Evaluating the Effectiveness of Telepresence in Cultural Tourism Websites: Panoramic Virtual Tours for the Promotion of Tourism and Cultural Identity in Taiwan

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ABSTRACT

Within the context of globalisation, cultural identity has been emphasized by nation-states to differentiate themselves from others in global tourism markets. To be successfully positioned in the competitive global marketplace, a destination must create, as its key component, a favourable and appealing perception or image. As the Internet has become the predominant channel for tourism marketing, the establishment of successful online destination images is urgently needed. Destination images and positive online experiences have been found to correlate with the decision-making and behavioural intentions of tourists. In the physical world, travelling is a direct experience enabling tourists to observe and feel the exotic atmospheres of different places. Virtual experience, the verisimilitude of direct experience, has been recognised as an effective approach in tourism marketing. Its impact on user attitudes towards a destination can be enhanced via advanced website features. Telepresence, an experience of being metaphorically transported to another place, and a sense of presence in mediated environments, may facilitate the creation of a better online experience, due to its capability of intensifying user experience in virtual environments. Researchers have indicated that telepresence has positive effects on users’ attitudes toward websites. However, no empirical study has been carried out to examine the effectiveness of telepresence on tourism websites. Panoramic photography has been developed and utilised in the tourism area for many years, based on its feature of creating an interactive virtual experience. Using Taiwan as a case study, this research investigates the effects of interactivity and vividness, the major determinants of telepresence, on users’ attitudes toward the website. Panoramic photography is employed as a key feature of the website, and there is a focus on Naturalistic Decision Making (NDM) theory as the guiding principle of the experiment. Two websites with different levels of interactivity and vividness are developed for the experiment (http://www.culturaltaiwan.com/high/index.php; http://www.culturaltaiwan.com/low/index.php). Users are then tested in a post-experiment questionnaire, assessing the value of attractiveness, informativeness, enjoyment, and telepresence. The results indicate that significant differences were only found in enjoyment value, which conflicts with the assertion of previous studies. It is suggested that the notion of experimental reality should be taken into
consideration and that NDM may provide a useful model for application in tourism web marketing.
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DECLARATION

This thesis contains no material which has been accepted for award of any other degree or diploma, except where due reference is made in the text of the thesis. To the best of my knowledge, this thesis contains no material previously published or written by another person except where due reference is made in the text of the thesis.

Signed

______________________________
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CHAPTER 1

INTRODUCTION

1.1 Background to the Study

Tourism is as an important economic activity for many countries in the globalised world. Like many countries, Taiwan has been engaging in the development of tourism, and its government has implemented several tourism strategies over the last decade. In order to successfully develop the industry, tourism marketing has been emphasised in various disciplines in which design is one of the key elements. Globalisation has compressed the world as a whole with information technology playing an important role on the linkage of global networks (Fox 2001). Several researchers have pointed out the relationship between information technology and the formation of globalisation (e.g., George 2006; James 1999; Wahab & Cooper 2001). Globalisation brings with it increasing interaction between nation-states and has reinforced the relationships among them. This fosters the development of the international tourism industry (Das & Cassandra 2009). Tourism has become one of the big global and globalised industries that are dominated by information (Werthner & Klein 1999). In fact, tourism and the Internet, a global communication technology, are two of the major factors of globalisation (Pechlaner & Raich 2001). The
intensification of global access increases the competitiveness of global markets, where destinations are striving to construct and promote distinct identities to position themselves competitively (Dredge & Jenkins 2003).

Tourism has become a major economic factor in the world (Lanfant 1995), and the phenomenon of globalisation has changed the trends in tourism supply and demand (Vanhove 2001). The new tourism involves niche markets that emphasise the uniqueness of destinations in terms of culture, ethnic heritage and natural resources (Das & Cassandra 2009). Therefore, cultural tourism has become one of the fastest growing tourism market segments, in which ethnicity and diversity are the central concerns (Hoffman 2003). Information technology and the Internet play an important role in both tourism supply and demand, by enabling destinations to communicate with their target markets globally, and by allowing tourists to access information more conveniently than by traditional methods (Buhalis 2001). Researchers indicate that new information technology is even more important for cultural tourism (Pechlaner & Raich 2001), and online cultural tourists tend to be highly involved and active in information acquisition (Cardamone & Rentschler 2006).

In this digital age, tourists not only seek travel information from traditional media, but have also come to rely on information provision from the Internet. The importance of the Internet in travel and tourism has been emphasised in existing literature (Law & Wong 2003), and the use of the Internet as a distribution channel for travel information has significantly grown (So & Morrison 2003). More and more tourists use the Internet for travel information searching (Gursoy & McCleary 2004).

According to the Taiwan Tourism Bureau (2004a), more than half of international tourists prefer to obtain travel information from the Internet in their home countries. Tourism branding enhances the overall competitiveness of a country’s tourism, which relies on government agencies (Das & Cassandra 2009), that is destination marketing organizations (DMOs). The integration of information communication technologies (ICTs) into the DMO marketing framework, especially the Internet, is a critical key to success (Gretzel, Yuan & Fesenmaier 2000). DMO websites possess salient marketing responsibility on destination promotions. It is found that all of the
national DMOs in East Asia have developed websites that are integrated into their marketing strategies (So & Morrison 2004).

Due to the importance of cultural tourism, most DMO websites provide specific, culture-related information on the destinations. The implication of successful Web marketing for DMOs depends on the implementation and coordination of three interrelated aspects: an efficient use of the right combination of ICTs, an effective marketing strategy, and promotion of the website (Wang & Fesenmaier 2003). Information obtained from DMO websites induces the formation of destination images and plays an important role in the tourists’ decision-making process (Kao et al. 2005). So and Morrison (2003) indicate that DMO websites have a positive impact on tourists’ behaviour intentions. Therefore, it is crucial for DMOs to understand how to build an effective website.

Due to its unique characteristics, website design has become more important for the tourism industry. The website is a recognised advertising form (Sicilia, Ruiz & Munuera 2005), and its performance may influence tourists’ decision-making via the communication process. Skadberg, Skadberg and Kimmel (2005) indicate that websites play an important role in stimulating tourists’ emotional responses to a destination. The function of a website is to provide information and promote awareness in order to influence users’ attitudes and behaviours by creating positive experience (Skadberg & Kimmel 2004). Website features play an important role in communicating with potential tourists, by enhancing users’ comprehension and experience, and thereby facilitating their evaluation and selection of destinations before the real visitation (Sigala 2004). Researchers indicate that website features have an impact on changing users’ beliefs and expectations about a destination (Zahedi & Song 2009). Despite the growing interest in the success factor of tourism websites, little is understood about the outcome of website features and their contribution to user attitude. It is still an open question whether increased user interest is correlated to the different levels of website feature adoption. Jeong et al. (2009) claim that website features not only expedite users’ decision-making, but also create an enjoyable online experience. They suggest more advanced product presentation may effectively increase experiential value of a website. The use of advanced technologies enhances website performance, which not only sustain the
website, but also increase website success in a competitive marketplace (Park, Lennon & Stoel 2005). Given the importance of web marketing in this information age, it is necessary to investigate the effectiveness of advanced website features.

