inflation Factor

(5) Outliers and Independence of Residuals

Outliers can produce either Type I or Type II errors in hypothesis testing. An analysis of the standardised residuals was performed to identify possible outliers. The results of Casewise diagnostics and Influential observations for all the variables are displayed in Table A6.1 in Appendix 5. As a rule of thumb, 95% of standardised residuals should lie within ±2. As shown in Table A6.1 (A, B, and C), the analysis of standardised residuals among independent variables and social presence revealed that two cases (1.3% of the total sample) were outside of ±2. Similarly, perceived value showed five cases (3.1%)

and perceived ease of use had six cases (3.8%) were outside of ±2. These results suggested that the proportion of outliers in the sample was small, indicating that all cases could be included in the analysis.

Next, an outlier analysis was performed to identify influential observations for predictor (i.e., Web site structure and content), moderator (i.e., Web literacy), and mediator (i.e., social presence, perceived usefulness, and perceived ease of use) variables. Table A6.1 (D, E, and F) shows the results of Casewise diagnostics and Influential observations. The analysis of standardised residuals found that six cases (3.8% of the total sample) were outside of ±2. Similarly, perceived value showed five cases (3.1%) and perceived ease of use had seven cases (4.4%). In addition, Cook's D was utilised for examining the influence of the outliers. As shown in Table A6.1 (D, E, and F), all cases had a Cook's distance statistic smaller than 1. Hence, it could be concluded that the cases had no influence on the overall results.

In addition, the outlier analysis was performed for mediator variables (i.e., social presence, perceived usefulness, and perceived ease of use) and attitude toward the Web site. The analysis of standardised residuals among independent variables and the dependent variable revealed that only seven cases (4.4% of the total sample) were outside of ±2 (see Table A6.1, G). Furthermore, all seven cases had a Cook's distance statistic smaller than 1, indicating no influence of outliers on the overall results.

Further, Cook's distance was utilised for detecting the influence of the multivariate outliers. Cook's distance is regarded as the most representative diagnostic for the overall quality of the analysis regarding the model fit to the data. The general cutoff

value Cook's distance is below 1 (Field, 2000; Hair *et al*., 1995; Kolacz, 2002). As shown in Table A6.1, all the cases that had standardised residuals outside of ±2 had a Cook's distance statistic smaller than 1.0.

Independence of residuals for variables used in the linear regression analyses was examined via the Durbin-Watson coefficient. The Durbin-Watson D statistic close to 2 indicates that the residuals are uncorrelated (Field, 2000). The Durbin-Watson statistics for social presence, perceived usefulness, and perceived ease of use were 1.969, 1.801, and 1.702 at $p < .001$, respectively, that for social interaction measures and attitude toward the Web site was 1.882, and that for attitude toward the Web site and revisit intension was 1.768 at a significant level. Hence, it was concluded that the assumption of independence of residuals was satisfied.

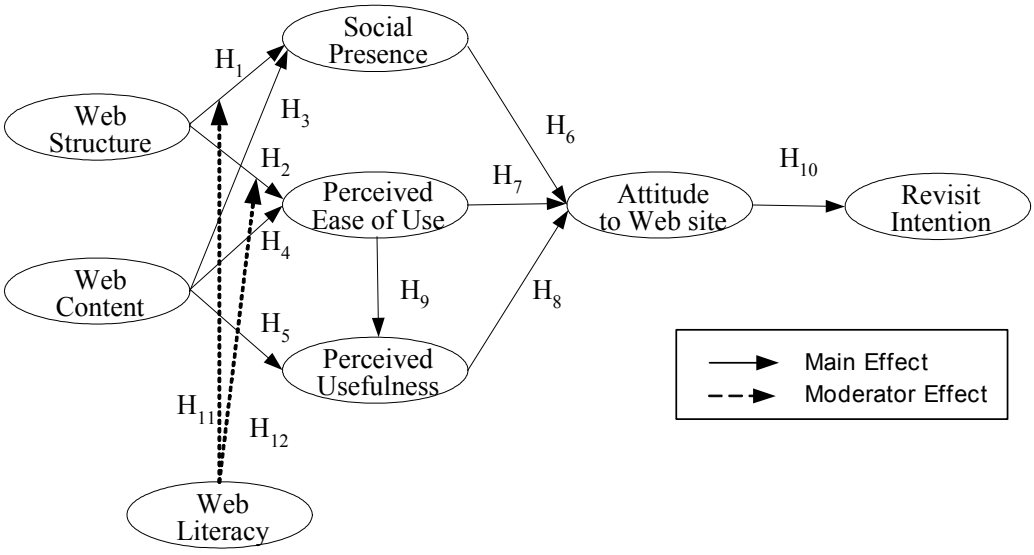
(6) Conclusions

The results of the assumption tests identified that there was no violation of assumptions, so there was no need for any data transformation. As data was suitable for the analyses, all the cases were included.

6.3.4 Hypothesis Testing

In Chapter 4, fourteen hypotheses were proposed. The results of the hypothesis tests are reported in three parts. First, this study investigated whether Web site typology has an effect on social interaction and so tests the associated hypotheses (i.e., H_1 to H_5) using MANCOVA. Next, the moderator effect of Web literacy and associated hypotheses (i.e., H_{11} and H_{12}) were tested by multiple regression. Additionally, to examine the moderator effect more precisely, a two-way ANOVA was performed. Finally, the results of the main effects between social interaction and communication effect measures and associated hypotheses (i.e., H_6 to H_{10}) were examined through multiple regression and simple regression.

Figure 6.2 Research Model and Hypotheses



(1) Web Site Typology and Social Interaction

The results of the multivariate tests confirmed that there were significant main effects and multivariate effects across Web site content and structure. Unexpectedly, the multivariate effect of interaction between content and structure was statistically significant (Wilks' lambda= .931, F = 3.792, $p < .05$), which implied that the relationship between one of the independent variables and the dependent variable was influenced by the other independent variable (Hair *et al*., 1995; Jaccard and Becker, 1990). Because there was an interaction effect on perceived ease of use, a separate univariate two-way ANCOVA was conducted. For social presence and perceived usefulness, as no interaction effect was identified, a MANCOVA was performed. In each MANCOVA and ANCOVA the independent variables were structure (hypermedia vs. static image), content (integrated communication vs. basic information), and Web literacy (as a covariate). The subsequent results are summarised Table 6.19 and 6.20 respectively.

Table 6.19 MANCOVA Summaries: Effects of Web Site Structure and Content on Social Presence and Perceived Usefulness

Source	Dependent Variable	F-value	df	Sig.
Main effects				
Structure	Social presence	21.725	1	.000**
Content	Social presence	22.980	1	.000**
	Perceived usefulness	133.571	1	.000**
Interactions				
Structure x Content				
	Social presence	1.643	1	.202
	Perceived usefulness	.879	1	.350
Residual			155	

** p < .001

Table 6.20 ANCOVA Summaries: Effects of Web Site Structure and Content on Perceived Ease of Use

Source	Dependent Variable	F-value	df	Sig.
Main effects				
Structure	Perceived ease of use	41.386	1	.000**
Content	Perceived ease of use	11.462	1	.001**
Interactions				
Structure x Content	Perceived ease of use	7.366	1	.007*
Residual			155	

* p < .01, ** p < .001

The first set of hypotheses addressed the effect of Web site structure (hypermedia vs. static image) on social presence. These hypotheses were:

$H1_0$: The "hypermedia" type of Web site will have the same level of social presence as "static image" type.

$H1_1$: The "hypermedia" type of Web site will have higher social presence than the "static image" type.

As shown in Table 6.21, the results of the MANCOVA showed that there was a main effect of Web site structure on social presence at a highly significant level [F (1, 155) = 21.725, $p < .001$]. The interaction effect was not significant [F (1,155) = 1.643, $p > .202$]. As the p-value was small, the null hypothesis ($H1_0$) was rejected and the result was considered to be "statistically significant".

To test the research hypothesis more precisely, the means of structure types were examined. An analysis of the individual means in Table 6.17 provides evidence in favour of the alternative hypothesis ($H1_1$). In detail, the mean of social presence for the hypermedia type (M = 18.36, SD = 4.493) was higher than the static image type (M = 15.10, SD = 4.577). Based on this finding, it could be concluded that the hypermedia type had higher social presence than the static image type.

Table 6.21 Means and Standard Deviations for Effects of Structure on Social Presence, Perceived Usefulness, and Perceived Ease of Use

	Static Image (n = 80)		**Hypermedia** (n = 80)	
Dependent Variable (Range)	Mean	SD	Mean	SD
Social Presence (4-28)	15.10	4.577	18.36	4.493
Perceived Usefulness (5-35)	19.56	6.185	23.39	6.490
Perceived Ease of Use (5-35)	27.74	4.161	23.81	4.213

The second set of hypotheses addressed the effect of Web site structure (hypermedia vs. static image) on perceived ease of use. These hypotheses were:

$H2_0$: The "static image" type of Web site will have the same level of perceived ease of use as the "hypermedia" type.

$H2_1$: The "static image" type of Web site will have higher perceived ease of use than the "hypermedia" type.

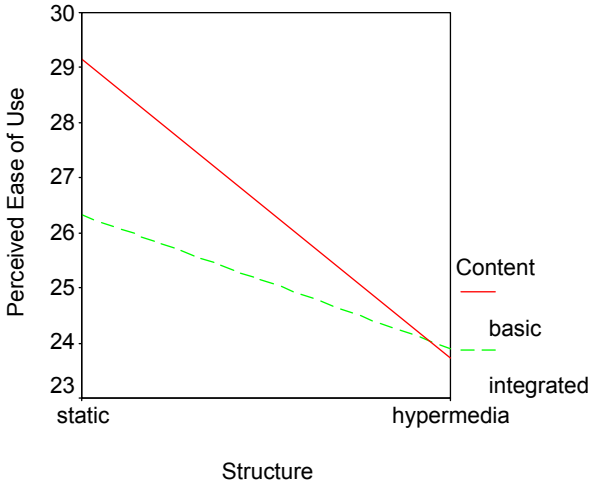
As can be seen from Table 6.20, the significant main effect for Web site structure on perceived ease of use was identified [F (1,155) = 41.386, $p < .001$]. Hence, the null hypothesis ($H2_0$) was rejected. However, as there was an interaction effect between structure and content [F (1,155) = 7,366, p < .01], further investigation of the data was essential.

Table 6.22 and Figure 6.3 depict the mean value of the two structure types (i.e., static image vs. hypermedia). These findings indicated that although there was an interaction effect, the static image type was higher than the hypermedia type across different content types: basic (M_{Static} = 29.15, SD_{Static} = 3.563 and $M_{Hypermedia}$ = 23.73, $SD_{Hypermedia}$ = 4.162) and integration (M_{Static} = 26.33, SD_{Static} = 4.275 and $M_{Hypermedia}$ = 23.90, $SD_{Hypermedia}$ = 4.349). The null hypothesis ($H2_0$) was rejected and it was concluded that the static image type had a significantly higher perceived ease of use than the hypermedia type.

Table 6.22 Means and Standard Deviations for Interaction Effects of Structure on Social Presence

	Basic				**Integrated**			
Dependent Variable (Range)	**Static** (n = 40)		**Hypermedia** (n = 40)		**Static** (n = 40)		**Hypermedia** (n = 40)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Perceived Ease of Use (5-35)	29.15	3.563	23.73	4.162	26.33	4.275	23.90	4.349

Figure 6.3 Line Graph of Interaction Effect: Structure vs. Perceived Ease of Use



The third set of hypotheses addressed the effect of Web site content (integrated communication vs. basic information) on social presence as following:

$H3_0$: The "integrated communication" type of Web site will have the same level of social presence as the "basic information" type.

$H3_1$: The "integrated communication" type of Web site will have higher social presence than the "basic information" type.

The results of the MANCOVA analysis (Table 6. 19) showed a significant difference of the treatment effects between two content types [F (1, 155) = 22.980, $p < .001$], thus the null hypothesis ($H3_0$) was rejected. As the interaction effect was not significant [F (1, 155) = 1.643, $p > .202$], individual mean scores were examined. As Table 6.23 indicates, the mean of social presence for the integrated communication type (M = 18.25, SD = 4.711) was higher than for the basic information type (M = 15.21, SD =

4.434). From this result, it could be concluded that the integrated communication type had a significantly higher social presence than the basic information type.

Table 6.23 Means and Deviations for Effects of Content on Social Presence, Perceived Usefulness, and Perceived Ease of Use

	Basic (n = 80)		**Integrated** (n = 80)	
Dependent Variable (Range)	Mean	SD	Mean	SD
Social Presence (4-28)	15.21	4.434	18.25	4.711
Perceived Usefulness (5-35)	17.24	5.095	25.71	5.045
Perceived Ease of Use (5-35)	26.44	4.703	25.11	4.455

The fourth set of hypotheses addressed the effect of Web site content (integrated communication vs. basic information) on perceived ease of use. The research hypotheses were:

$H4_0$: The "basic information" type of Web site will have the same level of perceived ease of use as the "integrated communication" type.

$H4_1$: The "basic information" type of Web site will have higher perceived ease of use than the "integrated communication" type.

As shown in Table 6.20, content had a significant main effect on perceived ease of use [F (1, 155) = 11.462, $p < .001$]. Therefore, the null hypothesis ($H4_0$) was rejected. As the interaction effect was significant [F (1, 155) = 7.366, $p < .01$], the individual mean scores for the main effect and the interaction effect were examined. First of all, as can

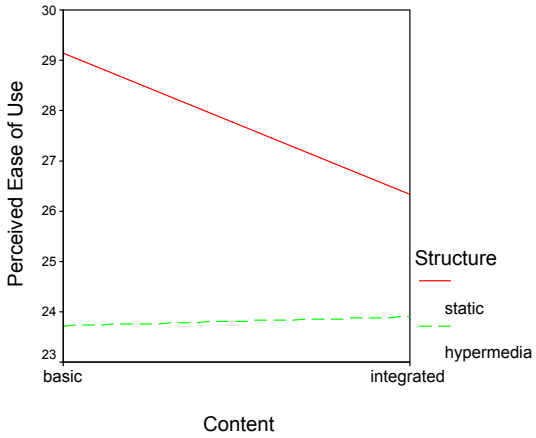
be seen from Table 6.19, the overall mean score for the basic information type (M = 26.44, SD = 4.703) was higher than the basic information type (M = 25.11, SD = 4.455).

Secondly, mean scores for the interaction effect were investigated as shown in Table 6.24 and Figure 6.4. The results demonstrated that the structure had an effect on the relationship between content and perceived ease of use. More specifically, the basic information type was higher than the integrated communication type only when structure was the static image type (M_{Basic} = 29.15, SD_{Basic} = 3.563 and $M_{Integrated}$ = 26.33, $SD_{Integrated}$ = 4.275). On the other hand, in the case of hypermedia type, the integrated communication type was higher than the basic information type (M_{Basic} = 23.73, SD_{Basic} = 4.126 and $M_{Integrated}$ = 23.90, $SD_{Integrated}$ = 4.349). The research hypothesis ($H4_1$) was acceptable only if the structure type was static image. Thus, the fourth research hypothesis ($H4_1$) was partially supported.

Table 6.24 Means and Standard Deviations for Interaction Effects of Content on Perceived Ease of Use

	Static				**Hypermedia**			
Dependent Variable (Range)	**Basic** (n = 40)		**Integrated** (n = 40)		**Basic** (n = 40)		**Integrated** (n = 40)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Perceived Ease of Use (5-35)	29.15	3.563	26.33	4.275	23.73	4.126	23.90	4.349

Figure 6.4 Line Graph of Interaction Effect:
Content vs. Perceived Ease of Use



The fifth set of hypotheses addressed the effect of Web site content (integrated communication vs. basic information) on perceived usefulness. These hypotheses were:

$H5_0$: The "integrated communication" type of Web site will have the same level of perceived usefulness than the "basic information" type.

$H5_1$: The "integrated communication" type of Web site will have higher perceived usefulness than the "basic information" type.

A MANCOVA analysis (Table 6. 19) showed a significant difference of the main effect between two content types [F (1, 155) = 133.571, $p < .001$], thus the null hypothesis ($H5_0$) was rejected. As the interaction effect was not significant [F (1, 155) = .879, $p > .350$], individual mean scores were examined. As Table 6.23 indicates, the mean of perceived usefulness for the integrated communication type (M = 25.71, SD = 5.045) was higher than the basic information type (M = 17.24, SD = 5.095). From this result, it

could be concluded that the "integrated communication" type will have a significantly higher perceived usefulness than the "basic information" type.

It is worth noting that the results of the MANCOVA (see Table 6.19) revealed that Web site structure had a significant main effect on perceived usefulness [F (1, 155) = 133.571, $p < .001$]. On the other hand, the interaction effect was not significant [F (1, 155) = .879, $p = .350$]. As can be seen from Table 6.21, an examination of the mean scores indicated that the mean of perceived usefulness for the hypermedia type was higher than the static image type ($M_{Hypermedia} = 23.39$, $SD_{Hypermedia} = 6.490$ and $M_{Static} = 19.56$, $SD_{Static} = 6.185$). Accordingly, it was concluded that the "hypermedia" type had a significantly higher perceived usefulness than the "static image" type.

(2) Moderator Effects of Web Literacy

The last two hypotheses were associated with the effects of Web site typology on the relationships between the Web site typology measures (i.e., structure and content) and social interaction measures (i.e., social presence, perceived usefulness, and perceived ease of use). A multiple regression analysis with three compound variables tested these hypotheses (e.g., Hair *et al*., 1995). The three compound variables were generated by multiplying structure by Web literacy, content by Web literacy, and multiplying all predictors (i.e., content, structure, and Web literacy). Using a two-step hierarchical linear regression analysis, the three predictor variables were entered into the regression equation first, and then a compound variable was added hierarchically.

The result of the analysis is presented in Table 6.25. As discussed above, this result also confirmed that structure and content have an effect on social presence, perceived usefulness, and perceived ease of use. On the other hand, while Web literacy also had a significant effect on social presence and perceived ease of use, it does not affect perceived usefulness. To compare the strength (or importance) of each predictor variable in the model, the absolute values of a standard coefficient (beta) were taken (e.g., Field, 2000). Structure was the best predictor of social presence ($\beta = .336$, $p < .001$) and perceived usefulness ($\beta = .655$, $p < .001$). It is worth noting that structure and content ($\beta = .336$, $p < .001$) had a comparable degree of importance for social presence. Web literacy, however, was the most important predictor of perceived ease of use ($\beta = .483$, $p < .001$). In addition, although the beta level is somewhat low ($\beta = -.160$, $p < .05$), there was a negative relationship between Web literacy and social presence.

Table 6.25 Results of Multiple Regression Analysis for Web Literacy

Criterion Variable	Predictor Variable	Unstandardised Coefficient		Standardised Coefficient (Beta)	t
		B	Std. Error		
Social Presence	Structure	3.222	.673	.336	4.785***
	Content	3.122	.671	.326	4.651***
	Web literacy	-.590	.260	-.160	-2.270*
Perceived Usefulness	Structure	8.621	.746	.655	11.562***
	Content	3.714	.743	.282	4.997***
	Web literacy	-.466	.288	-.092	-1.619
Perceived Ease of Use	Structure	-1.859	.560	-.202	-3.320**
	Content	-3.519	.558	-.383	-6.305***
	Web literacy	1.709	.216	.483	7.902***

* $p < .05$, ** $p <. 01$, *** $p <. 001$

Table 6.26 presents the results of the moderator (interaction) effect analysis. Model 1 shows the results of the linear regression analysis of three predictor variables without a compound variable. Model 2 shows the results of the analysis including a compound variable. When the incremental effect of R Square is statistically significant, a significant moderator effect is present (Hair *et al*., 1995).

Table 6.26 Moderator Effects of Web Literacy

Criterion Variable	Compound Variable	Model	R^2	R^2 change	*F* change	Sig. *F* change
Social Presence	Web literacy x Content	1	.241	.241	16.539	.000**
		2	.241	.000	.019	.889
	Web literacy x Structure	1	.241	.241	16.539	.000**
		2	.266	.024	5.146	.025*
Perceived Usefulness	Web literacy x Content	1	.507	.507	53.482	.000**
		2	.266	.024	.868	.353
	Web literacy x Structure	1	.507	.507	53.482	.001*
		2	.517	.010	3.046	.083
Perceived Ease of Use	Web literacy x Content	1	.431	.431	39.332	.000**
		2	.432	.001	.353	.553
	Web literacy x Structure	1	.431	.431	39.332	.000**
		2	.444	.013	3.748	.055

* $p < .01$ ** $p < .001$

The eleventh set of hypotheses addressed the moderating role of Web literacy on the relationship between Web site structure and social presence. The hypotheses were:

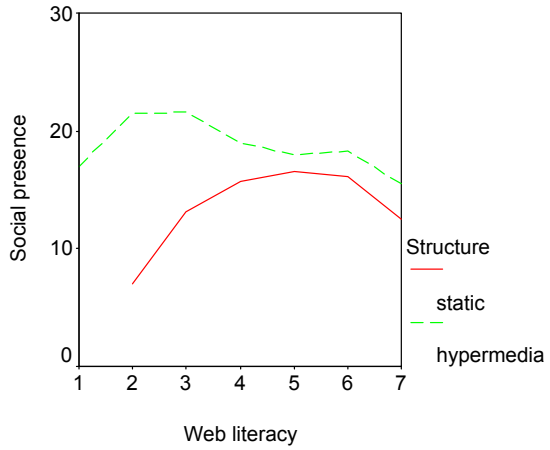
$H11_0$: People will feel no difference in social presence between the "hypermedia" type and the "static image" type of Web site regardless of their Web literacy.

$H11_{1a}$: People with high Web literacy will feel the "hypermedia" type of Web site to be higher in social presence than the "static image" type.

$H11_{1b}$: People with low Web literacy will feel the "static image" type of Web site to be higher in social presence than the "hypermedia" type.

As shown in Table 6.25, there was a positive relationship between structure and social presence (B = .336, t = 4.785, p < .001). Furthermore, the moderator effect of Web literacy on the relationship between structure and social presence was found to be statistically significant (Table 6.26). Therefore, the null hypothesis ($H11_0$) was rejected. In other words, a subjects' response to the different types of structure in terms of social presence varied according to their Web literacy. As the moderator variable had seven levels, this study utilised a line graph to examine how the effects of structure varied as a function of Web literacy. Figure 6.5 shows a plot of the effect of Web literacy on social presence. At level 4, the scores of social presence seemed to be changed.

Figure 6.5 Line graph of Interaction Effect: Web Literacy x Content



This pattern was further tested by dichotomising the Web literacy at level 4, where the change seemed to have occurred (e.g., Baron and Kenny, 1986). The low level included cases with a value of less than 4, and the high level had the cases with more than 5. The analysis was a 2x2 ANOVA, in which Web literacy and structure were the predictor variables and social presence was the criterion variable. In this, a moderator effect would be indicated by an interaction effect. As shown in Table 6.27, the results of the ANOVA analysis identified the moderating role of Web literacy on the relationship between structure and social presence. Hence, mean scores for the interaction effect were investigated through Table 6.28 and Figure 6.6. The analysis showed very interesting results. That is, subjects with low Web literacy responded to the difference between hypermedia and static image types more strongly than subjects with high Web literacy did. However, it seemed that although Web literacy had a moderating effect on the relationship between structure and social presence, it was not strong enough to change the direction of the relationship. The results demonstrated that subjects felt the "hypermedia" type was higher in social presence than the "static image" type regardless of their Web literacy levels. Therefore, while $H11_{1a}$ was accepted, $H11_{1b}$ was rejected.

Table 6.27 Interaction Effect of Web Literacy (High vs. Low)

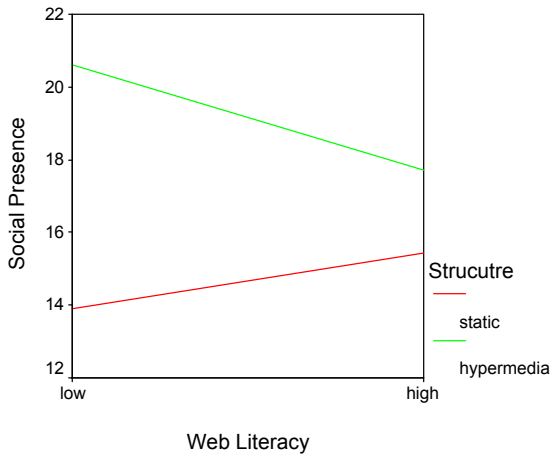
Source	Dependent variable	F-value	df	Sig.
Interactions				
Structure x Web literacy	Social presence	6.999	1	.009*
Residual			156	

* $p < .01$

Table 6.28 Means and Standard Deviations for Interaction Effect of Web Literacy on Social Presence

	Low				High			
Dependent Variable (Range)	**Static** (n = 18)		**Hypermedia** (n = 18)		**Static** (n = 62)		**Hypermedia** (n = 62)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Social Presence (4-28)	13.89	5.005	20.61	3.928	15.45	4.427	17.71	4.463

Figure 6.6 Line Graph for Moderator Effect: Web Literacy (Two Levels)

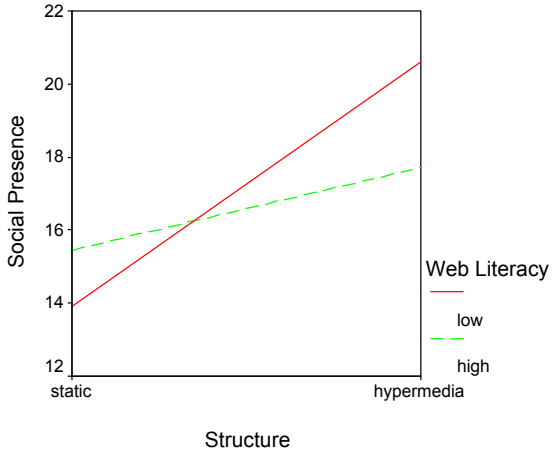


The results of the univariate ANOVA indicated that a subject's feeling of social presence for different structure types varied according to their Web literacy (see Table 6.29 and Figure 6.7). For instance, the static image type was felt to have a higher social presence by subjects with high Web literacy than those with low Web literacy. On the contrary, the hypermedia type was felt to have a higher social presence by subjects with low Web literacy than those with high Web literacy. In other words, it could be said that subjects with low Web literacy responded to differences between the static image type and the hypermedia type more strongly than those with high Web literacy did.

Table 6.29 Means and Standard Deviations for Interaction Effect of Structure on Social Presence

	Static				Hypermedia			
Dependent Variable (Range)	**Low** (n = 18)		**High** (n = 62)		**Low** (n = 18)		**High** (n = 62)	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Social Presence (4-28)	13.89	5.005	15.45	4.427	20.61	3.928	17.71	4.463

Figure 6.7 Line Graph of Interaction Effect: Web Literacy x Structure



The last set of hypotheses addressed the moderating effect of Web literacy on the relationship between Web site structure and social presence. The following hypotheses were proposed:

$H12_0$: People will perceive no difference in ease of use between the "hypermedia" type and the "static image" type of Web site regardless of their Web literacy.

$H12_{1a}$: People with high Web literacy will perceive no difference in ease of use between the "hypermedia" type and the "static image" type of Web site.

$H12_{1b}$: People with low Web literacy will perceive the "static image" type of Web site to be easier than the "hypermedia" type.

Table 6.25 indicates that there was a negative relationship between structure and ease of use (B = -1.859, $t = 3.320$, $p < .01$). In addition, the interaction effect was not significant (Table 6.26). On the basis of this result, the null hypothesis ($H12_0$) was rejected and the research hypothesis ($H12_1$) that "the static image type will have higher perceived ease of use than the hypermedia type" regardless of their Web literacy was accepted. As a result, $H12_{1a}$ was rejected, whereas $H12_{1b}$ was accepted.

It is worth noting that Web literacy did not moderate the relationship between Web site typology (i.e., Web site structure and content), and perceived usefulness or perceived ease of use (see Table 6.26). In other words, Web literacy did not change the importance or direction of the relationship between those variables.

(3) Social Interaction and Communication Effects

The five hypotheses, from H6 to H10, were associated with the relationships between social interaction measures (i.e., social presence, perceived usefulness, and perceived ease of use) and communication effect measures (i.e., attitude toward the Web site and revisit intention). These hypotheses were initially tested by running a multiple linear

regression, in which the predictor variables were social interaction measures and the criterion variable was attitude toward the Web site. The results of the analysis are presented in Table 6.30.

Table 6.30 Results of Multiple Linear Regression: Social Interaction and Attitude Toward the Web Site

Predictor Variable	Unstandardised Coefficient		Standardised Coefficient (Beta)	t
	B	Std. Error		
Social Presence	.986	.100	.576	9.870*
Perceived Usefulness	.420	.073	.337	5.738*
Perceived Ease of Use	8.559E-03	.080	.005	.108
R	.836			
R^2	.699			
Adjusted R^2	.694			

* $p <$. 001

$H6_0$: There will be no relationship between the social presence of a Web site and the attitude toward the Web site.

$H6_1$: The more positive the social presence of a Web site is, the more positive the attitude toward the Web site will be.

As shown in Table 6.30, the individual contribution of social presence to the regression model was expressed by the unstandardised coefficients (B). The regression coefficient of social presence (B = .986, t = 9.870, $p < .001$) implied that there was a significant positive relationship between social presence and the criterion variable, attitude toward the Web site. The null hypothesis ($H6_0$) was rejected, and the research hypothesis ($H6_1$) was accepted. As a result, it was concluded that the more positive the social presence of Web site is, the more positive the attitude toward the Web site will be.

$H7_0$: There will be no relationship between the perceived ease of use of a Web site and the attitude toward the Web site.

$H7_1$: The more positive the perceived ease of use of a Web site is, the more positive the attitude toward the Web site will be.

As can be seen from Table 6.30, the regression coefficient of perceived ease of use (B = 8.559E-03, t = 9.870, p = .108) was very low and not statistically significant. Therefore, the null hypothesis ($H7_0$) was accepted. Accordingly, it could be asserted that there was no relationship between perceived ease of use and attitude toward the Web site.

$H8_0$: There will be no relationship between the perceived usefulness of a Web site and the attitude toward the Web site.

$H8_1$: The more positive the perceived usefulness of a Web site is, the more positive the attitude toward the Web site will be.

From the results of a multiple regression analysis (see Table 6.30), it was found that there was a significant positive relationship between social presence and attitude toward the Web site (B = .420, t = 5.738, p < .001). Hence, the null hypothesis ($H8_0$) was rejected, while the research hypothesis ($H8_1$) was accepted. In conclusion, it was argued that the more positive the perceived usefulness of a Web site is, the more positive the attitude toward the Web site will be.

Further examination of the data related to the relative contribution of the predictor measures was carried out using the standardised coefficients (β) of each predictor. The results indicated that social presence (β = .576, p < .001) was the best predictor of the attitude toward the Web site. Moreover, perceived usefulness (β = .337, p < .001) was also a strong predictor in the regression model. However, perceived ease of use (β = .005, p = .108) was not a significant predictor.

$H9_0$: There will be no relationship between the perceived usefulness of a Web site and the perceived ease of use.

$H9_1$: The more positive the perceived ease of use of a Web site, the greater the perceived usefulness will be.

To investigate these hypotheses, a simple linear regression analysis was conducted, in which perceived ease of use was the predictor variable and perceived usefulness was the criterion variable. As can be seen from Table 6.31, the negative regression coefficient of perceived ease of use (B = -.245, p < .05) implied that as the score of perceived ease of use increases by one, the score of perceived usefulness decreases by .245. From this result, it was concluded that the more positive the perceived ease of use of a Web site is, the lower the perceived usefulness will be.

Table 6.31 Results of Simple Linear Regression: Perceived Usefulness and Perceived Ease of Use

Predictor Variable	Unstandardised Coefficient		Standardised Coefficient (beta)	t
	B	Std. Error		
Perceived Ease of Use	-.245	.112	-.171	-2.183 *
R	.171			
R^2	.029			
Adjusted R^2	.023			

* $p <$ .05

$H10_0$: There will be no relationship between the attitude toward the Web site and the revisit intention.

$H10_1$: The more positive the attitude toward the Web site is, the higher the revisit intention will be.

A simple linear regression analysis was performed to test these hypotheses. In the linear regression, attitude toward the Web site (Aws) was treated as the predictor variable and revisit intention (RI) was the criterion variable. Table 6.32 presents the results. The regression coefficient (B = .145, t = 15.339, p < .001) indicated that there was a significant positive relationship between the two variables. Accordingly, the null hypothesis ($H10_0$) was rejected. It was therefore concluded that the more positive attitude toward the Web site is, the higher revisit intention will be.

Table 6.32 Results of Simple Linear Regression: Attitude Toward the Web Site and Revisit Intention

Predictor Variable	Unstandardised Coefficient		Standardised Coefficient (Beta)	t
	B	Std. Error		
Attitude Toward the Web Site	.145	.009	.773	15.339*
R	.773			
R^2	.598			
Adjusted R^2	.596			

* $p <$. 001

6.3.5 Summary of Results

This study involved two phases of data analysis. In Phase I, a series of variance approaches (i.e., MANCOVA, ANCOVA, and ANOVA) were conducted to test hypotheses H_1 to H_5, and H_{11} and H_{12}. In Phase II, a series of linear regression approaches were applied to test hypotheses H_6 to H_{10}.

Before running the statistical analyses, the assumptions of the statistical methods applied to this study were tested. In terms of homogeneity of variance, normality, linearity, multicollinearity, outliers, and independence of residuals, there was no violation of assumptions, so the analyses included all the cases without any data transformation.

The findings from the MANCOVA and ANCOVA showed that Web site structure and content have an effect on social interaction measures (i.e., social presence, perceived

usefulness, and perceived ease of use). In other words, different types of Web site structure and content created different levels of social presence, perceived usefulness, and perceived ease of use.

An ANOVA analysis assessed the moderator effect of Web literacy on the relationship between Web site structure and social presence. For instance, subjects with low Web literacy responded to the difference between hypermedia and static image types more strongly than subjects with high Web literacy. However, the moderating effect was not strong enough to change the direction of the relationship between Web site structure and social presence.

The findings from the series of linear regression analyses showed that there were positive relationships between social presence and attitude toward the Web site, perceived usefulness and attitude toward the Web site. However, it was found that there was no relationship between perceived ease of use and attitude toward the Web site. Interestingly, social presence was the best predictor of the attitude toward the Web site.

Finally, it was found that there was a positive relationship between attitude toward the Web site and revisit intention. More detailed discussion about the findings will be provided in the following chapter.

CHAPTER 7. DISCUSSION AND CONCLUSIONS

7.1 Introduction

The Web is a new phenomenon in marketing communication. Although most marketing and advertising scholars acknowledge the importance of a corporate Web site as a marketing communication medium, to date little systematic research within the discipline of marketing has been carried out the nature of WMC and assessment of WMC effectiveness. Accordingly the overall aim of the study was to investigate the features of effective corporate Web sites. There were five research questions addressed by this study: (1) What content and structural elements are presented on corporate Web sites?, (2) How can corporate Web sites be classified according to their content and structure?, (3) How do consumers respond to different types of corporate Web site?, (4) Do user attitudes towards corporate Web sites vary according to Web literacy levels?, and (5) What features of corporate Web sites determine revisit intention among Web users?

Through a critical review of the existing marketing literature, this study identified knowledge gaps and problems with the current body of marketing knowledge. The lack of an appropriate framework, which can be applied to this new communication medium, calls for a new approach to studying WMC (e.g., Hoffman and Novak, 1996; McDowell and Sutherland, 2000: Stewart *et al*., 2002). Given the distinctive characteristics of the Web and the limitations of conventional approaches to the evaluation of marketing communication media, this study developed the WMC model based on Activity Theory.

Furthermore, despite continued research on the Web, to date systematic empirical research on a Web site typology has been deficient. To address this issue, a preliminary study of 386 Web site home pages of Australian and Korean companies was conducted and the findings discussed in Chapter 3. The content analysis identified two meaningful homogeneous groups of Web site content (i.e., the "integrated communication" and "basic information" type) and Web site structure (i.e., the "hypermedia" and static image" type).

Based on a critical review of literature and the preliminary research on Web site typology, a new conceptual model, the Web Acceptance Model (WAM)", was developed for understanding and measuring consumer acceptance and use of corporate Web sites. Fourteen hypotheses were derived from the model. The WAM proposed that Web site structure and content, together determined users' affective responses to a Web site and their ability to perform tasks using it (e.g., access required information). While affective responses to a Web site were captured in the model through the construct of "social presence", task-related interaction in the model was assessed according to inter-related constructs: perceived usefulness and perceived ease of use. It was also hypothesised that Web literacy would moderate the relationship between Web site typology and users' responses to a Web site. These hypotheses were tested through an experimental study.

This chapter discusses the results of both the preliminary research on the typology of corporate Web sites and the experimental study which researched the WAM. These findings provide answers to the research questions rosed in this study.

This chapter commences with a summary of the main findings of the experimental study and the resulting modification of the proposed WAM. This chapter also discusses the overall study results along with five research questions addressed in Chapter 1. Then, both the theoretical and practical implications of the thesis are discussed. Based on the limitations of the study, further areas for future research are suggested. Finally, this chapter concludes by emphasising the importance of including the consumers' affective and cognitive responses in studies of WMC.

7.2 Summary of the Main Findings

Fourteen hypotheses were tested and the results are summarised in Table 7.1. Nine hypotheses (H1, H2, H3, H5, H6, H8, H10, H11a, H12b) were supported by the experimental data, one hypothesis (H4) was partially supported and other four hypotheses (H7, H9, H11b, and H12a) were not supported.