1.2 Research Scope

This research is located within a broad range of tourism research, particularly in the area of tourism marketing, Internet marketing, and tourism websites (see Figure 1.1).

![Tourism Research Area](image)

Figure 1.1    Tourism Research Area

It is also placed within the area of design research, and especially looks at the notion of telepresence, in which interactivity and vividness are the major determinants of greater virtual experience (see Figure 1.2). The main focus is on website features that
create higher interactivity and vividness, and are situated in the area of panoramic photography.

Figure 1.2   Design Research Area

1.3 Contribution of the Research

Tourism website design is vital for tourism marketing within the context of globalisation, and the effectiveness of websites is an important consideration for tourism marketers and designers. Information provision has been recognised as the most significant aspect of web marketing (Cardamone & Rentschler 2006). When looking at a website, the user’s cognition of the information access is broken into five stages: exposure, attention, comprehension and perception, yielding and acceptance, and retention (Gretzel, Yuan & Fesenmaier 2000). A vital concern for DMOs within the competitive field of virtual tourism marketing, is how to present information in ways that allow users to go through the five stages needed to respond favourably to a website. Tourism researchers have developed numerous evaluation
criteria and have proposed varied success factors in tourism websites. However, there has been little concern about information presentation, that is, the way tourism products are delivered to users. Kwon, Kim and Lee (2002) indicate that information presentation is a critical website design factor in information processing theory. Website features influence the format of information presentation, which includes different levels of interactivity and vividness of website content. It has been found that information presentation influences user response and its importance has been emphasised in tourism research (e.g., Qi, Buhalis & Law 2007). Jeong and Choi (2004) examine the effects of pictorial presentation on customer’s online behavioural intentions, using 203 hotel websites in New York City. The results show that customers tend to have a more favourable attitude if the hotel website provides a variety of pictures, because they can imagine an actual experience. As ICTs have been developed to benefit e-commerce and various fields of advertising, researchers suggest that tourism websites should also consider utilising these unique features of the Internet to create a favourable and satisfactory user experience.

The importance of users’ online experiences has been emphasised by researchers (e.g., Ballantine 2005; Chen & Yen 2004). Virtual experience empowers users to experience their travel destinations on the Internet (Wan et al. 2007). Telepresence virtually transports the user to a location that is another place, rather than the physical body location (Biocca 1997). Therefore, telepresence is an appropriate area of investigation for this research, as the nature of tourism involves transportation. It is believed that when users visit a DMO website, the website features enhance tourism product presentation in terms of interactivity and vividness, which create the feeling of telepresence, so that users can have a simulated direct experience on the Internet, as if they are transported to the destination and having a real visitation. Most of the existing tourism website evaluations focus on expert assessments or predetermined benchmarks (Park & Gretzel 2007). Hence, an empirically reliable measurement of the application of innovative ICTs on DMO websites from the users’ perspective is needed.

A few researchers have examined the effects of interactivity and vividness in creating the feeling of telepresence on commercial websites of tangible products. However, there is no empirical research focussing on how telepresence can be used
to create a virtual experience on tourism websites, which seek to promote an intangible and experiential product. The objective of this research is to contribute to tourism research in the area of information communication technology, focusing on destination marketing organizations’ implementation of effective website design by employment of the concept of telepresence. The research structure is presented as below:

1. Clarifying the relationship between globalisation, tourism, and cultural identity;
2. Identifying contemporary tourism trends within the context of globalisation;
3. Introducing and defining the definition of cultural tourism and cultural tourists;
4. Identifying the development of cultural tourism in Taiwan, and the target group in this research;
5. Explaining the importance of Internet marketing in the tourism industry as well as existing evaluation of tourism websites;
6. Identifying the underlying dimensions of tourism website design from users’ perspectives;
7. Identifying the concept and employment of telepresence in relation to user experience;
8. Operationalising an experiment by using a naturalistic setting and a real group of people as the sample to assess the proposed measurement;
9. Exploring the theoretical and practical implications of the findings.

This research aimed to investigate the effectiveness of tourism website design in terms of the theory of telepresence due to its possibility of facilitating the promotion of cultural identity. It attempted to disclose the impact of interactivity and vividness for potential cultural tourists on tourism websites to promote cultural identity successfully in the competitive global market. The related literature in the field has been gone through to identify the research problem. In order to overcome the potential problems in the laboratory research, a naturalistic experiment has been conducted. Two tourism websites were developed professionally as the stimuli by the researcher, and the online survey was used to reduce the unrealistic of laboratory
settings. In addition, participants were selected from specific groups to increase the validity of experiment. The survey results were then analysed and discussed.

The following chapters will be based on the research structure and focus on a number of specific areas of study. Chapter 2 first explores the issue of globaisation and cultural identity, and its relationship with the tourism industry. The situation of tourism development in Taiwan will be explained, and the importance of tourism marketing on the Internet and website design will be discussed in this chapter. Chapter 3 identifies the measures from users’ perspective, and the concept of telepresence. Chapter 4 explains the disadvantages of traditional laboratory experiment and the method been used in this research. Chapter 5 describes the procedure of the experiment, and the design features of the websites for this research. Chapter 6 analyses the experimental results in details and provides a brief summery. Chapter 7 discusses the experimental findings and gives the conclusion and limitation of the research.
CHAPTER 2

CULTURAL IDENTITY
AND TOURISM WEBSITES

2.1 Introduction

Tourism is one of the biggest industries in the world, and it plays an important role in the world economy. In 2004, the absolute figures on worldwide earning for international tourism reached a new record of US$623 billion (WTO 2005a). As one of the factors contributing to globalisation, the tourism industry has become more competitive than ever before due to the development of information technology. Cultural identity has then been emphasised in the context of globalisation. This chapter firstly explicates the inter-connection between globalisation and localisation, then gives an explanation of the relationship between globalisation, tourism and cultural identity, and finally describes the importance of cultural tourism in the contemporary tourism market. In this research, Taiwan is used as a case study, and the development of cultural tourism in Taiwan is explored. The characteristics of cultural tourists have also been defined. It then provides a justification of the significance of destination image formation in the process of tourist decision-making, in which the impetus of information technology, particularly the Internet and World
Wide Web, has been explicitly influential.

Due to the importance of web marketing in the development of tourism, this chapter analyses some websites of destination marketing organisations in the Asia-Pacific area, to provide a basic understanding of the current situation of tourism websites. It also gives an overview of existing tourism website evaluations to identify the role of website design. It then proposes that website design should contain information content and information presentation delivered by a variety of website features, and that the design criteria should not rely only on professional input, but also on user perspectives.

### 2.2 Globalisation and Cultural Identity

Globalisation and its related phenomena have been contested topics since the late 20th century. It is a complex, interwoven, and multi-dimensional process of economic, political, socio-cultural, and technological forces changing the state of the world, and the discourse of globalisation needs to go further than simply illustrate the change of contemporary social phenomena (Hall 2001). Many have indicated that globalisation has restructured the world in multiple political-economic and socio-cultural aspects (Hall 2005; Neyestani 2005). New technology has deconstructed geographic boundaries and compressed the physical distance, which seems to integrate nation-states into a whole. Wahab and Cooper (2001) claim that globalisation is a by-product achievement of this revolutionary process, which is turning the world into a global village. In terms of culture, with intensive international trade and ubiquitous media transmission, some people believe that the influence of Western culture has unified cultures throughout the world. However, it is still debatable whether globalisation has created homogenisation or diversity. Barnet and Cavanagh (1996) assert that globalisation formulates cultural homogenisation as cultural imperialism or Americanisation. Ritzer (2006) proposes the thesis of Mcdonaldization, in which the fast food Mcdonald’s system, with a standardised set of practices consisting of four dimensions: efficiency, calculability, predictability, and control through nonhuman technology, has proliferated widely.
and dominates contemporary society. In his new book, *The Globalization of Nothing*, Ritzer maintains a similar contention in his writing about the concept of *nothing* which is defined as being centrally conceived, controlled and lacking uniqueness. In contrast, Waters (2006) argues that Mcdonaldization is not universally homogenized, but is a process of relativisation, reflexivity and localization. He further contends that globalisation pluralises the world and contributes to ethnic diversity. Robins (1997) states that the impact of globalisation on culture is sophisticated, causing cultural difference, contradiction and conflict. Featherstone (1995) claims that the process of globalisation does not seem to be producing cultural uniformity; rather it prompts the awareness of new levels of diversity. Dziemidok (2003) considers that the intensification of globalisation produces enhancement of efforts to maintain local identity, because frequent international contact and communication give people a sense of their own roots.

In fact, most sociologists contradict the statement that a single unified culture is forming under the effect of globalisation (Eriksen 2007; Jackson 2003a; Van Der Bly 2007). Appadurai (1996) indicates that the homogenisation argument does not take the dynamics of local indigenisation into consideration. He proposes five dimensions of global cultural flows: (a) *ethnoscapes*, (b) *mediascapes*, (c) *technoscapes*, (d) *financescapes*, and (e) *ideoscapes* (p. 33) to explore the global disjuncture. Appadurai claims the globalisation of culture is not the same as its homogenisation, but it involves the employment of various homogenised instruments, such as armaments, advertising techniques, language hegemonies, and clothing styles. Eriksen (2007) claims that the globalisation process often increases the strength of local cultural expressions as a reaction to the threat of globalisation. He contends that the globalised phenomena are processes of both internationalisation and regionalisation, rather than action of one, integrated world. Eriksen also explains the characteristics of globalisation as: (a) *Disembedding*, (b) *Acceleration*, (c) *Standardisation*, (d) *Interconnectedness*, (e) *Movement*, (f) *Mixing*, (g) *Vulnerability*, (h) *Re-embedding* (p.8-9). These characteristics are inter-connected, and the result comes up with heterogeneity rather than global unification. Many other researchers (Morley & Robins 1995; Staring et al. 1997; Tomlinson 2003; Wallerstein 1997)
further indicate that globalisation actually facilitates cultural complexity, and it is now recognized as being intrinsically linked to localisation (Lie 2003).

Indeed, globalisation and localisation are mutually existent and intertwined (Barker 1999; Lie 2003; Lii 1998; O’Hara & Biesecker 2003; Robertson 1995; Salazar 2005). Askegaard and Kjeldgaard (2007) argue that globalisation not only creates a single world culture, but it emerges together with production of local cultures from a marketing perspective. Hall (1997) contends that when confronting homogenised mass global culture, the new forms of local defence and resistance are occurring at the same moment. Jackson (2003a) notes that globalisation in fact produces cultural homogenisation in some aspects, but it simultaneously provokes new forms of localised differentiation in other domains. Robertson (1995) proposes the concept of glocalisation, in which locality has been produced on a global basis. Van Der Bly (2007) analyses quantitative and qualitative data for Leixlip, the strongest globalised village in the Republic of Ireland, and finds that economic globalisation does not diminish or obliterate local culture, but evokes the renaissance of local identity.

It is acknowledged that contemporary economics has been globalised due to the widespread interconnection of international finance. The increasing expansion of global markets creates myriad profits and the significance of cultural identity is being emphasized for nation-states to differentiate themselves from others in order to be competitive. Tourism is a place-based industry, which involves the production of destination identity, and both national and regional tourism organizations are engaged in promoting their own identity for attracting tourists (Dredge & Jenkins 2003). As one of the biggest industries, the benefits of tourism are particularly conspicuous, thus, the relationship between tourism and globalisation has caused much attention in various disciplines.

2.3 Globalisation, Tourism and Cultural Identity

The development of contemporary tourism is explicitly connected with the process of globalisation. Reid (2003) states that tourism is tied closely to globalisation and is
one its beneficiaries due to the expansion of capitalism, growing markets, and the
development of new technologies. Azarya (2004) indicates that the interrelationship
between globalisation and tourism has induced widespread academic discourse and
has been seen in hundred of publications on related topics. He claims tourism is not
only a factor, but also the outcome, of globalisation, Hjalager (2007) proposes an
identical statement. Indeed, it is widely recognised that tourism is one of the key
aspects of globalisation (Ekholm-Friedman & Friedman 1995; Hannam 2002; Lash
& Urry 1994; Telfer & Sharpley 2008). Based on Appadurai’s global flow theory,
Macleod (1999) claims that tourism is part of the process of globalisation. He
considers that tourism is the epitome of global flow, because it involves free
movement of people, interaction among different cultures, utilisation of
 technological networks, and exchange of financial markets. Hall (2005) focuses on
the recent shifts in the dynamics of globalisation from Harvey’s (2000)
identification: financial deregulation, technological change and innovation, media
and communications, and the cost and time of moving commodities. He notes that all
of these factors power the development of tourism. Reiser (2003) demonstrates the
connections between tourism and globalisation in similar ways: movement of people,
movement of ideas, movement of capital, expansion via new technology, and growth
rapidly. Apparently, the globalised international connection and omnipresent
communication technology are the prominent forces that facilitate the expansion of
tourism.

Scholarly literature on tourism concerning the local reaction under the wave of
globalisation has been increasing. Teo and Li (2003) analysed the ‘global-local
nexus’ (p. 290) via the example of Haw Par Villa in Singapore, and found the global
trend has failed to transform the Villa. Rather, the local, particular cultural traditions,
creates emotional ties between people and place. Gotham (2005) contends that
tourism involves a set of global forces in conjunction with localised action, which is
attempting to preserve local distinctions. Chang (2000) states that the Singapore
government conceives of Singapore as a ‘Renaissance City’, with marketing strategy
schemes aimed at becoming a ‘global-local city for the arts’, in which local culture
and arts are represented together with international works, in order to achieve both
‘going-global and staying local’. Sofield (2001) introduces the case of Bali,
Indonesia, which manifests the representation of local culture in tourism products that are well adopted and successfully disseminated to global markets. He indicates that tourism is about difference, because destination distinction is essential for offering different travel experiences globally. Teo and Yeoh (2001) argue that Disneyisation is a dominant force in tourism and its emulation, by theme parks in Southeast Asia, provides evidences of representation of local identity in the global tourism system.