Table 7.1 Results of Hypothesis Tests

Research Hypothesis	Result
H1: The "hypermedia" type of Web sit will have higher social presence than the "static image" type.	Supported
H2: The "static image" type of Web site will have higher perceived ease of use than the "hypermedia" type.	Supported
H3: The "integrated communication" type of Web site will have higher social presence than the "basic information" type.	Supported
H4: The "basic information" type of Web site will have Higher perceived ease of use than the "integrated communication" type.	Partially Supported
H5: The "integrated communication" type of Web site will have higher perceived usefulness than the "basic information" type.	Supported
H6: The more positive the social presence of a Web site is, the more positive the attitude toward the Web site will be.	Supported
H7: The more positive the perceived ease of use of a Web site is, the more positive the attitude toward the Web site will be.	Not Supported
H8: The more positive the perceived usefulness of a Web site is, the more positive the attitude toward the Web site will be.	Supported
H9: The more positive the perceived ease of use of a Web site is, the greater the perceived usefulness will be.	Not supported
H10: The more positive the attitude toward the Web site is, the higher the revisit intention will be.	Supported
H11a: People with high Web literacy will feel the "hypermedia" type of Web site to be higher in social presence than the "static image" type.	Supported
H11b: People with low Web literacy will feel the "static image" type of Web site to be higher in social presence than the "hypermedia" type.	Not supported
H12a: People with high Web literacy will perceive no difference in ease of use between the "hypermedia" type and the "static image" type of Web site.	Not supported
H12b: People with low Web literacy will perceive the "static image" type of Web site to be higher than the "hypermedia" type.	Supported

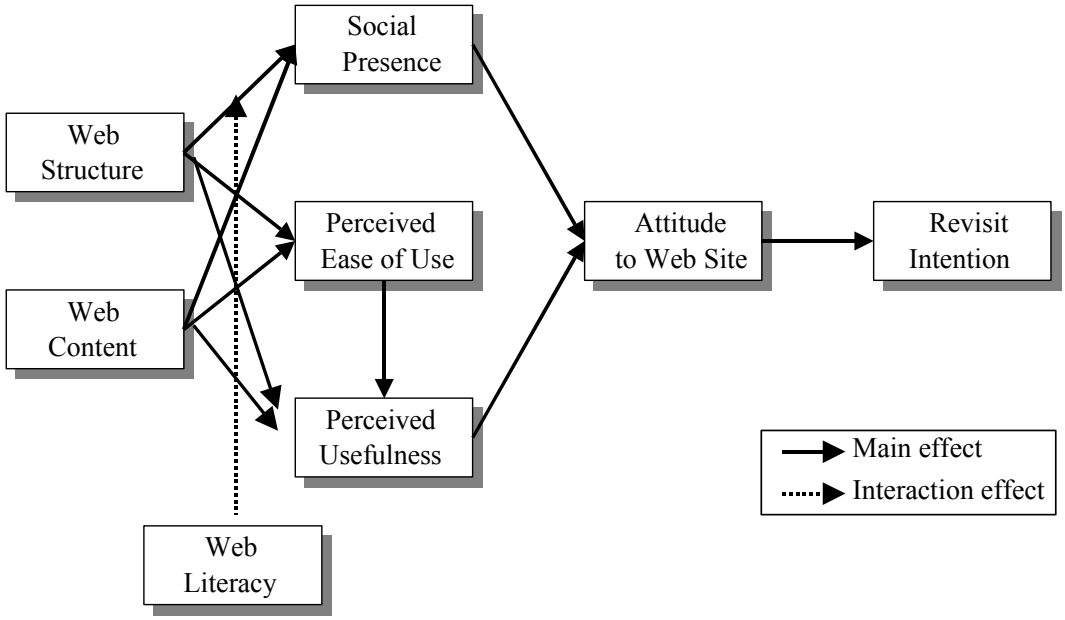
The results of the hypothesis test indicate a modification of the proposed WAM is necessary with three key changes. First of all, the moderator effect of Web literacy was

only found on the relationship between structure and social presence (see Table 6.26 in Section 6.3.4). Therefore, the moderator effect of Web literacy on the relationship between Web site structure and perceived ease of use was eliminated (H12a was rejected). Next, there was a significant main effect between structure and perceived usefulness (as shown in Table 6.19 in Section 6.3.4), which is reflected in the revised model. Finally, there was no relationship between perceived ease of use and attitude toward the Web site (see Table 6.30, in Section 6.3.4). It should be mentioned that although H4 was partially supported, the content type still had an effect on perceived ease of use. These changes are all reflected in the revised research model (see Figure 7.1).

Overall, as can be seen from Figure 7.1, the revised WAM proposes that both Web site structure and content determine users' responses to a Web site. An affective (or emotional) response is measured through "social presence". On the other hand, cognitive (or task-related) responses are captured through "perceived usefulness" and "perceived ease of use". However, as perceived ease of use was not related to attitude toward the Web site, only perceived usefulness can be considered as a cognitive predictor of attitude toward the Web site. The revised model posits that integrated communication type and hypermedia type Web sites will have a higher social presence and perceived usefulness, which will result in a more positive attitude toward the Web site and a higher revisit intention. As a result, social presence and perceived usefulness are critical factors that explain "why" a specific type of Web site is more effective in terms of affective and cognitive attitude respectively. One thing to note is the moderator effect of Web literacy on the relationship between Web site structure and social presence. Interestingly, while subjects felt the hypermedia was higher in social presence

than the static image type regardless of their Web literacy levels (see Figure 6.7 in Section 6.3.4), the strength of their feelings toward the Web site were different. For instance, subjects with low Web literacy saw bigger differences in social presence between static image type and hypermedia type than those with high Web literacy.

Figure 7.1 Revised Web Accepted Model (WAM)



7.3 Discussion of the Study Results

There were five research questions addressed by this study, including two questions relating to the preliminary research and three questions relating to the experiment. These questions were:

- Preliminary Research Questions

1. What content and structural elements are presented on corporate Web sites?
2. How can corporate Web sites be classified according to their content and structure?

- Experimental Research Questions

3. How do consumers respond to different types of Web sites?
4. Do user attitudes toward corporate Web sites vary according to Web literacy levels?
5. What features of corporate Web sites determine revisit intention among Web users?

7.3.1 The Elements of Corporate Web Sites

The first research question addressed the elements of corporate Web sites in terms of their content and structure. In this study, content is defined as the information or message presented on a Web site, whereas structure referred to the combination or organisation of the executable elements of a Web site. Accordingly, the research question focused on the types of messages and hypermedia elements that were presented on corporate Web sites. This question was answered through an exploration of corporate Web sites, as discussed in Chapter 3.

(1) Web Content

First of all, this study investigated the message content of corporate Web sites. Rust and Oliver (1994) emphasised the importance of information content in the Internet era, and foresaw a new form of communication different from traditional communication media. Further, while some scholars (e.g., Novak and Hoffman, 1997; Raman and Leckenby, 1998; Salam *et al*., 1998; Singh and Dalal, 1999) have regarded Web sites as a form of advertising, others (e.g., Ainscough and Luckett, 1996; Angehrn, 1997; Cappel and Myerscough, 1997; Cockburn and Wilson, 1996; Deans and McKinney, 1997; Ellsworth and Ellsworth, 1997; Esrock and Leichty, 2000; Hoger *et al*., 1998; Leong *et al*., 1998; McNaughton, 2001; Palmer and Griffith, 1998; Perry and Bodkin, 2000; Pitt *et al*., 1996; Simeon, 1999; Zeff and Aronson, 1999) have treated it as more than advertising in its function. Therefore, in reply to the need for more research on Web function, this study investigated the unique characteristics of the content of corporate Web sites.

Content was related to five functions of marketing communication (i.e., advertising, public relations, sales promotion, online selling, and customer service). This study found that corporate home pages delivered all of the marketing communication functions. This is consonant with other empirical studies, which have reported that Web sites are more than advertising in their functions (e.g., Ainscough and Luckett, 1996; Cappel and Myerscough, 1997; Cockburn and Wilson, 1996; Deans and McKinney, 1997; Esrock and Leichty, 2000; Hoger *et al*., 1998; Griffith and Krampf, 1998; Leong *et al*., 1998; McNaughton, 2001; Perry and Bodkin, 2000; Simeon, 1999).

The study also revealed that advertising, public relations, and customer service were the most frequently utilised functions of corporate Web site, whereas online selling and sales promotions were used much less often. This result is consistent with the findings from previous studies on Web pages. For example, through a content analysis of 300 corporate Web sites Cockburn and Wilson (1996) found that a mixed form of public relations and advertising was most common (71.3 %), followed by online selling (22.4%). On the other hand, the use of sales promotion was of a low incidence (3.0%). Deans and McKinney's (1997) study in New Zealand showed similar results. They found that advertising (70%) and promotion (75%) were the two main functions, and online selling (35%) and customer support (20%) were also considerably common. Through a content analysis of the *Fortune 500* Web sites, Liu *et al*., (1997), demonstrated that product/service information (93.2%), company information (86.1%), customer service (44.9%), online selling (26.2 %) were common features of these Web sites.

It is of particular interest to note that customer service is one of the most important functions of a corporate Web site. Some studies (e.g., Deans and McKinney, 1997, Griffith and Krampf, 1998, Liu *et al*., 1997) have identified the important role of the customer service function in a corporate Web site. This implies that a corporate Web site can substitute for the more traditional way of dealing with customer inquiries and problems, which was mostly carried out done by telephone (e.g., using a 1-800 number).

In general, it can be argued that corporate Web sites are capable of delivering more diverse types of marketing information to broader target audiences than traditional

marketing communication media. Although online selling and customer service is still not widely used, there is no doubt that the corporate Web site enables a hybrid form of marketing communication which includes advertising, public relations, sales promotion, online selling and customer service. Accordingly, a Web site should not simply be treated as just another advertising medium.

(2) Web Site Structure

In terms of Web site structure, the current study proves that corporate Web sites utilise all forms of hypermedia such as text, static images, video, audio and hyperlinks. While a static image (e.g., company logo or a photograph) is the most common element of Web site design, the use of audio is still low. On the other hand, text, and video are moderately used. Among video options, simple animation techniques such as moving text and images (e.g., continuous moving or blinking of visual images) are most common rather than complex and advanced techniques such as video clips. This finding supports previous studies. For example, Cockburn and Wilson (1996) found that Web sites are mainly composed of text and images (89.3%), while the use of sound and video was very rare (5.3.%). A likely explanation for this finding is that audio and video clip files are relatively large and so take more time to download. Hence, companies prefer simple animation types which tend to be more user-friendly.

The use of links on corporate Web sites is also an interesting finding. The study revealed that around 60% of Web sites utilised internal links such as a “site map” or a “search” function. This result indicates that many companies try to give their consumers more control over accessing the company information on the Web site. This differs

markedly from traditional marketing communication tools such as television, radio, newspapers and magazines, where consumers have much less control over how they obtain information. In other words, a Web site provides consumers more "power to decide which Web pages to surf, for how long, and how much information to obtain" (Dholakia and Rego, 1998, p. 725). Furthermore, this study found that 47% of the sites sampled had external links to other Web sites. According to Dholakia and Rego (1998), the number of external links is one factor that influences the popularity of a Web site. Therefore, it can be argued that by providing more information through links to affiliated companies or other organisations, companies can enhance customer satisfaction.

7.3.2 The Classification of Corporate Web Sites

The second research question aimed at identifying a possible typology of corporate Web sites in terms of content and structure. Previous research has generally neglected the systematic study of different Web site types. In other words, there has been no previous empirical study on Web site typology in terms of content and structure. This question was addressed through the development of a classification scheme in the preliminary research described in Chapter 3.

(1) Web Site Content

On the basis of the preliminary research, Web site content was classified into two types: "integrated marketing communication" and "basic information". The integrated marketing communication type contains all of the functions of marketing

communication, including advertising, public relations, sales promotion, and customer service. On the other hand, the basic information type is composed of minimal information and is limited to the functions of advertising, public relations customer service. The study found that the majority of Web sites (61.5%) fall into the basic information type, whereas only 38.5% were of the integrated communication type. Although previous studies differ in their classification schemes and cannot be directly compared, Cockburn and Wilson's (1996) study yielded similar results i.e., the basic information category was 74.3% and the more integrated communication type including online selling function and sales promotion was 25.7%. This finding could be due to a tendency for companies to treat their Web sites mainly as a medium for advertising and public relations. Also, issues of security and the management of payment systems remain obstacles to the widespread adoption of online selling (Cockburn and Wilson, 1996). Hence, at present the integrated communication type seems to be generally less preferred.

(2) Web Site Structure

On the basis of the previous research, Web site structure was divided into two mutually exclusive groups: "hypermedia" and "static image" types. While the hypermedia type utilises full hypermedia capabilities of the Web such as text, images, video, audio, and hyperlinks, the static image type mainly relies on descriptive text and static image. The result showed a similar incidence of use between the two types. The hypermedia type (55.1%) was used slightly more often than the static image type (44.9%). This is in contrast to a previous study conducted by Cockburn and Wilson (1996). They found that the vast majority (94.3%) of Web sites were of the static image type, whereas only

5.3% belonged to the hypermedia type. The finding of the current study implies that unlike in an earlier stage of the Web's development, nowadays more companies have a tendency to adopt the hypermedia type than the static image type.

7.3.3 Consumer Responses to Corporate Web Sites

The third research question addressed the issues of "what" type of Web site is more effective and "why" a particular type of a Web site is more effective than other types. This question was addressed in the experiment by an exploration of the relationships between Web typologies and two dimensions of social interaction, affective and cognitive. The measure of the affective dimension was social presence, which is defined as a user's feeling that he or she is communicating via a Web site with other human beings. The measures of the cognitive dimension were perceived usefulness, which is defined as the degree to which a user believes that using a particular Web site would increase job performance, and perceived ease of use, which is defined as the degree to which a user believes that using a particular Web site would be free of physical and mental effort.

(1) Web Site Structure and Social Interaction

This study found strong empirical support for first two hypotheses that different types of Web site structure would generate different levels of social interaction in terms of affective (H1) and cognitive (H2) dimensions. First, the hypermedia type resulted in higher social presence than the static image type (H1). This finding confirms previous studies in the communication literature showing that the use of more complex

multimedia increased the believability (Choi, 2000; Choi *et al*., 2001; Gale, 1990; De Greef and Ijsselsteijn, 2000). The result of the present study implies that the use of full hypermedia elements provides a rich sense of emotional experience (e.g., Bocker and Muhlbach, 1993; Lombard, 1995; Lombard and Ditton, 1997; Lester, Voerman, Towns, and Callaway, 1999; Reeves *et al*., 1993), which ultimately creates a sense of online community (Suh, Hasan, and Couchman, 2003).

Second, the static image type had a higher perceived ease of use than the hypermedia type (H2). Although there was an interaction effect between structure and content, it did not affect the direction of the relationship between Web site structure and perceived ease of use. Therefore, it may be concluded that as the static image type is much simpler than the hypermedia type, Web users see the static image type as easier to use than the hypermedia type. Additionally, this study found that there was a relationship between Web site structure and perceived usefulness, i.e., the hypermedia type resulted in higher perceived usefulness than the static image type. Although this relationship was not expected, the result supported a previous study which found that multimedia use yielded a higher perception of utility (Lester *et al*., 1999). One possible explanation of this result is that the realistic representation of information in combination with interactivity (e.g., the use of hypermedia elements) might increase the perceived quality of information provided on a Web site. This implies that Web site structure has an effect on perceived usefulness.

(2) Web Site Content and Social Interaction

As mentioned before, no attempts have yet been made to examine the relationships between Web site content and the two dimensions of social interaction. In response to the need for more research on these relationships, it was hypothesised that the different types of Web site content would yield different levels of social interaction in terms of affective (H3) and cognitive (H4 and H5) dimensions. The current study provided strong support for H3 and H5, and partial support for H4. More precisely, the integrated communication type had higher social presence (H3) and perceived usefulness (H5) than the basic information type. These results confirm earlier findings that providing more diverse information can enhance the effectiveness of marketing communication in terms of usefulness, imagery vividness, overall attitude and behavioural intention (Bone and Ellen, 1992; Davis, 1999; Hallahan, 2001; Singh *et al*., 2000). Davis (1999) suggests the inclusion of content in which consumers can actively participate (e.g., entering a contest, making a recipe, ordering a brochure, joining a club, etc.) will make a Web site more effective. This implies that integrated marketing communication via a Web site, providing relevant and interactive content, can make consumers feel that they are interacting with firms and so perceive that the information provided is useful to them.

Furthermore, it was found that the relationship between Web site content and perceived ease of use (H4) was influenced by Web site structure. That is, in the case of the static image type, the basic information type was perceived to be easier to use than the integrated communication type. By contrast, when structure was the hypermedia type, the integrated communication type was perceived to be easier to use than the basic

information type. The results imply that when structure is simple (i.e., there is less use of hypermedia elements) users consider that the simple content type is easier to use than the more complex content type. However, in a more complex structure (with more use of hypermedia elements) users perceive little difference between content types. To our knowledge, this is the first study that has considered Web site structure and content simultaneously in the study of consumer responses to Web sites.

7.3.4. User Attitudes and Web Literacy

The fourth research question sought to determine "when" a web site is more likely to be effective. This question was addressed by an exploration of the moderator effect of Web literacy on the relationships between Web site structure and the two dimensions of social interaction, as expressed by four research hypotheses (H11a, H11b, H12a, and H12b). Web literacy is defined as the user ability to manage the distinctive characteristics of a Web site such as hypermedia and interactivity. This study provided partial support for the hypotheses, supporting H11a and H12a but rejecting H11b and H12b. First, there was a moderator effect of Web literacy on social presence, which changed its value but did not change its direction. Subjects felt the hypermedia type to be higher in social presence than the static image type regardless of their Web literacy. However, as shown in Table 6.28 and Figure 6.12, there was a difference in subjects' feelings of social presence for the different structure types. Subjects with low Web literacy found more differences between the two structure types than those with high Web literacy. One possible explanation is that previous experience and familiarity with a Web site decreases the sense of social presence. On the other hand, a lack of experience increases user sensitivity to the feeling of social presence, so novices or

inexperienced users notice the difference between the static image type and the hypermedia type more than experts or experienced users. To our knowledge, this is also the first study to explore the different user attitude toward the Web site according to their Web literacy.

In contrast, it was found that there was no moderator effect on perceived usefulness and perceived ease of use (see Table 6.22). This means that Web literacy does not change the direction or value of the relationship between structure and the cognitive dimension of social interaction (e.g., perceived usefulness and perceived ease of use).

7.3.5. Corporate Web Sites and Revisit Intention

The fifth research question was addressed by exploring the relationships between the mediator variables (i.e., social presence, perceived usefulness, and perceived ease of use) and the criterion variables (i.e., attitude toward the Web site and revisit intention). This was specifically addressed by five hypotheses. The criterion measures were attitude toward the Web site (Aws) and revisit intention (RI). Attitude toward the Web site (Aws) is defined as a learned predisposition to respond to the attitude object in a consistently favourable or unfavourable way, which represents a Web user's overall feelings toward the Web site. Revisit intention (RI) is defined as a consumer's willingness to revisit a particular Web site.

(1) Social Interaction and Attitude Toward the Web Site

In Chapter 4, this study hypothesised that there would be a positive relationship between attitude toward the Web site and social presence (H6), and perceived usefulness (H7), and perceived usefulness (H8). While this study found strong empirical support for hypotheses H6 and H8, there was no evidence to support hypothesis H7. First of all, higher levels of social presence led to a more positive attitude toward the Web site (Aws). This is consistent with the findings from previous studies on Web site effectiveness (Choi, 2000; Choi *et al*., 2001). In addition, higher levels of perceived usefulness also resulted in a more positive attitude toward the Web site (Aws). This finding is in accordance with previous empirical findings concerning the acceptance of new technologies (Agawal and Prasad, 1999; Davis, 1993; Hu *et al*., 1999; Moon and Kim, 2001). Hence, these results indicate that both the affective (i.e., social presence) and cognitive (i.e., perceived usefulness) dimensions of social interaction are important factors influencing users' attitudes towards the Web site. Consumers tend to have a more positive attitude toward the Web site when a Web site is seen as having more social presence and perceived to be more useful.