From the above, it can be seen that the interwoven relationship not only ties globalisation and tourism together, but simultaneously embraces cultural identity. Macleod (2004) asserts that the tourism industry particularly, is a manifestation of expressing and marketing identity; van Rekom and Go (2006) argue that local identities can be strengthened by the arrival of tourists; Henderson (2001) indicates that tourism is associated with cultural identity; Rojet and Urry (1997) believe that tourism and culture are clearly bound together; Sigala and Leslie (2005) also consider that culture has become a imperative driver of tourism demand and flows. In other words, tourism is inseparable from cultural identity in the context of globalisation. Porter (1990) notes that an emphasis on localisation is a competitive advantage in terms of economy and business. Richards (2007) asserts that there is a greater need to identify regional and local features when the world turns into the global village. In the increasingly competitive global tourism market, the emphasis placed on distinct local identities is implicitly necessary for tourism development (Dredge & Jenkins 2003). Hence, countries endeavouring to develop tourism have launched national branding campaigns to distinguish themselves internationally. For instance, New Zealand launched the ‘100% Pure New Zealand’ campaign in 1999, Britain launched the ‘Million Visitors’ campaign in 2002, Singapore launched the ‘Uniquely Singapore’ campaign in 2004, Japan launched the ‘Visit Japan’ campaign in 2004, and Australia launched the ‘Bloody Hell’ campaign in 2005.

Contemporary tourism demand has shifted from the traditional mass and standardized packaged tours to independent and personalized trips. New tourists regard travel not only as an escape from daily life, but as an opportunity for self-development, which brings them to experience different cultures, and explore new
skills and interests. The demand has altered toward more sophisticated, specialised, segmented, satisfied, and seductive supply (Buhalis 2001). There are many researchers who have likewise shown the changes of this demand in the context of globalisation. Vanhove (2001) clarifies that trends in tourism demand are fragmented annual holidays, more independent and flexible tourists, special interest holidays, higher quality requirements, and more experienced and educated holidaymakers. Telfer and Sharpley (2008) state that tourism trends are towards specialized tailor-made holidays with niche marketing to more independent and experienced tourists. As tourists become more educated and sophisticated, they are no longer satisfied with the traditional mass tourism product – sun and sea – and are likely to go further into local communities to enjoy different experiences (Reid 2003). Hence, tourism markets have been broken up into various categories, such as adventure tourism, health tourism, cultural tourism, ecotourism, etc.

2.4 Cultural tourism

There are an increasing number of people looking for ‘difference’ and so-called ‘non-western’ countries are becoming popular tourist destinations (Azarya 2004). Wahab and Cooper (2001) also claim tourist destinations with different cultural characteristics continue be a prominent part in the choice of holiday destination, and destinations without a unique cultural identity would decline and not be sufficiently competitive on the international market in the context of globalisation. When people intend to visit a place, their perception of this place is one of the most important factors affecting their decisions (Manuel, McElroy & Smith 1996). The perception consists of various images of other cultures where specific features and characteristics are emphasized. Since ancient Roman times, people have travelled for cultural reasons, and it is acknowledged that cultural tourism has become one of the fastest growing tourism phenomena in recent years (Alzua, O’Leary & Morrison 1998). Craik (1997) indicates that since the mid-1980s, a tourism that highlights cultural components of tourist experiences has emerged. Pechlaner and Abfalter (2005) claim that cultural tourism has experienced a very dynamic development in
the past few years, and culture has become an ever more significant motive when deciding where to travel.

The reasons for this trend are multidimensional, and part of the impetus may be elicited from the impact of globalisation, which leads toward a more regional orientation (Bachleitner & Zins 1999). The rapid growth of cultural demand and supply, the awareness of the importance of local culture, and the revival of local identity all contribute to the development of cultural tourism. Dredge (2004) claims that cultural tourism is an alternative in which local culture and traditions get revived and developed within global processes. In fact, cultural tourism began to be recognized as a specific tourism category by tourism marketers and researchers in the late 1970s when they realized that some people travelled specifically to gain a deeper understanding of the culture or heritage of a destination (Tighe 1986). At that time, it was regarded as a niche market in which only small groups of tourists were looking for cultural experiences in their travelling. Since the 1990s, cultural tourism has been recognized as an important section of tourism markets due to the fragmentation of the mass tourism market (McKercher & du Cros 2002). More and more tourists now add cultural elements to their trips, such as archaeological sites, monuments, museums, festivals and performing arts. Richards (2001) reported that the World Tourism Organization (WTO) had estimated that cultural tourism accounted for 37% of global tourism, and forecast that it would grow 15% per year. Antolovia (cited in McKercher & du Cros 2002) reported that 70 percent of Americans seek cultural heritage experiences in their trips to Europe, and 67 percent of all visitors look for cultural heritage experiences when travelling to the United Kingdom. Kaufman and Scantlebury (2007) indicate that visiting cultural and heritage attractions continue to be one of the most important activities when travelling in the United States.

Richards (2007) claims that cultural tourism seems to have become ubiquitous, and is an important economic support for tradition and local creativity in many parts of the world. However, what is cultural tourism? The definition of cultural tourism is varied. The WTO (1985, p. 131) provides a definition for cultural tourism: ‘Cultural tourism includes movements of persons for essential cultural motivations such as study tours, performing arts and other cultural tours, travel to festivals and other
cultural events, visit to sites and monuments, travel to study nature, folklore or art or pilgrimages.’ Silberberg (1995, p. 361) defines cultural tourism as ‘visits by persons from outside the host community motivated wholly or in part by interest in the historical, artistic, scientific or lifestyle/heritage offerings of a community, region, group, or institution’. This definition confirms that the motivation of ‘cultural reasons’ may be ‘in part’. Similarly, Hausmann (2007, p. 174) defines cultural tourism as ‘visits by people from outside the host community, motivated either entirely or to a certain degree by the cultural offerings and values (aesthetic, historical, etc.) of a particular destination.’ Richards (1996, p. 24) stated that the European Association for Tourism and Leisure Education (ATLAS) identified two approaches in defining cultural tourism: conceptual and technical. The conceptual definition is ‘The movement of persons to cultural attractions away from their normal place of residence, with the intention to gather new information and experiences to satisfy their cultural needs’. The technical definition is ‘All movements of persons to specific cultural attractions, such as heritage sites, artistic and cultural manifestations, arts and drama outside their normal place of residence.’ The most significant difference between these two is that the conceptual definition takes the motivation of tourists as the central consideration. Hughes and Allen (2005) claim that a wide range of activities including attendance at heritage and performing arts can be applied to cultural tourism. Prentice (2001) asserts that cultural tourism is a type of cultural appreciation tourism which is constructed, proffered and consumed either via experiences or schematic knowledge gaining.

Hughes (2000, p. 53) classifies cultural tourism into four levels: universal, wide, narrow and sectorised (see Figure 2.1). The universal cultural tourism has the widest sense due to different meanings of the word culture. From this perspective, most international tourism is ‘cultural’ because it involves certain degrees of exposure to other cultures. People who set out with the purpose of experiencing a wide range of culture-related activities can be included in ‘wide’ cultural tourism, such as experiences of arts and crafts, architecture, religious activities, costume and food. However, ‘narrow’ cultural tourism is the most common definition, and considers that visits to historical sites, museums, arts galleries, and theatres to experience the artistic and intellectual activities are inevitable. ‘Sectorised’ cultural tourism
combines historical sites, museums, and arts galleries within the heritage sector, and attending performing arts in the arts sector (see Figure 2.1). McKercher & du Cros (2002) classify definitions of cultural tourism into four broad categories: tourism-derived, motivational, experiential and operational. In the tourism-derived definition, cultural tourism has been placed within a broader framework of tourism and tourism management. In the motivational definition, cultural tourists have been considered as those travelling for cultural reasons. In the experiential or aspirational definition, cultural tourism is an experiential activity, and people can learn something during their trips. The operational definition is the most common approach in which a tourist’s participation in any one of a range of cultural activities or experiences can be regarded as cultural tourism.