Contrary to the expectation that there would be a positive relationship between perceived ease of use and attitude toward the Web site, no significant relationship was identified. This result contrasts with much previous research that has focused on the acceptance or use of new technology (e.g., Agawal and Prasad, 1999; Davis, 1993; Moon and Kim, 2001). Previous studies in the field have reported contradictory results about the relationship between ease of use and attitude (e.g., attitude toward the technology or attitude toward the use of the technology) or behavioural intention (e.g.,

intention to use), including findings of no relationship (Chau, 1996; Goldschmidt and Tan, 1999; Hu *et al*., 1999), negative relationships (Griffith, Tansik, and Benson, 2002), and mixed results (Adams, Nelson, and Todd, 1992; Davis *et al*., 1989; Gefen and Straub, 2000). Moreover, the current study also revealed that there was a negative relationship between perceived usefulness and perceived ease of use. Previous studies have reported different results, including a positive relationship (Agawal and Prasad, 1999; Chau, 1996; Venkatesh and Davis, 2000), a negative relationship (Griffith *et al*., 2002), and no relationship (Hu *et al*., 1999).

Chau (1996) explains that the relationship between perceived ease of use and attitude toward the technology is dependent upon the stage of technology diffusion or technology life cycle. In other words, in the early stage of diffusion, users need some skills to handle the technology, hence perceived ease of use will show a positive relationship with attitude toward the technology or behavioural intention to use. However, in the late stage users will have much less difficulty in using the technology. Accordingly, there will be no relationship, which seems to be a plausible explanation for the inconsistent results.

As many researchers have argued (e.g., Adams *et al*., 1992; Chau, 1996; Davis, 1989; Keil, Beranek, and Konsynski, 1995), perceived ease of use may not be an important variable for explaining user acceptance of technology but there are some factors that have an influence on the relationship between perceived ease of use and attitude or behavioural intention. Those factors encompass technology characteristics (e.g., functions, technology life cycle, and technology category) and user characteristics (e.g., technology literacy, motivation, and culture). Therefore, this study indicates that the

study of technology acceptance should be guided by a more sophisticate theoretical framework that reflects broad influential factors including technology characteristics and user characteristics.

(2) Relative Importance of the Affect (Social Presence)

This study investigated the two dimensions of social interaction, namely affective socio-emotional and cognitive task-related. The results showed that social presence was the better indicator of consumer attitudes towards the Web site than perceived usefulness. This result strongly supports Morris *et al*.'s (2002) advertising effectiveness study, which found that an emotional response to marketing communication stimuli was more a powerful predictor of purchase intention) than a cognitive response. Moreover, Morris *et al*., (2002) insisted that unlike overall evaluation of consumer attitude (e.g., attitude toward the ad), more specific affective responses (e.g., pleasure) offer a direct method of analysing the complex feelings that comprise human reactions to marketing communication stimuli. While attitude toward the Web site measures overall affective responses to Web site, social presence can explore more complex and specific feelings towards Web sites. The current study implies that, although the usefulness of the information presented in a Web site (measured by perceived usefulness) is still important, a user's specific feeling towards Web sites (measured by social presence) is more important.

(3) Attitude Toward the Web Site and Revisit Intention

Finally, this study hypothesised that "the more positive the attitude toward the Web site is, the higher the revisit intention will be" (H10). The study revealed a significant, positive relationship between the attitude toward the Web site and revisit intention. This finding is in accordance with previous empirical findings concerning advertising, Web site effectiveness, and user acceptance of technology (Agawal and Prasad, 1999; Bruner and Kumar, 2000; Choi, 2000; Choi *et al*., 2001; Davis, 1993; Gefen and Straub, 2000; Hu *et al*., 1999; Moon and Kim, 2001; Stevenson *et al*., 2000). Choi and his colleagues (Choi, 2000; Choi *et al*., 2001) found that when a user's attitude toward a Web site was high, users' intention to revisit the Web site was high. This study indicates that consumers intend to revisit a Web site when they have more favourable attitude toward it.

7.4 Implications of the Study

7.4.1 Theoretical Implications

The Web is a new phenomenon in marketing communication. For instance, Web users are more active than traditional television viewers. The Web uses hypermedia and delivers various content such as advertising, public relations, sales promotion, online selling, and customer service simultaneously. Two central concepts of Web-mediated marketing communication are mediation and social interaction. Given the distinctive characteristics of this new medium, conventional approaches to the evaluation of a Web

site have been questioned. Activity Theory best explains this new phenomenon. This study proposes a conceptual framework for understanding WMC based on Activity Theory. This conceptual model has many important implications for the study of the Web. To begin with, the WMC model provides different perspectives compared to traditional communication models. The most popular communication model is the information processing model, which defines communication as the cognitive process of message transmission. Many scholars (e.g., Allen, Machleit, and Kleine, 1992; Krech and Crutchfield, 1948; Vygotsky, 1962 and 1994) warn that without an understanding of the affective attitude of subjects, we cannot fully understand behaviour. Hence, this model has been criticised for ignoring this important aspect of behaviour (e.g., Aboulafia *et al*., 1995; Craig, 1999; Peter and Olson, 1990). In addition, the direction of transmission in the model is always from the sender (firms) to the receiver (consumers, or as they are often called "recipients"). Furthermore, although there is a feedback loop in the information processing model, it is asynchronous and performed through other media like the telephone and customer surveys.

By contrast, the WMC model suggests that communication is a process of mutual exchange and social interaction between firms and customers. There is no distinction between the sender and the receiver, and consumers are "participants" in the communication process. In other words, a corporate Web site is not a simple information distribution channel, rather it is a virtual community where firms and customers actively exchange information and build relationships. Therefore, WMC is not simply human-computer interaction but is more like human-human interaction. Papacharissi and Rubin (2000) argue that a Web site is a socio-cultural network for informational and social interaction. This notion implies that Web studies should be

conducted in relation to both information needs and social relationships. Thus, effective Web design should be aimed at persuading and building relationships with customers through a virtual community. It is claimed here that the WMC model, with its fundamental premise of Web-mediated marketing communication as an interactive process, overcomes the shortcomings of the information processing approach. In this respect, the WMC model is a more useful and powerful alternative to the traditional communication model.

The identification of two dimensions of social interaction provides a new insight into theories of human communication. Traditionally, communication is defined as the transfer of information from a sender to a receiver (e.g., Shannon and Weaver, 1949). Accordingly, the concern of a sender is to deliver a message accurately. Effectiveness, efficiency, and functionality are frequently used concepts for assessing the performance of communication. Accordingly, researchers have focused on identifying the cognitive or rational aspect of human communication and information processing. Alternatively, the WAM emphasises the exchange of both information and emotional responses. Especially, emotional responses express anticipated action, which ultimately underlies forthcoming behaviour (Arnold, 1960; Frijda, 1970 and 1986). Therefore, understanding consumers' emotional responses (e.g., social presence) helps to understand consumers' action tendencies toward the firms' communication activities. The dual functions of the WAM are reflected in the two dimensions of social interaction (affective and cognitive), which help explain the conative or behavioural component of consumer attitude. This also implies that the WAM mainly focuses on identifying user's responses to messages (or media) rather than messages (or media) themselves. Therefore, it can be concluded that this trend should be reflected in future studies of the Web. It is expected that this

study will provide a sound foundation for building theoretical models and assessing the communication performance of Web sites.

Recently, there have been many attempts at assessing corporate Web sites as tools for marketing communication. Much of the research on Web site marketing effectiveness to date has focused on a Web site as an advertising medium and so has adopted conventional advertising evaluation models (e.g., Bruner and Kumar, 2000; Choi *et al*., 2001; Luo, 2002; Goldsmith and Lafferty, 2002). A fundamental shortcoming of this approach is that it does not adequately address the reciprocal social interaction provided by Web-mediated marketing communication (Suh, Couchman and Park, 2002a). Neither does it adequately address the active role that users play in interacting with this medium. It is argued that, as Web sites are new interactive media very different from traditional marketing communication media, new approaches to their assessment should be employed.

The current study suggests that in addition to traditional communication effect measures, social interaction measures should be added as mediator variables in any model that aims to explain Web site effectiveness. This claim reflects the argument that a more sophisticated multi-dimensional view of attitudes is required when studying responses to Web sites. Only assessing the cognitive and affective dimensions of an attitude can help understand the underlying meanings of the behavioural intention associated with an attitude object such as a Web site. Thus, social interaction variables can help explain the key dimensions of an attitude. Because of this, social interaction measures can play a critical role in the development of Web-based marketing communication. They do so by helping marketers to better understand not only those

factors that influence Web site acceptance, but also the processes by which consumer attitudes are shaped and changed. Moreover, social interaction is influenced by Web characteristics (i.e., structure and content) and user characteristics (e.g., experience, culture, motivation, and so on). Accordingly, researchers should not ignore their role in studies of Web site effectiveness (Stewart and Pavlou, 2002).

Furthermore, this study provides a more sophisticated concept of communication than is generally provided in studies of consumer behaviour. Even though many communication theorists have asserted that social interaction is at the core of human communication (e.g., Cherry, 1966; Gerbner, 1977), to date most marketing communication models have failed to adequately reflect this. Adopting social interaction as a central concept, the WAM indicates that the communication act is not simply a linear transfer of information between a transmitter and a receiver, but a mutual exchange of information carried out within specific socially and culturally-determined frameworks of meaning and often involving an emotional component. In other words, human communication is rarely just an instrumental act and therefore requires a multi-dimensional approach to adequately describe and explain its socio-cultural nuances. Thus, in the model, task-related interaction explains the process of information exchange, while the construct of socio-emotional interaction accounts for the emotional exchange that occurs.

The development of the model has made clear that in studies of user responses to corporate Web sites there needs be a close collaboration among different disciplines and their associated fields of research, including Marketing, Communication Studies, Information Systems (and especially the field of Human Computer Interaction),

Education and Psychology. Each of these adds to an understanding of this new phenomenon, and all have an interest in it. A Web site is not just a marketing medium, it is also a very useful tool for other practical areas such as education, computer networking, and collaborative activities in a wide range of domains. As such, it is a legitimate object of study and theoretical development in the disciplines associated with these practices. Furthermore, the study of user interactions with a Web site involves developing an understanding of user psychology. Each of these disparate areas of study adds to our understanding of web-mediated marketing communication, but none on its own is sufficient. When the results of the research in each of these areas are integrated, synergies and richer understandings are the result, which is why so many interdisciplinary studies are currently being conducted in this area. One of the main contributions of the model presented here to the development of theory on WMC is that it integrates knowledge from a number of different disciplines, most notably from Marketing and Information Systems.

It is worth noting that the definition of Web functions and the classification of Web sites are important issues in the study of the Web. Immediately after the advent of a Web site as a marketing communication medium, existing definitions did not capture the distinctive role of Web marketing communication. Moreover, an integrated use of the communication functions of a Web site can blur boundaries between functions. Furthermore, as a Web design involves a wider range of structural elements than traditional marketing communication media (e.g., television, radio, newspaper, and magazine), a typical advertising typology cannot be applied to a Web site design. This study identified the empirical typology of a corporate Web site based on a new classification scheme (i.e., structural and functional). Therefore, the Web site typology

proposed in this study provides a conceptual base for establishing and developing theories related to marketing communication and information systems.

The clear definition of Web functions and hypermedia structure can also play a critical role in establishing a measurement system for Web site effectiveness. At present one of most urgent problems to be solved is an assessment of the effectiveness of a Web site. The empirical typologies can serve as independent variables in a measurement system. In addition, although there have been many empirical studies on the Web, the results of these cannot be compared due to the different terms and definitions used. Inconsistent definition is also a big hindrance to the development of theory. In this respect, the classification schemes and definitions in this study can be a cornerstone for building sound marketing communication theories.

A major methodological theme throughout the behavioural and social sciences since at least the late-20th century has been the need for researchers to pay more attention to instrumentation. But in marketing research (and notably in the genre of applied marketing research) questionnaire design is often driven by pragmatism and expediency, and so issues of instrument validation tend to receive scant attention. This also applies to the pilot testing of questionnaires, which as Hunt *et al*., (1982) point out "… is often done in a hurried, non-systematic fashion" (p. 269). While researchers can deploy previously-used scales in the confidence that these may have been assessed (often over many independent studies) as reliable and valid, this may not be sufficient because of variations in language and sense-making across populations and even across cohorts or cultures within populations. This study has centred the discussion on the

procedures through which the draft questionnaire was pilot tested, which had been constructed by appropriating and modifying previously-used scales.

Four main benefits were derived from a more rigorous pilot test of the instrument. Firstly, the two-stage process ensured that appropriate language was used for scale items and that the questionnaire was both meaningful and comprehensible to members of the population of interest in the study. In doing so, the possibility of obtaining "noise" in the data collected was minimised and the researcher could be more confident that the responses to the questions were authentic. Secondly, the pilot testing enabled the researcher to "de-bug" the experimental procedure used in the study. For instance, it was able to determine that the test Web sites appeared and performed as planned in the experiment, that there were no problems in managing the experimental situation, and that the information task set for subjects was appropriate for the experiment. Thirdly, the pilot test ensured that the measuring instruments used were, after some necessary modifications (a process often referred to as measure "purification"), internally consistent and reliable. Finally, the pilot testing enabled the researcher to conclude that the multi-item scales were indeed unidimensional and likely to be valid measures of the constructs in the theoretical model. These latter findings were consistent with the results of the various studies from which the different scales had been derived.

7.4.2 Practical Implications

To begin with, the study provides managers with insights into Web site design. The study implies that the Web design process is not a simple allocation of hypermedia elements, but a purposeful activity. The comparison of these two approaches can be

described by informative and communicative concepts (Gahagan, 1975). The former refers to a simple allocation of information without intention. On the contrary, communicative design is the intended and planned behaviour of firms aimed at influencing customers. Web design requires well-prepared plans to influence customers. Hence, it involves selecting and combining various content and structural elements of representation. As content and structure are interdependent, a holistic view is essential in designing Web sites (Barton and Barton, 1985; Kostelnick, 1988). This study provides managers with a holistic view for designing Web sites through the classification schemes of Web typologies developed in Chapter 2.

Second, the study found that a corporate Web site is an efficient tool for integrated marketing communication. In other words, a Web site is more than an advertising medium in its function. Although advertising, public relations, and customer service are dominant functions, online selling and customer service are also important functions of corporate Web site. Many scholars insist that integrating marketing communication functions into one medium is a critical activity for business success (e.g., Blattberg and Deighton, 1991; Clark, 1997; Rao, Salam, and DosSantos, 1998; Strauss and Frost, 1999). Therefore, one of the important jobs of marketers is to select and integrate relevant information on a Web site.

Third, this empirical study warns practitioners not to accept conventional wisdom without systematic investigation. Some popular examples of the conventional wisdom in relation to Web design are “Simple is better” and “Content is king”. Although the meaning of “simple” is not clearly defined, generally simple can be understood as simple design (less complicated) or simple content (less information). Contrary to

industry wisdom, the results of this study showed that the hypermedia type, and the integrated communication type of Web site were more effective than the static image type and the basic information type, respectively. This implies that consumers prefer more information and interactive Web sites, which ultimately helps consumers feel that they are interacting with firms, and perceive that the information provided is useful. Perceived ease of use was not a critical factor in understanding consumer attitude on a Web site. For Web designers, it appears that the use of dynamic hypermedia (e.g., animation, audio, video, and links) will enhance the effectiveness of a corporate Web site (Blumberg and Galyean, 1995; Cockburn and Wilson, 1996; Hamilton and Luo, 1999). The study also showed that the belief "content is king" is not in fact the case. As discussed before, it was found that both content and structure are critical factors of consumer attitude and both seem to contribute equally to enhance positive attitude. Accordingly, the study result indicates that 'both content and structure are king'. This strongly emphasises the need for close collaboration between marketers and Web designers.

Fourth, to overcome the limitations of traditional methods of assessing Web site effectiveness, the WAM was developed. In the model, a critical predictor of consumer behaviour is social interaction between a Web site (or a firm) and a user. Unlike attitude toward the Web site, social interaction measures can examine more precise emotional and cognitive responses to the marketing environment. The use of socio-emotional and task-related interaction gives practitioners the opportunity to closely investigate consumer attitudes. Understanding how consumers feel toward a specific type of Web site enables marketers or Web designers to forecast consumer behaviour, which in turn can help maximise the effectiveness of the Web site (Shimp, 1997).

Fifth, it has been often argued that a Web site is a rational medium and so the communication process with a Web site has been mainly studied from the cognitive point of view. However, this study found that a Web site is an emotional and cognitive medium. The results demonstrated the superiority of the emotional component (i.e., social presence) over the cognitive component (i.e., perceived usefulness) for forecasting overall attitude. Therefore, marketers should keep in mind that a good Web site should foster not only the perception of usefulness but also the feeling that the user is fully interacting with a Web site. To some extent, these factors are controllable by marketers and Web designers.

Finally, the study indicates the important role of individual user differences. As already discussed, Web literacy had an impact on a consumer's feeling of social presence. This result indicates that a so-called one-size-fits-all design does not seem to work well (Egan, 1988; Nielsen, 1993; Palmquist and Kim, 2000). Besides, although they were controlled in this study, consumers' motives and culture seem to influence consumer attitudes. As a result, those factors should be considered in the design of corporate Web sites.

7.5 Limitations of the Study

There were several limitations of the research methods use in this study. Firstly, the current study adopted a cross-sectional design, which was conducted at one point in time. While it provided a useful "snapshot" of consumer data help to understand the phenomenon under study, it could not explain possible changes in consumer attitudes over time. It is generally recognised that longitudinal studies (or at least a series of

cross-sectional studies) can detect attitude changes over time and allow stronger inferences to be drawn about the dynamic elements of behaviour (De Wulf, 1999).

Secondly, there were limitations arising from the sample used in this study. First, the sample size was relatively small (n = 160). Given the relatively small sample size, more versatile and powerful statistical techniques such as Structural Equation Model (SEM), which is optimised for large samples of 200 to 400 subjects (Muehling and Laczniak, 1992), could not be run. Instead this study utilised the conventional ordinary least square (OLS) regression to analyse data gathered from the experiment.

Moreover, the subjects were not taken from a probability sample. Although there appeared not to be any sample biases, compared to the population from which it was drawn, this possibility cannot be categorically ruled out. A related problem was that of the population of interest for the overall study, university students. As in many marketing and psychology studies, students were treated as representative of a broader national population (young adults, aged 18 – 30 years), but it could be questioned whether this was a valid assumption (e.g., it is likely that university students are not representative of the broader population on a number of variables which are relevant to the study, such as Web literacy).

Thirdly, another limitation was the procedure used to validate the summated scales in the questionnaire. Although the researcher was reasonably confident that the scales were reliable, unidimensional, had good item analysis coefficients and expert-determined face validity, there was no rigorous assessment of the construct validity of the scales (i.e., in terms of convergent, discriminant or nomological validity). In other words, it

cannot be conclusively stated that the scales did indeed accurately measure the constructs in the research model. Further validation studies are required to confirm that the measures accurately measured the constructs, for example by using such techniques as multi-trait, multi-method (MTMM) matrices and structural equation modelling (e.g., Campbell and Fiske, 1959; Peter, 1981).

Finally, this study controlled some important variables such as motives for Web use and culture. For example, even though there were many motives for Web use (e.g., information, entertainment, communication, and so forth), the experiment was conducted in the context of "search for information". In addition, it was carried out only in Australia. Therefore, the results of this study may not be generalisable to other situations and contexts.

Despite these limitations, the present study provides valuable insights into the study of Web-based or Internet marketing. The acknowledged limitations of this study have led to suggestions for further research.

7.6 Areas for Further Research

In the preceding section, the limitation of using a cross-sectional research design was raised. As the Web is growing and evolving very quickly, the nature of Web sites is not fixed (Feldman, 1997; Koehler, 1999). Furthermore, over time consumers' levels of Web literacy are also changing. Accordingly, a "snapshot" experiment cannot fully explain the new phenomena in WMC. Alternatively, further research employing longitudinal methods, which assess the same subjects over time, would allow more

precise investigation of cause and effect relationships between Web site typology and consumer attitudes. In addition, more sophisticated experimental methods such as a within-subject design may improve our understanding of the phenomenon studied. In a within-subject design each subject experiences every experimental condition (i.e., all the test Web sites), therefore differences in response to a Web site by the same subject under different conditions can be detected (Shaughnessy and Zechmeister, 1994).

In terms of the sample, future studies should involve larger samples with greater diversity in age groups, levels of Web literacy, and educational background, and so on. Even though university students may be a typical consumer group, it can be assumed that their levels of Web literacy would be comparatively higher than those of the general public. This study showed that Web literacy has an impact on the relationship between Web site structure and social presence. Accordingly, in order to generate more generalisable results, larger and more diverse samples are recommended.

As discussed in Chapter 4, culture is widely believed to influence consumer behaviour. There are several reasons why culture should be considered in studies of WMC. First of all, a Web site is inherently an international communication medium. Secondly, previous research on the Internet and the Web has found significant differences across industries and countries (e.g., Huizingh, 2000; Ju-Pak, 1999; McBride, 1997; Perry and Bodkin, 2000; Suh, Couchman, and Lee, 2002a and b). As a result, it is expected that consumers living in different countries would respond to a Web site differently. More importantly, the theoretical framework of this study was developed using evidence from Western cultures and conducted only in Australia. Hence, this model should be tested in the context of different cultures (Aaker and Maheswaran, 1997). Given that different

countries have not only large cultural differences but also different industry structures, it seems that a cross-national study would be appropriate and highly desirable (Suh, Couchman, and Lee, 2002a). Further studies in different countries, with different cultures, would strengthen the model's explanatory and predictive power.

Human communication is not a simple process of information transmission, but a more complex process involving interaction among subjects, tools, and objects. In terms of objects, or purposes, this study has investigated only one aspect, namely that of "information search". How are other purposes (e.g., entertainment, communication, education, and so on) used in the WAM? The inclusion of a variety of tasks would provide greater insights in studies of WMC.

7.7 Conclusions

The use of Web-based or Internet marketing is growing rapidly in today's increasingly globalise "networked economy", and associated with this has been an increase in the importance of corporate Web sites (Mohammed, Fisher, Jaworski and Cahill, 2002). But while more and more companies are establishing a presence on the World-Wide-Web through their Web sites, our understanding of the effectiveness of such corporate Web sites is still at a rudimentary stage. This is despite a recent proliferation of studies in the discipline of Marketing on the responses of customers to Web-based advertising, in the discipline of Communication on Computer-Mediated Communication, and in the discipline of Information Systems on the determinants of Web page usability. To help advance our understanding of Web site effectiveness, this study has constructed a new

theoretical model which seeks to explain Web site acceptance by different types of users.

This study proposes the WAM as a conceptual framework, which includes predictor, criterion, mediator, and moderator variables, for understanding consumer acceptance and use of a corporate Web site. Like a traditional advertising study, Web site typologies serve as predictors and communication effects are criterion variables. Meanwhile, individual differences, as moderators, explain "when" the effectiveness of a Web site is different. Finally, both affective and cognitive dimensions of social interaction, as mediators, describe "why" certain behaviour occurs. The current study has constructed this model by drawing on recent research developments in the areas of Marketing, Communication, and Information Systems. The model moves beyond previous frameworks used to assess conventional marketing media, to address the central feature of this new medium: users can actively interact with corporate Web sites.

On the basis of this framework, an experiment was conducted. Few Web site effectiveness studies have examined social interaction as a consumer-defined variable, and none of these have identified the consumers' socio-emotional and task-related responses toward the communication medium as important factors influencing overall consumer attitude and revisit intention. The current study clearly demonstrates the importance of these constructs when evaluating effectiveness of a Web site. Accordingly, it is hoped that this study makes a significant contribution to a burgeoning area of research that is of great and increasing importance to both the discipline and the practice of marketing.

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APPENDICES

Appendix 1: Sample Site List

A. Australian Companies

1. A.B.C. Learning Centres Limited: www.abclearningcentres.com
2. Adelaide Bank Limited: www.adlaidebank.com.au
3. Altium Limited: www.protel.com.au
4. Amcil Limited: www.amcil.com.au
5. Amcor Limited: www.amcor.com.au
6. AMP Diversified Property Trust: www.amp.com/au/diversified
7. AMP Limited: www.amp.com.au
8. AMP Shopping Centre Trust: www.amp.com.au/shoppingcentretrust
9. Anvil Mining NL: www.anvil.com.au
10. Aquarius Platinum Limited: www.aquariusplatinum.com
11. Ariadne Australia Limited: www.ariadne.com.au
12. Ashton Mining Limited: www.ashton.net.au
13. Atkins Carlyle Limited: www.atkinscar.com.au
14. Aurora Gold Limited: www.auoragold.com.au
15. Auspine Limited: www.auspine.com.au
16. Austar United Communications Ltd: www.austarunited.com.au
17. Australand Holdings Limited: www.australand.com.au
18. Australia Net.com Limited: www.australianet.com.au
19. Australian Foundation Investment Co Limited: www.afi.com.au
20. Australian Growth Properties Limited: www.363george.com.au
21. Australian Infrastructure: www.ausinfrastructure.com.au/
22. Automotive Industrial & Mining Supplies: www.ais-ltd.com.au
23. AXA Asia Pacific Holdings Limited: www.axa.com.au
24. Ballarat Goldfields NL: www.ballarat-goldfield.com.au
25. Bank of Western Australia Limited: www.bankwest.com.au
26. Barra Resources Limited: www.barraresources.com.au
27. Bendigo Bank Limited: www.bendigobank.com.au
28. Bioprospect Limited: www.bioprospect.com
29. Blackmores Limited: www.blackmores.com.au
30. Boral Limited: www.boral.com.au
31. Boulder Steel Limited: www.boulder.au.com
32. Brazin Limited: www.brazin.com.au
33. Brian McGuigan Wines Limited: www.mcguiganwines.com.au
34. Bridgestone Australia Limited: www.bridgestone.com.au
35. Bristile Limited: www.bristile.com.au
36. BRL Hardy Limited: www.brlhardy.com.au
37. BT Global Asset Management Limited: www.btfunds.com.au
38. Cabcharge Australia Ltd: www.cabcharge.com.au
39. Capral Aluminium Limited: www.capral-aluminium.com.au
40. Cellestis Limited: www.lodgpartners.com.au
41. Central Equity Limited: www.centralequity.com.au
42. Central Pacific Minerals NL: www.sppcpm.com
43. Challenger International Limited: www.challengergroup.com
44. Climax Mining Ltd: www.climaxmining.com.au
45. Coal & Allied Industries Limited: www.coalandallied.com.au
46. Coca-Cola Amatil Limited: www.ccamatil.com
47. Coffey International Limited: www.coffey.com.au
48. Colonial First State Property Trust Group: www.colonialfirststate.com.au/cft
49. Commonwealth Property Office Fund: www.commbank.com.au/cpof/
50. Computershare Limited: www.computershare.com.au
51. Corporate Express Australia Limited: www.ce.com.au

52. Coventry Group Limited: www.cgl.com.au
53. CPT Global Limited: www.cptglobal.com
54. Credit Corporation Group Ltd: www.creditcorp.com.au
55. CSL Limited: www.csl.com.au
56. Cullen Resources Limited: www.aucullenresources.com.au
57. Data Advantage Limited: www.dataadvantage.com.au
58. Davnet Limited: www.davnet.com.au
59. Delta Gold Limited: www.deltagold.com.au
60. Deutsche Office Trust: www.realestate.australia.db.com
61. Djerriwarrh Investments Limited: www.djerri.com.au
62. Downer EDI Limited: www.downergroup.com.au
63. Dwyka Diamonds Limited: www.dwykadiamonds.com
64. Eastern Corporation Limited: www.com.aueasterngold.com
65. Ecorp Limited: www.ecorp.com.au
66. Emperor Mines Ltd: www.emperor.com.au
67. Energy Equity Corporation Ltd: www.eec.com.au
68. Envestra Limited: www.envestra.com.au
69. Equatorial Mining NL: www.equatorial.com.au
70. ERG Limited: www.erggroup.com
71. Evans Deakin Industries Ltd: www.evansdeakin.com.au
72. Fleet Capital Limited: www.fleetcapital.com.au
73. Flight Centre Limited: www.flightcentre.com
74. Forrester Kurts Properties Limited: www.fkp.com.au
75. FTR Holdings Limited: www.ftrholdings.com.au
76. G.U.D. Holdings Limited: www.gud.com.au
77. Gandel Retail Trust: www.gandel.com.au
78. Genesis Research and Development Corporation: www.genesis.co.nz
79. GME Resources Limited: www.gme-resources.com.au
80. Goodman Fielder Ltd: www.gfidentity.com
81. Graincorp: www.graincorp.com.au
82. GRD NL: www.grd.com.au/grd/grdhome.html
83. Gutnick Resources NL: www.gutnickresources.com.au
84. Gympie Gold Limited: www.gympeigold.com.au
85. Hallmark Consolidated Limited: www.hallmarkconsolidated.com
86. Harvey Norman Holdings Limited: www.harveynorman.com.au
87. Henry Walker Eltin Group LTD: www.hwe.com.au'pages/home/home.html
88. Hill 50 Gold NL: www.hill50.com.au
89. Hills Motorway Group: www.hillsmortorway.com.au
90. Hostworks Group Limited: www.hostworks.com.au
91. Hutchison Telecommunications (Australia): www.orange.net.au
92. IBA Technologies Limited: www.iba.com.au
93. Iluka Resources Limited: www.iluka.com
94. Incitec Limited: www.incitec.com.au
95. Inovax Limited: www.inovax.com.au
96. Iocom Ltd: www.iocom.com.au
97. James Hardie Industries Ltd: www.jameshardie.com
98. Johnson's Well Mining NL: www.jwm.com.au
99. Just Jeans Group Limited: www.justjeans.com.au
100. KAZ Computer Services Limited: www.kaz.com.au
101. Lake Technology Limited: www.lake.com.au
102. Leighton Holdings Limited: www.leighton.com.au
103. M.I.M. Holdings Limited: www.mim.com.au
104. Macquarie Bank Ltd: www.macquarie.com.au
105. Macquarie Country Wide Trust: www.macquarie.com.au/countrywide
106. Macquarie Infrastructure Group: www.macquarie.com.au/mig
107. Magellan Petroleum Australia Limited: www.magnet.com.au
108. McConnell Dowell Corporation Limited: www.mcconnelldowell.com.au
109. Meditech Research Limited: www.mrl.com.au
110. Metal Storm Limited: www.metalstorm.com

111. Miller's Retail Ltd: www.retailclub.com.au
112. Mirvac Group: www.mirvac.com.au
113. Monadelphous Group Limited: www.monadel.com.au
114. Namakwa Diamond Company NL: www.namakwadiamondco.com.au
115. National Can Industries Limited: www.natcan.com.au
116. National Telecoms Group Limited: www.ntgroup.com.au
117. Neverfail Springwater Limited: www.neverfail.com.au
118. New Tel Limited: www.newtel-limited.com
119. News Corporation Limited (The): www.newscorp.com
120. Normandy Mining Limited: www.normandy.com.au
121. Novus Petroleum Limited: www.nvs.com.au
122. Oamps Limited: www.oamps.com.au
123. Oil Search Limited: www.oilsearch.com.au
124. OneSteel Limited: www.onesteel.com
125. OPSM Protector Limited: www.opsmprotector.com
126. Orica Limited: www.orogen.com
127. Pacific Dunlop Limited: www.pacdun.com.au
128. PacMin Mining Corporation Limited: www.pacmin.com.au
129. PaperlinX Limited: www.paperlinx.com.au
130. Peptech Limited: www.peptech.com.au
131. Permanent Trustee Company Limited: www.permanentgroup.com.au
132. Petaluma Limited: www.ozwine/petalumaltd
133. Petroz N.L.: www.petroz.com.au
134. Platinum Capital Limited: www.platinum.com.au
135. Poltech International Limited: www.poltech.com.au
136. Portman Limited: www.portman.com.au
137. Pracom Limited: www.pracom.com.au
138. Primary Health Care Limited: www.primelife.com.au
139. Publishing and Broadcasting Limited: www.pbl.com.au
140. QBE Insurance Group Limited: www.qbe.com.au
141. QPSX Limited: www.qpsx.com.au
142. Reckon Limited: www.reckon.com.au
143. Reef Casino Trust: www.cairns.directory.citysearch.com.au/e/v/cairn/0033/32/60/3.html
144. Reinsurance Australia Corporation Limited: www.reac.com.au
145. Resolute Limited: www.resolute-ltd.com.au
146. Rio Tinto Limited: www.riotinto.com
147. Santos Limited: www.santos.com.au
148. Securenet Limited: www.securenet.com.au
149. Seven Network Limited: www.i7.com.au
150. Sigma Co Limited: www.sigmaco.com.au
151. Simeon Wines Limited: www.simeon.com.au
152. Singleton Group Limited: www.jsa.com.au or www.singo.com.au
153. Smorgon Steel Group Ltd: www.smorgonsteel.com.au
154. Solution 6 Holdings Limited: www.solution6.com
155. Sons of Gwalia Limited: www.sog.com.au
156. Southern Cross Broadcasting (Aus) Limited: www.southercrossbroadcasting.com.au
157. SP Telecommunications Limited: www.kooee.com.au
158. Spicers Paper Limited: www.spicers.com.au
159. ST Synergy Limited: www.stsynergy.com
160. St. George Bank Limited: www.stgeorge.com.au
161. Straits Resources Limited: www.straits.com.au
162. Striker Resources NL: www.striker.com.au
163. Sunraysia Television Limited: http://local.abc.net.au/sunraysis
164. Sydney Aquarium Limited: www.sydneyaquarium.com.au
165. Sylvania Resources Limited: www.sylvaniaresources.com.au
166. Tab Queensland Limited: www.tabq.com.au
167. Tap Oil Limited: www.tapoil.com.au
168. Techstar Ltd: www.techstar.com.au
169. Telemedia Networks International Limited: www.telemedianet.com.au

170. Telstra Corporation Limited: www.telstra.com
171. Tempo Services Limited: www.temposervices.com.au
172. Thakral Holdings Limited: www.thakral.com.au
173. The Franked Income Fund: www.gresham.com.au
174. Thundelarra Exploration Limited: www.thundelarra.com
175. Timbercorp Limited: www.timbercorp.com.au
176. Tomato Technologies Limited: www.tomatotechnologies.com.au
177. Tourism Asset Holdings Limited: www.tahl.com.au
178. Transurban City Link: www.transurban.com.au
179. Tyndall Meridian Trust: www.tyndall.com.au
180. Union Capital Limited: www.unioncapital.com.au
181. United Group Limited: www.unitedgroup.com.au
182. Village Roadshow Limited: www.villageroadshow.com.au
183. Vision Systems Limited: www.vsl.com.au
184. Wesfarmers Limited: www.wesfarmers.com.au
185. Westel Group Limited: www.westel.com.au
186. Westfield America Trust: www.westfield.com.au
187. Westfield Trust: www.westel.com.au
188. Westpac Banking Corporation: www.westpac.com.au
189. WMC Limited: www.wmc.com.au
190. Woolworths Limited: www.woolworthslimited.com.au

B. Korean Companies

1. Asia Cement Manufacturing: www.asiacement.co.kr
2. Baek Kwang Mineral Products: www.bkmp.co.kr
3. Bing-Grae Company Limited: www.bing.co.kr
4. Bong Shin Co., Ltd.: www.bong-shin.co.kr
5. Boryung Pharmaceutical Company Limited: www.boryung.co.kr
6. Bum Yang Food Co., Ltd.: www.bumyang.co.kr
7. Byuck San Corporation: www.byucksan.com
8. Capro Corporation: www.hcccapro.co.kr
9. Century Corporation: www.gocentury.co.kr
10. Cheil Communications Incorporated: www.cheil.co.kr
11. Cheju Bank Ltd.: www.chejubank.co.kr
12. Cho Hung Bank: www.chb.co.kr
13. Choil Aluminium Manufacturing Company Ltd: www.choilal.co.kr
14. Chokwang Paint Ltd.: www.chokwangpaint.com
15. Chonggu Company Limited: www.chonggu.co.kr
16. Choong Wae Pharmaceutical: www.cwp.co.kr
17. Chun Ji Industrial Co., Ltd.: www.chunji.co.kr
18. Chungho Elcom: www.chelcom.co.kr
19. Crown Confectionery Co., Ltd.: www.crown.co.kr
20. Dae Chang Industrial Company: www.brasone.co.kr
21. Dae Ho Corporation: www.daehocon.co.kr
22. Daeduck GDS Company Limited: www.daeduckgds.com
23. Daehan City Gas Co., Ltd.: www.daehancitygas.com
24. Daeil Chemical Co., Ltd.: www.daeilchem.co.kr
25. Daelim Industrial: www.dic.co.kr
26. Daewon Chemical Company Limited: www.daewon21.co.kr
27. Daewoo Electronics Company Limited: www.dwe.co.kr
28. Daewoo Telecom Company Limited: www.dwt.co.kr
29. Dahaam e-TEC Company Limited: www.shp.co.kr
30. Daihan Eunpakgy Company Limited: www.dhe.co.kr
31. Daou Technology Incorporated: www.daou.co.kr
32. Digital Power Communications Company Ltd.: www.dpc.co.kr
33. Dong Il Corp: www.dong-il.com/dic.asp
34. Dong Sung Pharm Corporation: www.dongsungpharm.co.kr
35. Dong Yang Elevator Co., Ltd.: www.dongyang-elevator.com
36. Dongbang Agro Corporation: www.dongbangagro.co.kr
37. Dongbu Hannong Chemical Company Limited: www.dongbuchem.com
38. Dongbu Steel Company Limited: www.dbstl.co.kr
39. Dongil Rubber Belt Co., Ltd.: www.dongilbelt.co.kr
40. Dongsu Industrial Company Limited: www.dongsu.co.kr
41. Dongwon Fisheries Co., Ltd.: www.dongwonfish.co.kr
42. Dongwon Securities Company Limited: www.choiceup.com
43. Dongyang Gangchul Company Limited: www.dygc.co.kr
44. Dongyang Tin Plate Co., Ltd.: www.dongyangtp.co.kr
45. Doosan Corporation: www.soosan.co.kr
46. Duck Yang Industry Company Limited: www.duckyang.co.kr
47. ENEX Company Limited: www.enex.co.kr
48. Eusung Industrial Co., Ltd.: http://esic.koreasme.com
49. First Mutual Savings & Finance Co., Ltd.: www.jeilbank.co.kr
50. Future Systems Incorporated: www.future.co.kr
51. Gold Mutual Savings & Finance Co., Ltd.: www.goldbanking.co.kr
52. Haansoft Inc: www.haansoft.com
53. Haitai Confectionary: www.ht.co.kr
54. Halla Engineering & Construction Co.: www.halla.co.kr
55. Han Il E Wha Co., Ltd.: www.hanileh.co.kr
56. Han Kuk Carbon Company Limited: www.fiber-x.com
57. Hana Securities Company Limited: www.hanastock.co.kr