Although there are many different definitions of cultural tourism, a common theme is the emphasis on experiencing cultural activities or attending cultural attractions.
Researchers propose varied typologies of cultural attractions. Richards (2001, p. 24) constructs a four-quadrant framework based on two trajectories — form and function — to situate cultural resources (see Figure 2.2). Quadrant 1 contains the major traditional cultural attractions featured in the past. Quadrant 2 includes more contemporary types of attraction featuring cultural process. Quadrant 3 encompasses more contemporary entertainment-related attractions, but theme parks arguably feature on the boundary between quadrant 3 and quadrant 4. Quadrant 4 comprises a mixture of educational and entertainment elements based on the past.

Smith (2003, p. 31) presents a comprehensive typology of cultural tourism as listed below:

- Heritage sites (e.g. archaeological sites, whole towns, monuments, museums)
- Performing arts venues (e.g. theatres, concert halls, cultural centres)
- Visual arts (e.g. galleries, sculpture parks, photography museums, architecture)
- Festivals and special events (e.g. music festivals, sporting events, carnivals)
- Rural environments (e.g. villages, farms, national parks, ecomuseums)
• Indigenous communities and traditions (e.g. tribal people, ethnic groups, minority cultures)
• Arts and crafts (e.g. textiles, pottery, painting, sculpture)
• Language (e.g. learning or practice)
• Gastronomy (e.g. wine tasting, food sampling, cookery courses)
• Industry and commerce (e.g. factory visits, mines, breweries and distilleries, canal trips)
• Modern popular culture (e.g. pop music, fashion, shopping, media, design, technology)
• Special interest activities (e.g. painting, photography, weaving)

Swarbrooke (1999, p. 307) illustrates the main types of cultural tourism resources (see Figure 2.3).
It is apparent that the horizon of these cultural attractions and resources is extensive, and it is hard to exactly categorise their characteristics and functions. A museum with modern designed architecture, like SFMOMA (San Francisco Museum of Modern Arts), for example, may host contemporary collections only and should not be categorised as a heritage site. Meanwhile, its novel architecture can be regarded as a monument. Tourism is intrinsically a commercial activity (McKercher & du Cros 2002). Regardless of types of cultural attractions and resources, understanding the characteristics of destinations for tourists, analysing the relationship between tourism supply and demand, and targeting the proper tourist group to develop cultural tourism are critical missions in tourism marketing. Approaching the proper target market and offering the most appropriate tourism product is the key point for successful destinations (Buhalis 2000).

2.5 Cultural Tourists

Tourists belong to diverse groups with different interests and characteristics, and they travel for various reasons. Many tourists include cultural attractions in their trips, but their motivation and interest may not be mainly in the culture of the destinations. Some tourists may primarily visit a place to consume its cultural assets and seek a deep experience, while others may consider cultural activities a small part in their decision to visit a destination. They may even accidentally experience cultural components. In order to target the correct tourist group, it is important to identify who a cultural tourist is. Australia defines the cultural tourist as an inbound visitor who attends at least one of the defined cultural attractions, such as historic or heritage buildings, sites or monuments; aboriginal sites or cultural displays; art or craft workshops; festivals or fairs, performing arts or concerts; museums or art galleries, during the stay (Foo & Rossetto 1998). Alzua, O’Leary and Morrison (1998) classify cultural tourists also on the basis of attending or visiting one of a range of listed cultural attractions and events, and McDougall (1998) defines cultural tourists in Canada in a similar way. However, tourists participate in a wide range of
activities during their travels. These definitions do not take the tourist’s purpose of visit into consideration.

Silberberg (1995, p. 362) categorises four degrees of consumer motivation for cultural tourism. The four concentric circles represent different levels of involvement with destination cultures (see Figure 2.4). The inner, smallest circle implicates persons who are greatly motivated by culture. These people travel primarily due to cultural reasons. The second circle indicates persons motivated ‘in part’ by culture, and they may travel both for cultural opportunities and other purposes. The third circle represents tourists whose cultural motivation is ‘adjunct’ to another main motivation. People in this section travel mainly for other reasons, but might like to include cultural opportunities during their visits. The outer circle represents people who are ‘accidental cultural tourists’. They do not plan cultural activities before travelling, but might visit cultural attractions unexpectedly. Outside the circles are people who do not attend any cultural attractions or activities at all.

Figure 2.4 Degree of Consumer Motivation for Cultural Tourism  
Source: Silberberg 1995
Hughes (2002) proposes similar definitions to differentiate cultural-core tourists and cultural-peripheral tourists. For cultural-core tourists, some take primary travel for cultural purposes, and others are multi-primary cultural core, they consider cultural attractions are as important as other reasons. For cultural-peripheral tourists, some are incidental cultural tourists who make a visit primarily for other reasons, but go to museums or theatres as part of their trip, although these visits are not very important to them. The other accidental cultural-peripheral tourists consider culture is not important at all but nonetheless make an unpremeditated visit to a cultural attraction.

Stebbins (1996) identifies two types of cultural tourists, using the concept of serious leisure. The general cultural tourist visits a variety of geographic sites and experiences some cultural forms there. The specialized cultural tourist focuses the attention on one or a small number of geographic sites or cultural attractions. The former obtains a general cultural knowledge, but the latter searches for a deeper cultural understanding and experience of a destination. Stebbin’s categorization is congruous with the ATLAS cultural tourism project, which identifies the difference between special and general cultural tourists based on the importance of culture on their motivation (Richards 1996). The special cultural tourist travels specifically for cultural attractions, and makes multiple visits to cultural attractions. The general cultural tourist regards cultural tourism as less important in their decision-making.

McKercher and du Cros (2002, p. 140) identify five types of cultural tourists – the purposeful cultural tourist, the sightseeing cultural tourist, the serendipitous cultural tourist, the casual cultural tourist, and the incidental cultural tourist – based on the importance of cultural tourism in their decision-making to visit a place and the depth of experience (see Figure 2.5). The purposeful cultural tourist considers cultural tourism as a primary motivation to visit a destination and usually has a deep cultural experience. The sightseeing cultural tourist regards cultural tourism as a primary or major reason to visit a destination, but the experience is shallower than the purposeful cultural tourist. The serendipitous cultural tourist travels not for cultural reasons but has a deep cultural tourism experience after participating in cultural activities. The casual cultural tourist has weak motivation for cultural tourism and the experience is shallow. The incidental cultural tourist has no motivation for cultural
tourism but incidentally participates in cultural activities and has a shallow experience.