58. Hanchang Corporation: www.hanchang.co.kr
59. Hanil Iron & Steel Co., Ltd.: www.hanilsteel.co.kr
60. Hanjin Shipping Company Limited: www.hanjin.com
61. Hankook Cosmetics: www.ihkcos.co.kr
62. Hankuk Paper Manufacturing Company Limited: www.gopaper.co.kr
63. Hanshin Construction Co., Ltd.: www.hanshinc.com
64. Hansol CSN Company Limited: www.hansolcsn.com
65. Hansol Telecom Co., Ltd.: www.hansoltelecom.co.kr
66. Hanvit Securities Company Limited: www.hanvitsec.co.kr
67. Hanwha Securities Company Limited: www.koreastock.co.kr
68. Heung Ah Corporation: www.heungah.co.kr
69. Hi-Tron Systems: www.hitron.co.kr
70. Hotel Shilla Co: www.shilla.samsung.co.kr
71. HS R&A: www.hwaseunghk.com/dir.htm
72. Hung Chang Company Limited: www.hungchang.co.kr
73. Hwa Sung Industrial Company: www.hwasung.co.kr
74. Hynix Semiconductor Incorporated: www.hei.co.kr
75. Hyundae Metal Co., Ltd.: www.hyundaelock.com or www.hdlock.co.kr
76. Hyundai Department Store Company Limited: www.e-hyundai.com
77. Hyundai HYSCO: www.hysco.com
78. Hyundai Mobis: www.mobis.co.kr
79. Hyundai Securities Company Limited: www.stockmarket.co.kr
80. Il Dong Pharmaceutical Company Limited: www.ildong.com
81. IL Jin Electric Company: www.iljin.co.kr
82. Ileun Securities Company Limited: www.powerstock.co.kr
83. Ilyang Pharmacetutical Co., Ltd: www.ilyang.co.kr
84. INI Steel Company: www.iisc.co.kr
85. INZI Controls Company Limited: www.inzi.co.kr
86. Jindo Corporation: www.jindo.co.kr
87. Kedcom Company Limited: www.kedcom.co.kr
88. Keun Wha Pharmaceutical Co., Ltd.: www.kunwha.com
89. Kia Steel Company Limited: www.kss.co.kr
90. Kirin Co., Ltd.: www.kirin.co.kr
91. Kohap Ltd.: www.kohap.co.kr
92. Kolon Industries Inc: www.ikolon.co.kr
93. Koram Bank: www.goodbank.com
94. Korea Circuit Company Limited: www.kcg.co.kr
95. Korea Cottrell Co., Ltd.: www.cottrell.co.kr
96. Korea Developement Corporation: www.kdc.co.kr
97. Korea Electric Terminal Co.: www.ket.co.kr
98. Korea Fine Chemical Company Limited: www.finechem.co.kr
99. Korea Gas Corporation: www.kogas.co.kr
100. Korea Industrial Development Co.: www.hdkid.com
101. Korea Kumho Petrochemical Company: www.kkpc.co.kr
102. Korea Network Corporation: www.knc.co.kr
103. Korea Polyol Company Limited: www.polyol.co.kr
104. Korea Tobacco & Ginseng Corporation: www.ktg.co.kr
105. Korean Gingseng Products Co., Ltd.: www.koje.co.kr
106. KT Freetel Company Limited: www.kt.co.kr
107. Kuk-Dong Corporation: www.kd.co.kr
108. Kukdong City Gas Co., Ltd.: www.naturalgasnet.co.kr or www.gaspia.com
109. Kukje Corporation: www.kukje.co.kr
110. Kum Kang Industrial: www.kumkangind.co.kr
111. Kumgang Korea Chemical Company Limited: www.kcc.co.kr
112. Kumho Tire Co., Ltd.: www.kumhotire.com
113. Kwang Dong Pharmaceutical Company Limited: www.kwang-dong.co.kr
114. Kyeryong Construction Industrial Co. Ltd: www.krcon.co.kr
115. Kyung In Electronics Co., Ltd.: www.kei.co.kr
116. Kyung Nong Corporation: www.knco.co.kr/kyungnong/kn.htm

117.Kyungdong Boiler Co., Ltd.: www.boiler.co.kr
118.Lady Company Limited: www.lady.co.kr
119.Lee Ku Industrial Co., Ltd.: www.leeku.com
120.LG Chem Investment Limited: www.lgchem.co.kr
121.LG Industrial Systems Company Limited: www.lgis.co.kr
122.LG Investment & Securities Company Limit: www.iflg.com
123.Lotte Chilsung Beverage Co., Ltd.: www.lottechilsung.co.kr
124.Man Ho Rope & Wire Limited: www.manho.co.kr
125.Meritz Securities Company Limited: www.meritz.co.kr
126.Mirae Corporation: www.mirae.co.kr
127.Monami Co., Ltd.: www.monami.co.kr
128.Muhack Alcohol: www.muhak.co.kr
129.Nam Han Paper Mfg: www.namhanpaper.co.kr
130.Namsun Aluminum Co., Ltd: www.namsun.co.kr
131.Nasign Co., Ltd.: www.nasign.co.kr
132.Nexans Korea Limited: www.daesungcable.com
133.NSF Co Ltd: www.howow.com
134.Oriental Chemical Ind. Co., Ltd: www.oci.co.kr
135.Ottogi Corporation: www.ottogi,co.kr
136.Pacific Industries Incorporated: www.pacificid.co.kr
137.Pan-Pacific Trading Co., Ltd.: www.panpacific.co.kr
138.Partsnic Company Ltd: www.partsnic.com
139.Poonglim Industries Company Limited: www.poonglim.co.kr
140.Pumyang & Construction Co., Ltd.: www.pycon.co.kr
141.Pusan City Gas Co., Ltd.: www.pusangas.co.kr
142.Rocket Electric Co: www.rocket.co.kr
143.Saehan Industries Inc: www.saehan.co.kr
144.Sam Bu Construction Company Limited: www.sambu.co.kr
145.Sam Hwa Paints Industrial Company Limited: www.spi.co.kr
146.Sam Sung Pharmaceutical Industrial Co.: www.sspharm.co.kr
147.Sam Whan Camus Co Limited: www.swcamus.co.kr
148.Sam Young Chemical Co., Ltd.: www.sycc.co.kr
149.Samchully Company Limited: www.samchully.co.kr
150.Samick LMS Company Limited: www.samickco.co.kr
151.Samjin Pharmaceutical Company Limited: www.samjinpharm.co.kr
152.Samsung Corporation: www.samsungcorp.co.kr
153.Samsung Engineering Co.: www.samsungeng.co.kr
154.Samsung Heavy Ind: www.shi.samsung.co.kr
155.Samsung Techwin Company Limited: www.samsungtechwin.com/kr/index.html
156.Samyang Genex Company Limited: www.genex.co.kr
157.Samyung Trading Co., Ltd.: www.samyung.co.kr
158.SBW Limited.: www.sbw.co.kr
159.Segye Corporation: www.segye.co.kr
160.Seondo Electric Company Limited: www.seondo.co.kr
161.Seoul Food Industrial Co., Ltd.: www.seoulfood.co.kr
162.Sepoong Corporation: www.sepoongcorp.co.kr
163.Sewon Chemical Co., Ltd.: www.sewonchem.co.kr
164.Sewoo Polymer Co., Ltd.: www.s-trademart.com/co/s/sewoo/kr
165.Shin Dong Ah Fire & Marine Insurance Com: www.sdafire.com
166.Shin Heung Securities Co., Ltd.: www.shs.co.kr
167.Shin Sung Tong Sang co., Ltd.: www.ssts.co.kr
168.Shin Young Securities Company Limited: www.shinyoung.com
169.Shinhan Bank: www.shinhanbank.co.kr
170.Shinho Steel Co., Ltd.: www.shinhosteel.co.kr
171.Shinmoorim Paper Manufacturing: www.moorim.co.kr
172.Shinsung Engineering Company Limited: www.shinsung.co.kr
173.Silla Company Limited: www.sla.co.kr
174.SK Chemicals Company Limited: www.skchemicals.com
175.SK Global Company Limited: www.sk.co.kr

176. SKC Company Limited: www.skc.co.kr
177. Soosan Heavy Ind. Co., Ltd: www.soosan.co.kr
178. Ssang Yong Corporation: www.ssytrade.co.kr
179. STC Corporation: www.suttong.co.kr
180. Sung Chang Enterprise Company Limited: www.sungchang.co.kr
181. Sungmoon Electronics Co., Ltd.: www.smec-korea.co.kr
182. Sunjee Construction Co., Ltd.: www.sungjee.com
183. Tae Chang Company Ltd: www.tce.co.kr
184. Tai Lim Packaging Industries Company Ltd: www.tailim.com
185. TBK Electronics Co., Ltd.: www.tbk.co.kr
186. The Kwangju Bank: www.kjbank.co.kr
187. Tong Yang Confectionery Corporation: www.orionworld.co.kr
188. Tong Yang Mool San Corporation: www.tym.co.kr
189. Tongkook Corporation: www.tongkook.co.kr
190. Union Steel Manufacturing Company Limited: www.unionsteel.co.kr
191. WISCOM Company Limited: www.wiscom.co.kr
192. Woobang Housing & Construction Co., Ltd.: www.woobang.co.kr
193. YoulChon Chemical: www.youlchon.co.kr
194. Young Poong Corporation: www.ypzinc.co.kr
195. Youngbo Chemical Company Limited: www.youngbo.com
196. Yuhan Corporation: www.yuhan.co.kr Yuyang Telecom Company Limited: www.yuyang.co.kr

Appendix 2: Coding Books

Table A2.1 Coding Book for Web Site Content

Coding items	Data coding	Data collection/ Comments
1. ***Advertising***		
101. DES: Product/service description	0: absence 1: category only 2: description	Description about the individual product/service that the corporate provides.
102. CAT: Product catalogue	0: absence 1: category only 2: description	Description of more than two brands/ service items. It includes the index, named a 'catalogue' or a 'brochure.'
103. NEW: Product/service news	0: absence 1: category only 2: description	The information of new product including 'award' information.
104. PAC: Product package	0: absence 1: presence	Display of product package.
2. ***Public Relations***		
201. NWS: Company news	0: absence 1: category only 2: description	Any information about the corporate, usually named 'company news' or 'company announcement.'
202. HIS: Company history	0: absence 1: category only 2: description	Usually described as 'corporate history.'
203. MIS: Mission statement	0: absence 1: category only 2: description	The firm's mission, vision, philosophy, and so forth.
204. ORG: Company organisation	0: absence 1: category only 2: description	Structure, activity, division, directory, and performance.
205. FIN: Financial information	0: absence 1: category only 2: description	Any investor related information such as balance sheet, annual reports, etc.
206. AFF: Affiliated company	0: absence 1: category only 2: description	Any information about affiliated companies, partners, and alliance groups.
207. HUM: Human resources	0: absence 1: category only 2: description	Information about the executives, management, staff, and directors.
208. REC: Recruiting	0: absence 1: category only 2: description	Recruitment, career, and employment.
209. CEO: CEOs	0: absence 1: category only 2: description	Messages from CEOs such as 'CEOs' speech.'
210. SOC: Social activity	0: absence 1: category only 2: description	Corporate activities relating to the environment and community including charity and donation.
211. PRO: Company profile	0: absence 1: category only 2: description	Usually displayed as 'about the company.'

Table A2.1 Coding Book for Web Site Content (continued)

Coding items	Data coding	Data collection/ Comments
3. *Sales Promotion*		
301. CON: Contest	0: absence 1: presence	Any activity for winning something (e.g., cash, trips, or goods).
302. INC: Financial incentives	0: absence 1: presence	Any discount for customers or applicants (e.g., low-interest financing, rebate).
303. SAM: Sampling	0: absence 1: presence	Any kind of free gifts such as samples, free downloads of products.
304. DEM: Product demonstration	0: absence 1: presence	Display of a specific feature of products/ services.
4. *Online Selling*		
401. TRA: Transaction process	0: absence 1: presence	Information about online transactions, regardless of paying online or not.
402. PAY: Online payment	0: absence 1: presence	Payment through the Web.
5. *Customer Service*		
501. BRA: Branch locations	0: absence 1: presence	Information about the distribution channel (branches, dealers, and shops).
502. ASS: After sales service	0: absence 1: presence	Information about maintenance of products, including customer education and support.
503. FAQ: FAQs	0: absence 1: presence	Product/service related FAQs excluding technical support for Web usage.
504. TEC: Technical information	0: absence 1: presence	Technical information relating to the product/service including information on the product category.
505. FEE: Customer feedback	0: absence 1: presence	Any type of facilities that customers can provide direct feedback or their opinions (e.g., inquiry, suggestion, etc.).
506. CTC: Contact	0: absence 1: presence	Contact number or address (e.g., phone, Fax, e-mail). Usually 'contact us.'
6. *External Links*		
601. Links to affiliated company	0: absence 1: presence	Links to partners or alliance groups.
602. Links to other organisation	0: absence 1: presence	Links to industrial and/or financial organisations rather than affiliated companies.

Notes:
1. For 101-103, and 201-211: A case that shows only a category (usually on a menu button) was coded. When more than one word are shown, including short headlines and slogans, it was coded 2.
2. For all items: 1 and 2 include a pop-up menu.
3. Two items for "External Links" are prepared for an additional analysis.

Table A2.2 Coding Book for Web Site Structure

Coding items	Data coding	Data collection/ Comments
A. *Text*		
1. HEA: Headline	0: absence 1: presence	Short words such as headlines, slogans, or catch phrases.
2. DES: Description	0: absence 1: presence	Descriptive information about the product/service or the company. This usually includes more than one sentence.
B. *Image*		
3. LOG: Logo	0: absence 1: presence	Static display of the company logo or symbol. Usually expressed in visual.
4. PHO: Photo	0: absence 1: presence	Static display of any type of visual images such as photographs, pictures, and drawings.
C. *Video*		
5. MTE: Moving text	0: absence 1: presence	Continuous moving or blinking of textual information.
6. MIM: Moving image	0: absence 1: presence	Continuous moving or blinking of visual images such as photos, pictures, symbols, or characters.
7. VID: Video	0: absence 1: presence	More natural movement of visual images through advanced techniques like films or video clips.
8. VIC: Video icon	0: absence 1: presence	Display of icons or titles that imply films or videos being played (e.g., 'flash', 'media player', 'TV commercial').
D. *Audio*		
9. MUS: Music	0: absence 1: presence	Play of music or songs on the Web.
10. SOU: Sound	0: absence 1: presence	Any type of sound rather than music. This includes special sound effects.
11. SIC: Audio icon	0: absence 1: presence	Display of icons or titles that imply sound being played (e.g., 'speaker', 'real audio', 'flash', 'media player', 'TV commercial').
E. *Links*		
12. ILI: Internal links	0: absence 1: presence	Links within the same Web site. Usually expressed by a 'site map' or 'search' function.
13. ELI: External links	0: absence 1: presence	Links to other Web sites. Usually links to affiliated firms or other organisations.

Appendix 3: Inter-coder Reliability Statistics

Table A3.1 Crosstabulation of the Paired Coding: Dichotomous Web Site Content Items

			coder2		
			absence	presence	Total
coder1	absence	Count	456	16	472
		Expected Count	376.8	95.2	472.0
		% within coder1	96.6%	3.4%	100.0%
	presence	Count	23	105	128
		Expected Count	102.2	25.8	128.0
		% within coder1	18.0%	82.0%	100.0%
Total		Count	479	121	600
		Expected Count	479.0	121.0	600.0
		% within coder1	79.8%	20.2%	100.0%

Table A3.2 Cohen's Kappa Statistics: Dichotomous Web Site Content Items

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Measure of Agreement	Kappa	.802	.030	19.667	.000
N of Valid Cases		600			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Table A3.3 Crosstabulation of the Paired Coding: Three-point Scale Web Site Content Items

			coder2			
			absence	category only	description	Total
coder1	absence	Count	328	26	0	354
		Expected Count	210.6	118.0	25.4	354.0
		% within coder1	92.7%	7.3%	.0%	100.0%
	category only	Count	24	165	8	197
		Expected Count	117.2	65.7	14.1	197.0
		% within coder1	12.2%	83.8%	4.1%	100.0%
	description	Count	5	9	35	49
		Expected Count	29.2	16.3	3.5	49.0
		% within coder1	10.2%	18.4%	71.4%	100.0%
Total		Count	357	200	43	600
		Expected Count	357.0	200.0	43.0	600.0
		% within coder1	59.5%	33.3%	7.2%	100.0%

Table A3.4 Cohen's Kappa Statistics: Three-point Scale Web Site Content Items

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Measure of Agreement	Kappa	.775	.024	22.974	.000
N of Valid Cases		600			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Table A3.5 Crosstabulation of the Paired Coding: Web Site Structure Items

			coder2		
			absence	presence	Total
coder1	absence	Count	561	34	595
		Expected Count	362.5	232.5	595.0
		% within coder1	94.3%	5.7%	100.0%
	presence	Count	33	347	380
		Expected Count	231.5	148.5	380.0
		% within coder1	8.7%	91.3%	100.0%
Total		Count	594	381	975
		Expected Count	594.0	381.0	975.0
		% within coder1	60.9%	39.1%	100.0%

Table A3.6 Cohen's Kappa Statistics: Web Site Structure Items

		Value	Asymp. Std. Error[a]	Approx. T[b]	Approx. Sig.
Measure of Agreement	Kappa	.856	.017	26.716	.000
N of Valid Cases		975			

a. Not assuming the null hypothesis.

b. Using the asymptotic standard error assuming the null hypothesis.

Appendix 4: Instrument

University of Wollongong

Web Site Study Questionnaire

Now you have completed your exploration of the web site, please fill in this questionnaire. For most of the questions there are no right or wrong answers; it is what you feel about the web site you have explored that is important for this study. Please note that all questionnaires will remain anonymous, and the data collected will be kept confidential.

INSTRUCTIONS

For most questions simply circle the number that corresponds to your answer, as in the examples below.

Example A: *What is your sex?* 1. Male (2) Female

		Strongly disagree	Disagree	Inclined to disagree	Neutral	Inclined to agree	Agree	Strongly agree
Example B:	*I like this web site.*	1	2	3	(4)	5	6	7

SECTION ONE: YOUR REACTIONS TO THE WEB SITE

The following questions ask you about your reactions towards the web site you have just explored. Simply read each statement and indicate the extent to which you agree or disagree with it by circling the appropriate number (as in the examples above).

A. The Web Site as an Access Point to the Company

	Strongly disagree	Disagree	Inclined to disagree	Neutral	Inclined to agree	Agree	Strongly agree
This web site gives me a realistic impression of the company.	1	2	3	4	5	6	7
When exploring this web site, it felt like I was in personal contact with people in the company.	1	2	3	4	5	6	7
When exploring this web site, I did **not** feel good about the people in the company.	1	2	3	4	5	6	7
Exploring this web site was like being in a face-to-face meeting with people in the company.	1	2	3	4	5	6	7

Please continue ►

Page 1 of 3

B. Web Site Usefulness for Obtaining Information About Products

	Strongly disagree	Disagree	Inclined to disagree	Neutral	Inclined to agree	Agree	Strongly agree
This web site would help me to search more quickly for information about personal computers to buy.	1	2	3	4	5	6	7
This web site would improve my search for information when buying a personal computer.	1	2	3	4	5	6	7
This web would **not** make my search for information about personal computers more productive.	1	2	3	4	5	6	7
This web would make my search for information about personal computers more effective.	1	2	3	4	5	6	7
Overall, this web site would be useful for obtaining information about available products when buying a personal computer.	1	2	3	4	5	6	7

C. Web Site Useability

	Strongly disagree	Disagree	Inclined to disagree	Neutral	Inclined to agree	Agree	Strongly agree
Learning to use this web site was easy for me.	1	2	3	4	5	6	7
I could **not** easily get this web site to do what I wanted it to do.	1	2	3	4	5	6	7
This web site was straightforward and easy to understand.	1	2	3	4	5	6	7
It was easy for me to become skilled at using this web site.	1	2	3	4	5	6	7
Overall, I found this web site to be easy to use.	1	2	3	4	5	6	7

D. Overall Impression of Web Site

	Strongly disagree	Disagree	Inclined to disagree	Neutral	Inclined to agree	Agree	Strongly agree
This is **not** a good web site.	1	2	3	4	5	6	7
I like this web site.	1	2	3	4	5	6	7
This is an attractive web site.	1	2	3	4	5	6	7
This is an enjoyable web site.	1	2	3	4	5	6	7
The web site is pleasant to use.	1	2	3	4	5	6	7
Overall, this web site is recommendable to my friends.	1	2	3	4	5	6	7

Please continue ►

E. Site Revisit Intention

If you were searching for information about personal computers for sale on the web, how likely is it that you would revisit this web site?

Extremely unlikely	Very unlikely	Unlikely	Somewhat unlikely	Somewhat likely	Likely	Very likely	Extremely Likely
1	2	3	4	5	6	7	8

SECTION TWO: WEB EXPERIENCE QUESTIONNAIRE

1. How frequently do you access the web (e.g. to search for information)?

Never	Rarely	Occasionally	Moderately	Frequently	Very frequently	Extremely frequently
1	2	3	4	5	6	7

2. How familiar are you with the web?

Not at all familiar	Not very familiar	Somewhat familiar	Moderately familiar	Familiar	Very familiar	Extremely familiar
1	2	3	4	5	6	7

3. How would you rate your level of usage of the web?

Extremely low	Very low	Low	Moderate	High	Very high	Extremely high
1	2	3	4	5	6	7

4. How confident are you with your ability to navigate the web?

Not at all confident	Not very confident	Somewhat confident	Moderately confident	Confident	Very confident	Extremely confident
1	2	3	4	5	6	7

SECTION THREE: PARTICIPANT BACKGROUND INFORMATION

The following questions ask for some details about you, for statistical purposes only (i.e. the information will help me to describe my sample). Remember that this questionnaire is anonymous and the information will be kept strictly confidential.

What is your sex? 1. Male 2. Female

What is your age in years? _____

Are you a ... 1. Part-time student 2. Full-time student

What level student are you?

Undergraduate first year	Undergraduate second year	Undergraduate third year	Undergraduate other	Honours student	Postgraduate
1	2	3	4	5	6

Thank you for your time and effort in completing this questionnaire.

Appendix 5: Pilot Test Statistics

Table A5.1 Results of KMO and Barlett's Test

Construct	KMO Measure of Sampling Adequacy	Barlett's Test of Sphericity		
		Chi-square	df	Sig.
Social Presence	0.782	71.870	10	0.000
Perceived Usefulness	0.865	119.294	10	0.000
Perceived Ease of Use	0.836	106.888	10	0.000
Attitude Toward the Web Site	0.779	130.741	21	0.000
Web Literacy	0.802	106.743	6	0.000

Table A5.2 Correlation Matrix for Revised Social Presence Scale Items[a]

		F1	F2	F3	F4
Correlation	F1	1.000	.770	.625	.739
	F2	.770	1.000	.759	.772
	F3	.625	.759	1.000	.809
	F4	.739	.772	.809	1.000
Sig. (1-tailed)	F1		.000	.000	.000
	F2	.000		.000	.000
	F3	.000	.000		.000
	F4	.000	.000	.000	

[a]. Determinant = .161

Table A5.3 Correlation Matrix for Perceived Usefulness Scale Items[a]

		B1	B2	B3	B4	B5
Correlation	B1	1.000	.632	.465	.588	.587
	B2	.632	1.000	.716	.737	.717
	B3	.465	.716	1.000	.768	.766
	B4	.588	.737	.768	1.000	.758
	B5	.587	.717	.766	.758	1.000
Sig. (1-tailed)	B1		.000	.002	.000	.000
	B2	.000		.000	.000	.000
	B3	.002	.000		.000	.000
	B4	.000	.000	.000		.000
	B5	.000	.000	.000	.000	

[a]. Determinant = 2.841E-02

Table A5.4 Correlation Matrix for Perceived Ease of Use Scale Items[a]

		C1	C2	C3	C4	C5
Correlation	C1	1.000	.747	.751	.578	.665
	C2	.747	1.000	.660	.448	.530
	C3	.751	.660	1.000	.563	.783
	C4	.578	.448	.563	1.000	.560
	C5	.665	.530	.783	.560	1.000
Sig. (1-tailed)	C1		.000	.000	.000	.000
	C2	.000		.000	.003	.000
	C3	.000	.000		.000	.000
	C4	.000	.003	.000		.000
	C5	.000	.000	.000	.000	

[a]. Determinant = 4.114E-02

Table A5.5 Correlation Matrix for Revised Attitude Toward the Web Site Scale Items[a]

		D1	D2	D3	D4	D5	D6
Correlation	D1	1.000	.781	.406	.486	.358	.554
	D2	.781	1.000	.412	.427	.407	.549
	D3	.406	.412	1.000	.702	.708	.572
	D4	.486	.427	.702	1.000	.498	.533
	D5	.358	.407	.708	.498	1.000	.645
	D6	.554	.549	.572	.533	.645	1.000
Sig. (1-tailed)	D1		.000	.006	.001	.015	.000
	D2	.000		.006	.004	.006	.000
	D3	.006	.006		.000	.000	.000
	D4	.001	.004	.000		.001	.000
	D5	.015	.006	.000	.001		.000
	D6	.000	.000	.000	.000	.000	

[a]. Determinant = 3.093E-02

Table A5.6 Correlation Matrix for Web Literacy Scale Items[a]

		F1	F2	F3	F4
Correlation	F1	1.000	.770	.625	.739
	F2	.770	1.000	.759	.772
	F3	.625	.759	1.000	.809
	F4	.739	.772	.809	1.000
Sig. (1-tailed)	F1		.000	.000	.000
	F2	.000		.000	.000
	F3	.000	.000		.000
	F4	.000	.000	.000	

[a]. Determinant = 4.264E-02

Figure A5.1 Scree Plot for Initial Social Presence Scale

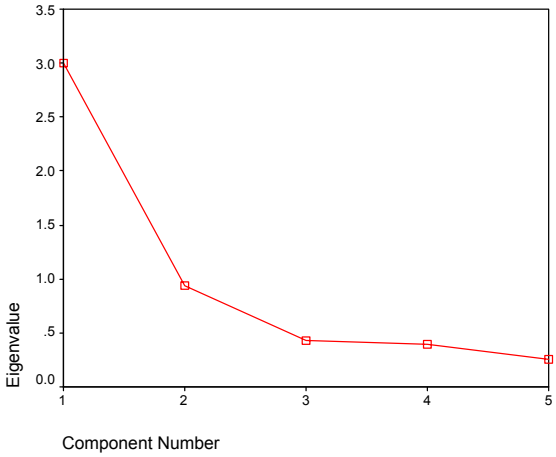


Figure A5.2 Scree Plot for Revised Social Presence Scale

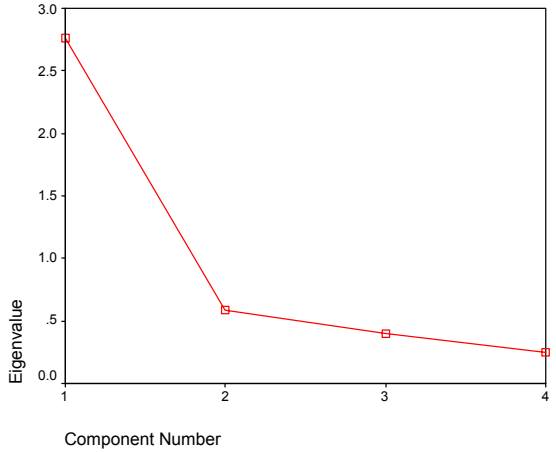


Figure A5.3 Scree Plot for Perceived Usefulness Scale

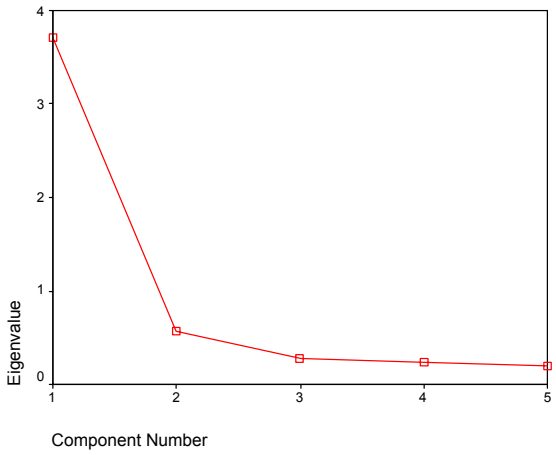


Figure A5.4 Scree Plot for Perceived Ease of Use Scale

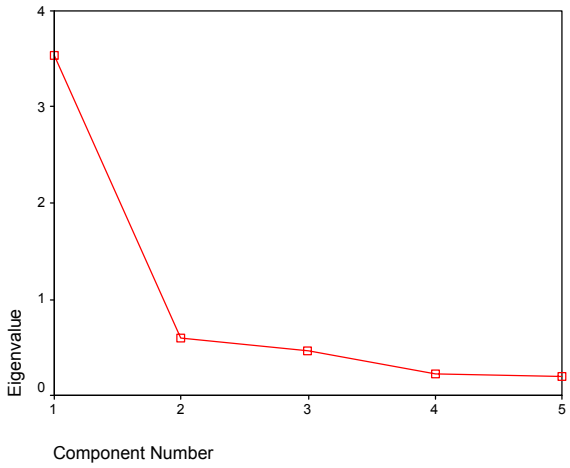


Figure A5.5 Scree Plot for Initial Attitude Toward the Web Site Scale

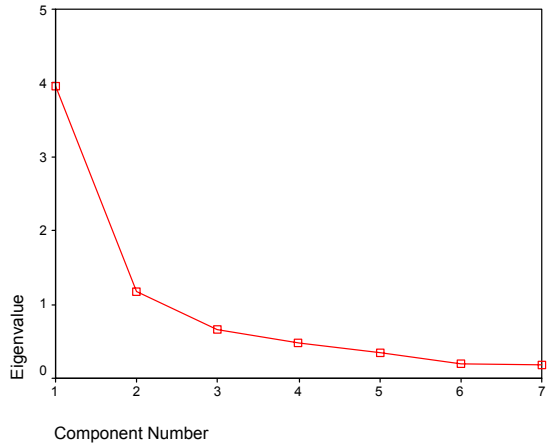


Figure A5.6 Scree Plot for Revised Attitude Toward the Web Site Scale

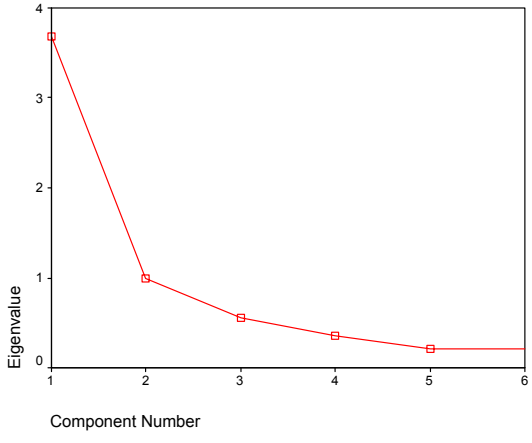
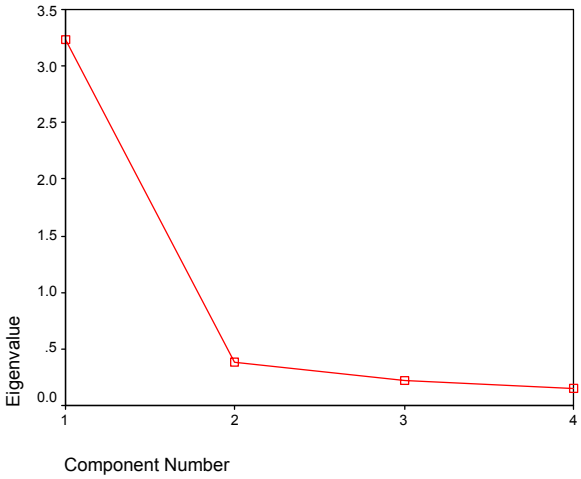


Figure A5.7 Scree Plot for Web Literacy Scale



Appendix 6: Experiment Statistics

Table A6.1 Case Summary of Casewise Diagnostics and Influential Observations

Case Number	Casewise Diagnostics				Cook's Distance
	Std. Residual	Perceived value	Predicted value	Residual	
A. Independent Variables: Structure and Content Dependent variable: Social presence					
60	-2.012	8	16.62	-8.62	.02628
109	-2.307	10	19.88	-9.88	.03454
B. Independent Variables: Structure and Content Dependent variable: Perceived usefulness					
5	-2.157	9	19.15	-10.05	.03021
79	2.093	29	19.15	9.85	.02845
92	3.369	35	19.15	15.85	.73660
96	-2.258	17	27.63	-10.63	.03310
116	-3.358	8	23.80	-15.80	.07320
C. Independent Variables: Structure and Content Dependent variable: Perceived ease of use					
3	-3.153	14	27.08	-13.08	.06454
23	-2.430	17	27.08	-10.07	.03832
36	2.375	33	23.15	9.85	.03663
79	2.056	33	24.48	8.52	.00074
84	2.617	34	23.15	10.85	.04444
140	-2.044	16	24.48	-8.48	.02712
D. Independent Variables: Structure, Content, and Web literacy Dependent variable: Social presence					
20	-2.099	6	14.88	-8.88	.04391
79	2.075	25	16.23	8.77	.02578
109	-2.095	10	18.86	-8.86	.03511
136	-2.239	6	15.47	-9.47	.08089
144	2.051	25	16.33	8.67	.02153
148	-2.181	12	21.22	-9.22	.04914
E. Independent Variables: Structure, Content, and Web literacy Dependent variable: Perceived usefulness					
5	-2.064	9	18.66	-9.66	.02552
79	2.208	29	18.66	10.34	.02920
92	3.092	35	20.53	14.47	.02920
96	-2.197	17	27.28	-10.28	.02614
116	-3.326	8	23.57	-15.57	.05662
F. Independent Variables: Structure, Content, and Web literacy Dependent variable: Perceived ease of use					
3	-4.446	14	29.63	-15.63	.14197
23	-2.620	17	26.21	-9.21	.03521
36	2.933	33	22.69	10.31	.04250
84	2.731	34	24.40	9.60	.04040
129	2.944	35	24.65	10.35	.08634
155	-2.188	15	22.69	-7.69	.02365
160	2.458	35	26.36	8.64	.03828
G. Independent Variables: Social presence, Perceived usefulness, Perceived ease of use Dependent variable: Attitude toward the Web site					
48	-2.885	13	26.15	-13.15	.13363
64	-2.269	21	31.34	-10.34	.01416
85	2.344	34	23.32	10.68	.13010
86	3.281	31	16.04	14.96	.06490
87	2.159	40	30.16	9.84	.02306
114	2.297	36	25.53	10.47	.02065
135	-2.026	18	27.23	-9.23	.06052

Figure A6.1 Scatterplot: Social Presence

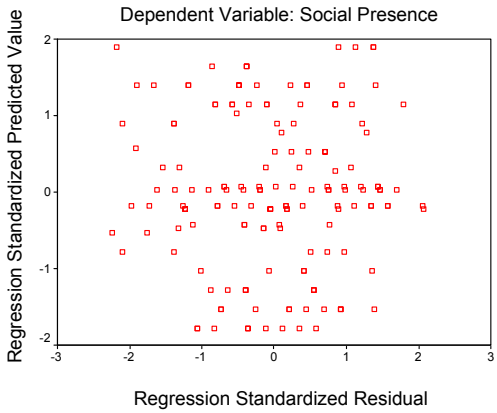


Figure A6.2 Scatterplot: Perceived Usefulness

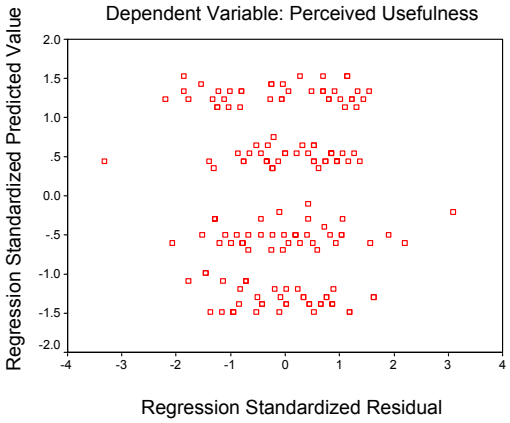


Figure A6.3 Scatterplot: Perceived Ease of Use

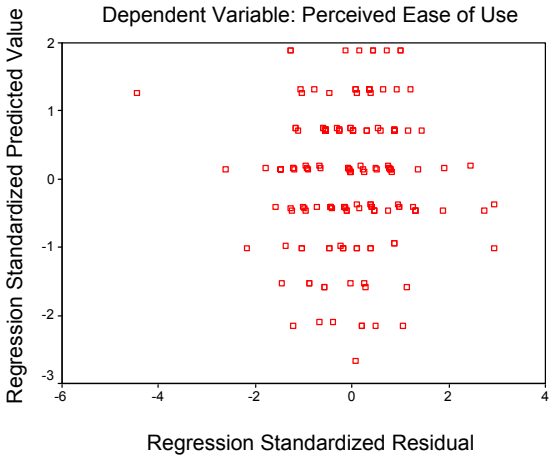


Figure A6.4 Scatterplot: Attitude Toward the Web Site

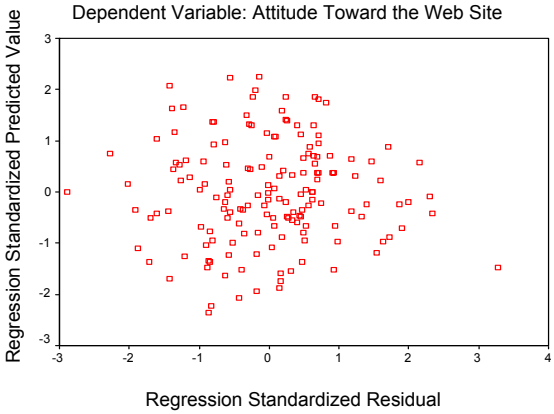


Figure A6.5 Partial Regression Plot:
Social Presence vs. Attitude Toward the Web Site