![A Cultural Tourist Typology](source: Mckercher & du Cros 2002)

Cultural tourists are considered as an attractive tourism market segment (Hughes 2002; McKercher & du Cros 2002), and they have a very common pattern (Silberberg 1995). Previous research indicates that cultural tourists often have higher income and possess higher educational qualifications (Craik 1997; Hughes 2000; Huh, Uysal & McCleary 2006). Female visitors are more active than males (Foo & Rossetto 1998; Kim, Cheng & O’Leary 2007; Silberberg 1995). Although many researchers found that cultural tourists tend to be older (Hughes 2000; Kerstetter, Confer & Bricker 1998; Silberberg 1995), some researchers suggest that the younger group is an important segment (Alzua, O’Leary & Morrison 1998; Craik 1997; Foo & Rossetto 1998). However, Richards (2002) also indicates that older females with higher education and professional background are significantly more likely to see
themselves as cultural tourists. Therefore, gender and age are two important factors to identify cultural tourists.

Smith (2003) believes that the majority of cultural tourists are eager to have experiences in new and different places, and actively seek authenticity. Indeed, it is found that experiencing something different and new is important for cultural tourists (Prentice 2001; Richards 2001), as well as gaining new knowledge (Alzua, O’Leary & Morrison 1998). Douglas, Douglas and Derrett (2001) suggest that cultural tourism emphases learning, experiencing and understanding other cultures, nevertheless, culture is a raw material, which, it is argued, needs to be reproduced for tourist consumption. This reproduction transforms or commodifies cultural assets into cultural tourism products that tourists are able to experience to satisfy their needs (McKercher & du Cros 2002; Ho & McKercher 2004). In order to achieve this goal, many destination marketing organisations (DMOs) have proposed and launched cultural tourism strategies to preserve, plan and manage cultural assets for cultural tourism development. For instance, the Singapore Tourism Board launched a cultural tourist campaign ‘New Asia - Singapore’ between 1996 and 2003, which advocated a cultural mix of East/West, urban/exotic, and global/local (Yue 2006). Cultural attractions, such as Haw Par Villa, restored and repackaged in 2001, has increased its visitors three fold; Esplanade – Theatres on the Bay was opened on 2002, has become a landmark for international appeal (Singapore Tourism Board 2001/2002). In 2004, the ‘Uniquely Singapore’ campaign was launched, which further accentuated the blend of modern world and rich cultures. The old Parliament House became Singapore’s newest arts and lifestyle venue – The Arts House (Singapore Tourism Board 2003/2004). These strategies have successfully promoted cultural tourism in Singapore.

2.6 Cultural Tourism in Taiwan

Taiwan is a small island in East Asia with only a 36,188 sq km land area. Its international tourism development began earlier than other countries in the South East Asian region, with the establishment of the Tourism Committees in 1956. This
was replaced by the Tourism Bureau, Ministry of Transportation and Communications in 1971 (Tsai & Wang 1998). The total visitor arrival first exceeded 2 million in 1989, and reached to 3,378,118 in 2005 (Taiwan Tourism Bureau 2005). The Taiwanese government has been aware lately of the significance of tourism expansion in economic development and is endeavouring to promote tourism internationally (Kim, Chen & Jang 2006). Related tourism strategies were developed in order to achieve tourism expansion. The Tourism Bureau set the year 2000 as a tourism plan year, and formulated the 21st Century Taiwan’s Tourism Development New Strategy, in which native culture was emphasised to strengthen its international marketing. The new tourism goal is the rebuilding of Taiwan into an island of tourism (Taiwan Tourism Bureau 2002a). In 2002, the ‘Doubling Tourist Arrivals Plan’ was announced as one major investment project for ‘Challenge 2008 – National Development Plan’, which aimed to increase international pleasure-motive tourists numbers to 2 million and total visitors to 5 million within six years (Taiwan Tourism Bureau 2002b). In 2004, the ‘Visit Taiwan Year’ campaign was launched to promote Taiwan internationally. The goal was to upgrade Taiwan’s tourism image, and increase visitor arrivals to 3.2 million. Recently, ‘Tour Taiwan Years 2008-2009’ was planned and its vision is to promote Taiwan as one of the important destinations in Asia (Taiwan Tourism Bureau 2007).

Due to its rich historical background, Taiwan has a diverse mix of cultures consisting of four ethnic groups – Taiwanese aborigines, the Hakka, the Fulos, and the mainlanders (Wang 2004) – as well as Japanese, Dutch and Spanish. According to this, the Taiwan Tourism Bureau classifies Taiwan’s culture into Chinese culture, aboriginal culture, and colonial culture on its official tourism website. Chinese culture forms the basis of Taiwan’s culture, and tourists can experience various traditional Chinese cultures that may disappear in China after the decade of the Cultural Revolution. Visitors can also appreciate the best Chinese relics in the National Palace Museum, which is one of the most popular attractions for international tourists. Besides Chinese culture, Taiwan has also developed its unique styles for Taiwanese opera and Taiwanese glove puppetry. Aborigines are native people of Taiwan and belong to the Austronesian language group. There are thirteen different tribes existing today, and their mysterious customs and traditions give a
distinguishing dimension to Taiwan’s culture. Remnants of colonial periods provide another historical and artistic atmosphere. Tourists can find the past in many colonial buildings such as Fort San Domingo in Danshui, the Presidential Office Building, and old National Taiwan University Hospital in Taipei.

To date many countries are attempting to distinguish their cultural characteristics in global tourism markets. The Taiwanese government has noticed the new tourism trend and implemented varied cultural tourism tactics. Heritage assets are important tourism resources due to their connection with cultural identity (Douglas, Douglas & Derrett 2001; Henderson 2001). However, the forces of modernization and globalisation have exerted an enormous impact on traditional cultures, and many countries have made efforts to preserve the past. The consciousness of localisation due to the influence of globalisation has expedited the conservation and revival of local cultures in Taiwan since the 1980s. The Taiwanese government has executed many related measures for preserving and promoting traditional cultures.

The Council for Cultural Affairs (CCA) was established in 1981 to give attention to both fine arts and folk arts, and it has sponsored numerous folk arts festivals, publications, and other arts projects. In 1982, the Cultural Heritage Preservation Law was passed, committing the government to folk arts preservation and promotion. The Folk Art Heritage Awards were then set up in 1985 to honour outstanding folk art masters. In 1989, the prestigious title of Folk Arts Master was also established for leading woodcarvers, puppeteers, traditional musicians, and other craftspeople and performers. It provided a monthly stipend and helped them recruit and subsidize apprentices and training programs to pass on their skills. Many national and regional museums and art centres were set up for facilitating the tasks of preservation, and to further revive and innovate traditional cultures. They include the National Museum of Prehistory, the National Centre for Traditional Arts, Nantou Bamboo Arts Museum, the Taichung County Museum of Weaving Arts, and the Ilan County Museum of Taiwanese Opera. In 1996, the Committee of Aboriginal Affairs (CAA) was established to take the responsibility of management of aboriginal agenda and promotion of indigenous cultures. In recent years, the CCA has held many international cultural and artistic events, such as The Formosa International Arts
Festival, the Miaoli International Mask Festival, the Kaohsiung County International Puppet Festival, and the Hsinchu International Arts Festival – all of which will take root in the region and become local features. These policies serve a variety of purposes and simultaneously provide the impetus for cultural tourism development.