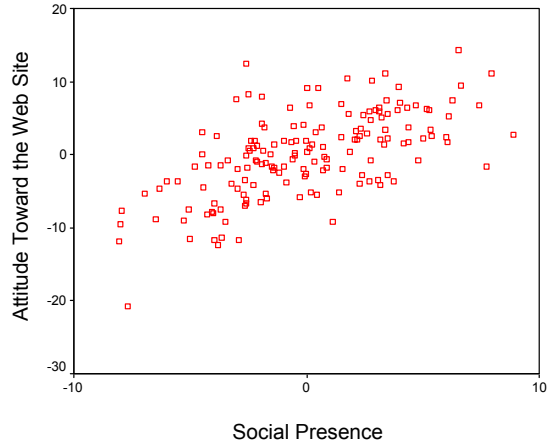


Figure A6.6 Partial Regression Plot:
Perceived Usefulness vs. Attitude Toward the Web Site

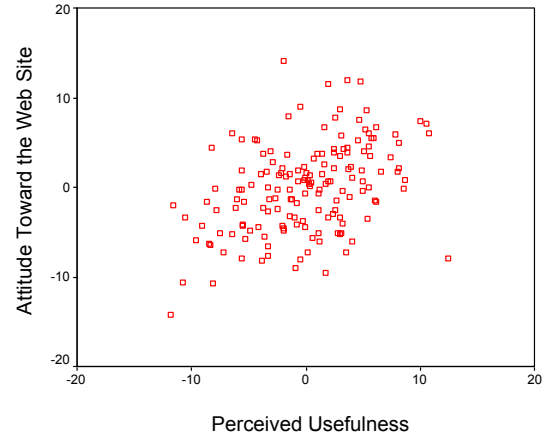


Figure A6.7 Partial Regression Plot:
Perceived Ease of Use vs. Attitude Toward the Web Site

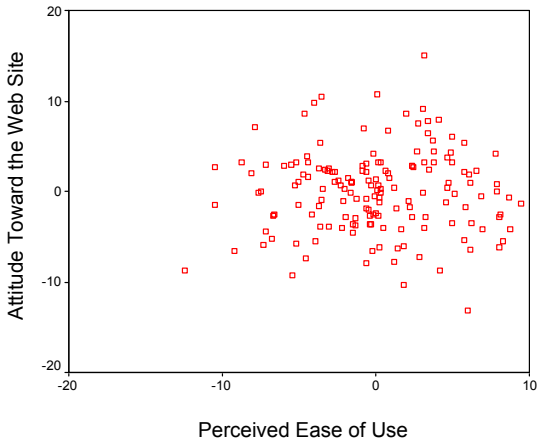


Figure A6.8 Scatterplot:
Attitude Toward the Web Site vs. Revisit Intention

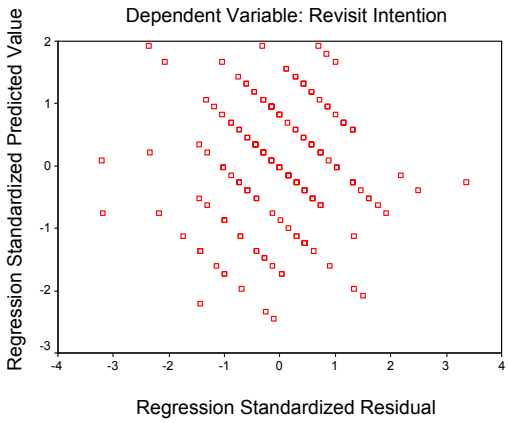


Figure A6.9 Histogram of Regression Standard Residuals:
Social Presence and Perceived Ease of Use

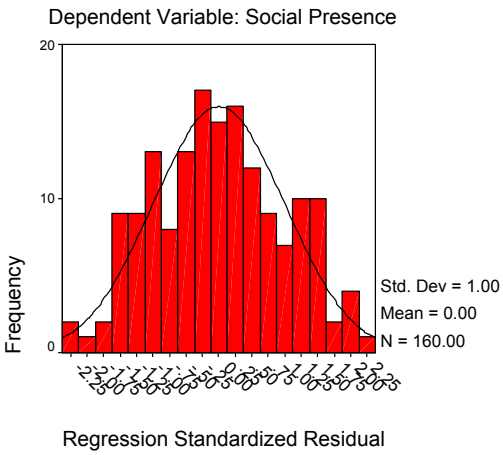


Figure A6.10 Normal P-P Plot of Regression: Social Presence and Perceived Ease of Use

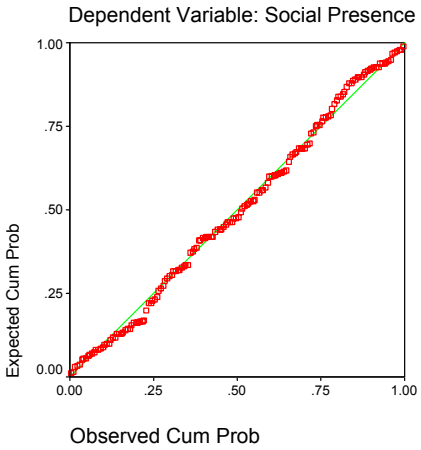


Figure A6.11 Histogram of Regression Standard Residuals: Perceived Usefulness and Social Presence

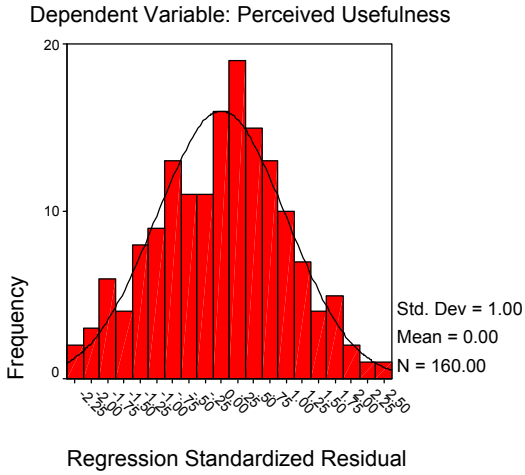


Figure A6.12 Normal P-P Plot of Regression: Perceived Usefulness and Social Presence

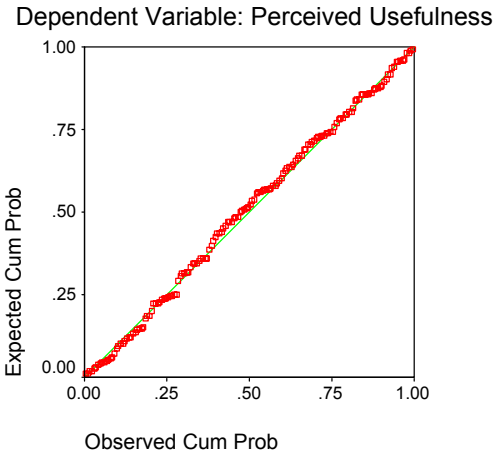


Figure A6.13 Histogram of Regression Standard Residuals: Perceived Ease of Use and Perceived Usefulness

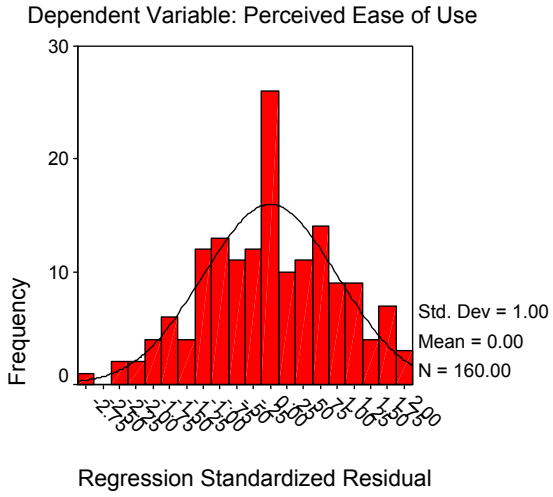


Figure A6.14 Normal P-P Plot of Regression: Perceived Ease of Use and Perceived Usefulness

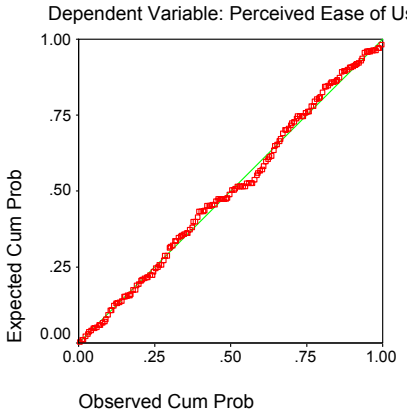


Figure A6.15 Histogram of Regression Standardised Residuals: Social Presence

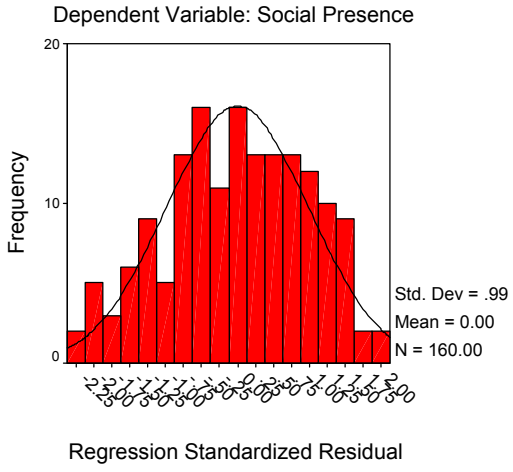


Figure A6.16 Normal P-P Plot of Regression Standardised Residuals: Social Presence

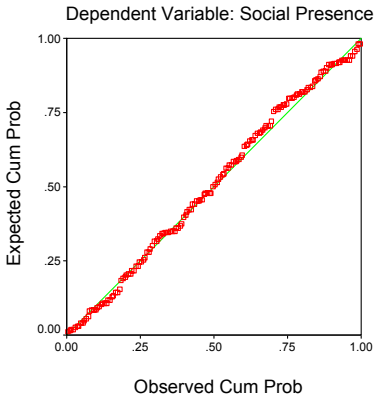


Figure A6.17 Histogram of Regression Standardised Residuals: Perceived Usefulness

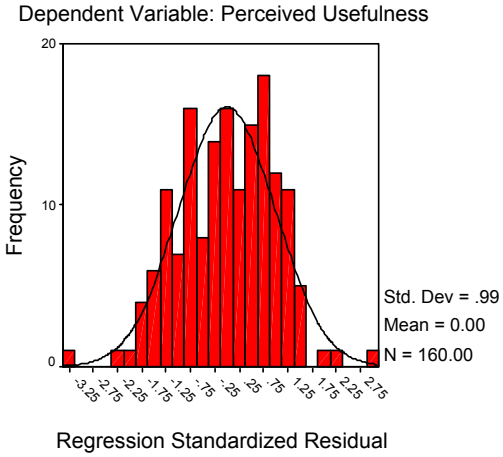


Figure A6.18 Normal P-P Plot of Regression Standardised Residuals: Perceived Usefulness

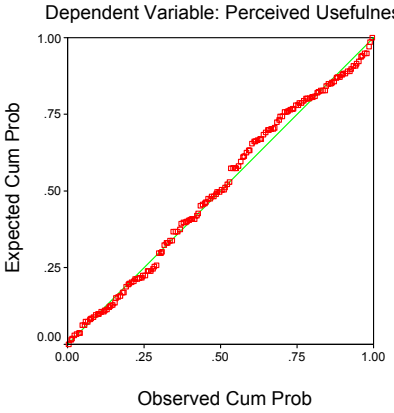


Figure A6.19 Histogram of Regression Standardised Residuals: Perceived Ease of Use

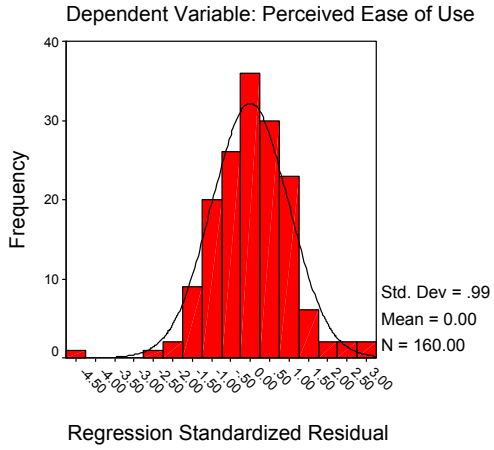


Figure A6.20 Normal P-P Plot of Regression Standardised Residuals: Perceived Ease of Use

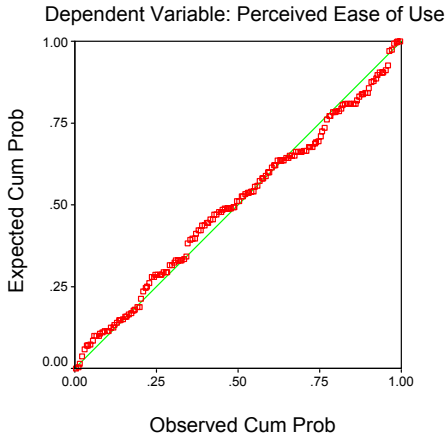


Figure A6.21 Histogram of Regression Standardised Residuals: Attitude Toward the Web Site

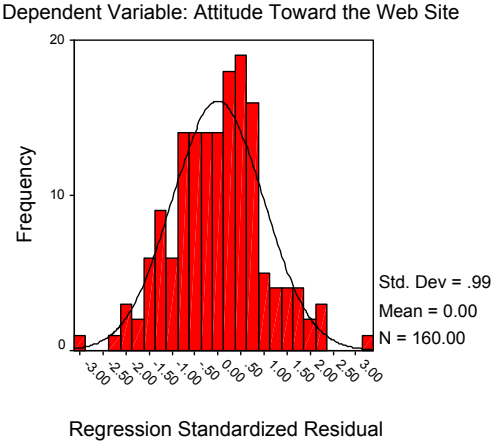


Figure A6.22 Normal P-P Plot of Regression Standardised Residuals: Attitude Toward the Web Site

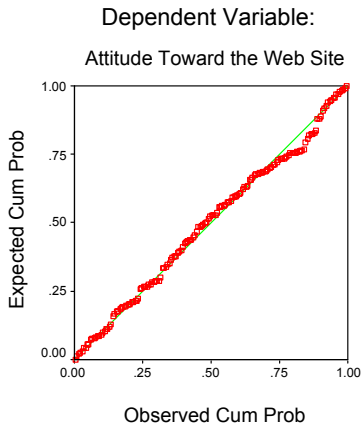


Figure A6.23 Histogram of Regression Standardised Residuals: Revisit Intention

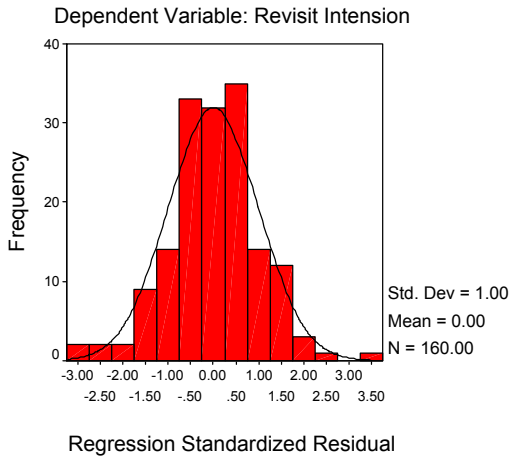


Figure A6.24 Normal P-P Plot of Regression Standardised Residuals: Revisit Intension

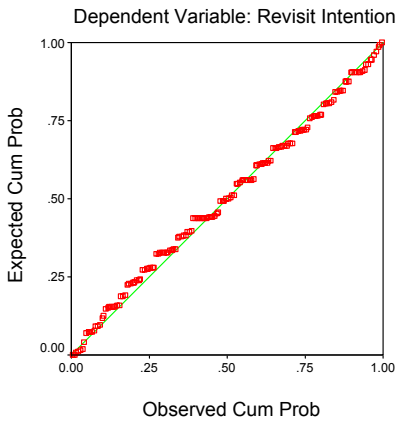


Figure A6.25 Scatterplot:
Perceived Usefulness vs. Social Presence

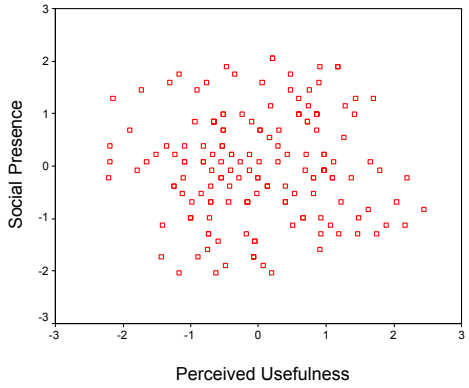


Figure A6.26 Scatterplot:
Perceived Ease of Use vs. Social Presence

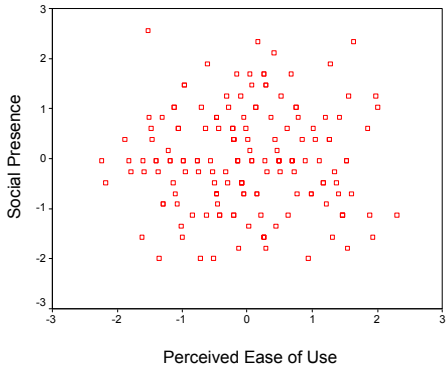


Figure A6.27 Scatterplot:
Perceived Usefulness vs. Perceived Ease of Use

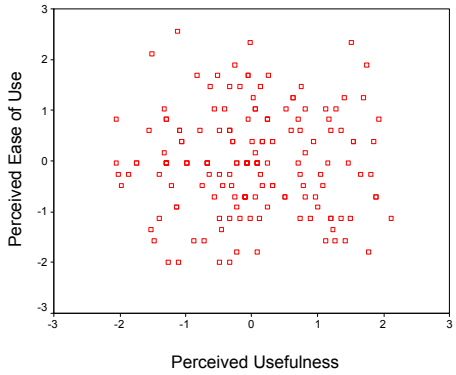


Figure A6.28 Partial Regression Plot: Web Literacy vs. Social Presence

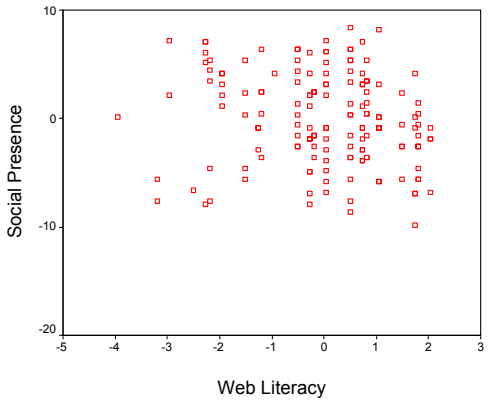


Figure A6.29 Partial Regression Plot: Web Literacy vs. Perceived Usefulness

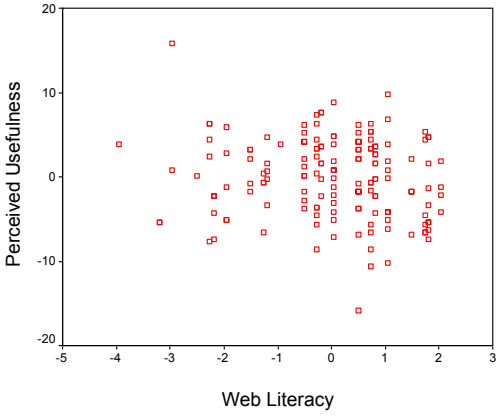


Figure A6.30 Partial Regression Plot: Web Literacy vs. Perceived Ease of Use