2.7 Identification of Target Market

Taiwan attracted 2,331,934 international tourists in 1995, 2,624,037 in 2000 and 2,950,324 in 2004 (Taiwan Tourism Bureau 2005). From these numbers, it is clear that there was not much progress in international tourist arrivals in Taiwan within the last decade. In terms of tourist markets, the Taiwan Tourism Bureau categorises eight international tourist markets: Japan, United States, Hong Kong/Macao, Singapore, South Korea, Malaysia, Europe, and Australia/New Zealand. Japan, due to geographical and historical factors, is the biggest tourist market with 31.39% of the total, and Hong Kong/Macao is the second, with 13.22% of the total. In terms of Western countries, the United States market held 10.71%, Europe had 5.02%, and Australia/New Zealand is the lowest with 1.66% (Taiwan Tourism Bureau 2007). Although Australia/New Zealand is the smallest tourist market at this moment, Taiwanese government still regards it as an important tourist market. On the English version of Tourism Bureau’s official website, there was an individual section for this market (see Figure 2.6 & 2.7). The visa-free entry and landing visa for Taiwan have been applied for Australian tourists, and co-operation with airlines and tourism operators for special promotion are implemented.
Figure 2.6  A Screenshot of the Language Selections on Taiwan’s Official Tourism Website (2005)

Figure 2.7  A Screenshot of the First Page of Australia/New Zealand Version Website (2005)
In terms of tourist trends, international tourists from America, Europe and Australia/New Zealand have a high rate (more than 70%) visiting heritage sites or exhibitions, and participating in folk festivals or art related activities. Especially in 2003 and 2004, tourists from Australia and New Zealand had the highest rate, with 75% and 82% participating in cultural related activities. By comparison, Japan attracted only 50%. In terms of decision-making, ‘food’ and ‘close to residential location’ are the most important factors in visiting Taiwan for tourists from Japan. However cultural factors are a major attraction to Taiwan for tourists from Western countries, particularly ‘Taiwan’s folk culture and custom’, as nearly 80% of tourists from Australia/New Zealand consider it is a significant factor in their decision-making (Taiwan Tourism Bureau 2003, 2004a).

The Australian Bureau of Statistics (2006) reported that the major destinations in Asia for short-term (within 12 months) resident departures are: China (20.3%), Thailand (17.4%), Singapore (15.5%) and Indonesia (13.1%). Of all the Australian residents departing for Asian destinations, only 5.7% of them are visiting Taiwan. The departure numbers grew from 353,000 to 376,000 from 1998 to 2005 (Australian Bureau of Statistics 1999, 2006), a slight progression. Because the cost of travelling in Taiwan is much higher than many other Asian countries, it is not suitable to promote Taiwan as a shopping destination. Also, as tourism promotion in the United States and Europe has begun to focus on the cultural perspective (Taiwan Tourism Bureau 2004b), so the tourism strategy for Australia should concentrate on culture as well.

Cultural activities are popular in Australia. According to the Australian Bureau of Statistics (2003), 88% of the Australian population aged 18 years and above attended at least one cultural venue or event in that year. People aged less than 35 years were most likely to attend these cultural activities, and those aged 35-44 (92.5%), and aged 45-54 (88.6%) also had high rates of attendance. Although people aged 18-24 had the highest rate (98%) of attendance, it was due to the high rate in the ‘cinemas’ section. Those aged 45-54 were more likely to attend ‘high’ cultural activities. This result accords with the statement regarding cultural tourists from previous research. In addition, employed people, people with higher educational qualifications, and
people with higher income were more likely to attend cultural venues and events. This result is also identical with the characteristics of cultural tourists defined earlier. Hence, this research will focus on Australian tourists with high educational qualifications, professional backgrounds, and relatively high income, as the target audience for further discussion.

2.8 Destination Images and Destination Marketing on the Internet

The ultimate goal of destination marketing is to attract tourists by marketing strategies to influence tourists’ travel choices, and the importance of destination images is recognised by scholars (Gallarza, Saura & García 2002; Tasci & Gartner 2007). Tourists perceive destinations as brands, which is a synthesis of suppliers and services, and before visiting, they develop an image of the destination as well as an expectation based on pre-visiting experience (Buhalis 2000). It has been found that destination images have an impact on the destination selection process of tourists (Ahmed 1991; Echtner & Ritchie 2003; Milman & Pizam 1995; Rezende-Parker, Morrison & Ismail 2003), and destination images have a positive effect on tourist satisfaction as well as destination loyalty (Chi & Qu 2008). Hence, tourism studies centred on the area of destination images have caused considerable attention from different perspectives.

The definitions of destination images are varied, but it is accepted that an image of a destination is an amalgam of beliefs, ideas and impressions of a place, which a person has for that destination (Crompton 1979; Kotler, Haider & Rein 1993). Similarly, Lawson and Baud-Bovy (1976) define destination images as expressions of knowledge, impressions, prepossessions, imaginations and affective perception a person has of a place. Mackay and Fesenmaier (1997) state that destination images are a synthesis of tourist attractions and related attributes that moved into a total impression of a destination. Buhalis (2000) asserts that destination images are the set of expectations and perceptions a traveller has of a destination, which have been developed by past experience, word-of-mouth from friends and relatives, general information, and marketing campaigns.
Gartner (1993) claims that destination images are formed by three components: cognitive, affective and conative. The cognitive component is the sum of beliefs and attitudes of a destination received from external stimuli. The affective component is the motive of destination selection, and the conative component is the action component developed during the cognitive stage and evaluated during the affective stage. Gartner believes that the cognitive image is constituted of induced images and organic images. Organic images result from non-commercial information sources such as word-of-mouth and prior visitation, whereas induced images are the function of the marketing efforts from destination marketers. Woodside and Lysonski (1989) indicate that information sources influence the formation of tourists’ perception and cognitive evaluation of destinations. Baloglu & McCleary (1999) suggest that formation of destination images is mainly obtained by stimulus and personal factors, and the influences on the formation revealed three major attributes: tourism motivations, sociodemographics and various information sources. Um and Crompton (1990) contend that the concept of the process of pleasure travel destination choice can be described as external inputs, internal inputs and cognitive constructs. External inputs come from past visitation experience, promotional information by destination marketers, and comments of other people. Internal inputs derive from personal factors, and cognitive constructs integrate the internal and external inputs, which leads to the final choice. Beerli and Martín (2004) propose a model of the formation of destination images, in which information sources (primary and secondary sources), and personal factors (motivations, vacation experience, and sociodemographic characteristics) create a perceived destination image. Although using different approaches for conceptualising the formation of destination images, it is acknowledged that there exists a relationship between information sources and destination images – that they are interconnected. Destination images projected on information sources influence tourists’ perceptions (Frias, Rodriguez & Castañeda 2008; Govers, Go & Kumar 2007).

Information sources in promoting destinations are regarded as a salient determinant in tourists’ decision-making process (Fakeye & Crompton 1991). Consequently, destination marketers strive to establish a positive image on promotional material.
Due to its intangible and experiential nature, tourism is heavily reliant upon information for both tourists and marketers (Schweda 2004). Tourism products cannot be tested or controlled before actual visitation, thus the decision-making and consumption are divided by time and space so that information available in advance plays an important role in overcoming the distances between these two (Werthner & Klein 1999). The development of Information Communication Technologies (ICTs) has changed the way in which people communicate. It has broken the limitation of traditional media, and having crossed geographical boundaries, disseminates information much faster and more efficiently. ICTs have hence revolutionised destination marketing, and destinations that appreciate and adapt new technologies enhance their competitiveness and facilitate the achievement of their strategic objectives (Buhalis 2000; Buhalis & Law 2008). It is recognised that the tourism industry has been transformed globally due to the development of ICTs (Buhalis & O’Connor 2005). With the prevalence of the Internet, computer-mediated communication has become the dominant communication approach nowadays. Today, more and more people search for travel related information (Choi, Lehto & Oleary 2007; Gursoy & McCleary 2004), plan their trips (Kao et al. 2005; Lee, Cai & O’Leary 2006; Pan & Fesenmaier 2003), and purchase travel services (Dearden & Lo 2004) from the Internet. Greenspan (2004) reported that nearly two-thirds of Internet users consult travel resources online for their trip planning. The intensive tourism information on the Internet enables tourists to become more knowledgeable and keen to seek exceptional value for money and time, which lead to more personalised vacation planning (Buhalis & Law 2008). Hence, the Internet has become one of the prevailing media for tourism information search (Ho & Liu 2005; Kaplanidou & Vogt 2006; Luo, Feng & Cai 2004), and this information search plays an important role on the process of tourist decision-making (Fodness & Murray 1998; Graeupl & McCabe 2003; Gursoy & Chen 2000; Kim, Lehto & Morrison 2007).

Govers and Go (2003) assert that destination images driven by the revolution of ICTs, hold innovative opportunities for destination marketing due to the interactive capability of the Web, which provides a new dimension for broadcasting. Therefore, tourism organizations cannot neglect the significance of the Internet for destination
marketing (Frias, Rodriguez & Castañeda 2008). Indeed, it is universally accepted that the Internet has become a sales and marketing distribution channel for the tourism industry (Jang 2004; Lang 2000; Law, Leung & Wong 2004). The use of the Internet as a destination marketing tool has been discussed in a wide range of research (Benckendorff & Black 2000; Bonn, Furr & Susskind 1998; Castelltort et al. 2000; Davidson & Yu 2003; Park & Gretzel 2007; Tierney 2000; Wang 2008). Castañeda, Frías and Rodriguez (2007) indicate that the greater the tourists’ satisfaction with the information obtained from the Internet, the higher the satisfaction with the selected destination, and information satisfaction is a determinant of behaviour intention (Jeong, Oh & Gregoire 2003).

Tourism is one of the most important sectors represented on the Internet (Franch, Martini & Inverardi 2003; Law & Hsu 2006; Wang & Fesenmaier 2003). The online travel market was $52.1 billion in 2003, and it was estimated that the U.S. online travel market reached 62.3 billion in 2005 (Rand 2006). The benefits to the tourism industry of using the Internet in areas such as global access, cost reduction, ease of information update, capability of reaching target audiences, interactive and customised functions, have been broadly investigated and documented (Law & Bai 2006). Particularly, advanced multimedia features provide great opportunities for the intangible nature of tourism services (Baloglu & Pekcan 2006). The intangible nature of tourism products requires the use of extensive representation by photographs and graphics so that a tangible image enables the transformation of experience for travel planners. Multimedia, which facilitates and enhances information richness and interaction, has thus become one of the key areas influencing tourism industry (Buhalis & Law 2008). Tourism websites are moving from a simply broadcasting approach to a more interactive horizon (Doolin, Burgess & Cooper 2002).

Destination marketing organizations (DMOs) are organizations established to take charge of marketing strategies that promote their respective destinations. In responding to the development of the Internet, DMOs are now integrating the new online technologies into their overall marketing strategies (Choi, Lehto & Morrison 2007). It is inevitable that DMOs must have a website for the successful development of their destination marketing (Benckendorff & Black 2000; Feng,
Morrison & Ismail 2003). DMOs are increasingly interested in adopting the unique features of the Internet to attract more tourists in the competitive tourism marketplace (Lee, Cai, & O’Leary 2006). DMO websites offer different levels of information for potential tourists. When tourists who do not have real visiting experience and first visit a DMO website, the experience and judgements produced from the process of browsing the website influence the overall image of the destination and the decision-making (Han & Mills 2006). So and Morrison (2003) indicate that tourists who consulted DMO websites before their trips have a significantly higher proportion of real visitations, and would like to revisit these destinations. However, it has been found that DMOs did not effectively use the Internet for destination marketing (Benckendorff & Black 2000; So & Morrison 2004). Most of the DMO websites are simply presented as an online brochure for information dissemination, and fail to adopt the innovations possible with advanced technology (Kim & Fesenmaier 2008; Wang 2008).

The applications of ICTs on DMO websites to present travel related information include text, graphics, photographs, audio, video, animation, virtual tours and other value-added features, such as e-brochure, e-card, wallpaper and screensaver download. Due to Taiwan’s geographical location, a website analysis was conducted to give a review of the adoption of website features on the current DMOs’ English version websites in the Asia-Pacific area. According to WTO (2006), the Asia-Pacific was the second most visited tourism region in the world in 2004, accounting for 19 per cent of the world’s international tourist arrivals and 20 per cent of the world’s tourism expenditure, which was US$ 128 billion. For many countries of this region, tourism is one of the most important sectors in their economies. For instance, tourism in Australia contributed to 3.7% of the gross domestic product (GDP) in 2006 - 2007, as well as 4.7% of the total employment (Australian Bureau of Statistics 2008). In New Zealand, tourism generated a direct contribution to GDP of 5.1% and 5.8% of total employment (Statistics New Zealand 2008). In Singapore, tourism contributed 3% to Singapore's GDP and generated more than S$12 billion in tourism receipts (Singapore Government 2007). In Thailand, the contribution of tourism to GDP is expected to reach 14.7%, and to 11.1% of total employment in 2009 (World Travel & Tourism Council 2009). Many countries are endeavouring to expand the
development of tourism, and some of them are quite successful in their achievements. For example, Malaysia received 17.54 million tourists in 2006, and foreign exchange earnings rose by 13% from RM 32 billion in 2005 to RM 36.2 billion in 2006 (Tourism Malaysia 2006). Singapore received its first ten million visitors in 2007 and tourism receipts reached S$14.1 billion in the same year (Singapore Tourism Board 2008).

Although 46 countries of destination were included in this area in the WTO report, 2005, 14 countries’ official DMO websites were selected based on the international tourist arrivals. Table 2.1 provides the complete list of the 14 DMO website addresses (English version) and their homepage screenshots that were selected for the analysis. Taiwan attracts more than 3 million international tourists (Taiwan Tourism Bureau 2008), and destinations with less than 2 million international tourist arrivals may not be competitive enough. Table 2.2 lists the website features adopted by these DMO websites.

Table 2.1 Website Addresses of 14 DMOs

<table>
<thead>
<tr>
<th>Region</th>
<th>Country of Destination</th>
<th>Website Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>North-East Asia</td>
<td>China</td>
<td><a href="http://www.cnto.org/aboutchina.asp">http://www.cnto.org/aboutchina.asp</a></td>
</tr>
</tbody>
</table>
Hong Kong
http://www.discoverhongkong.com/eng/index.html

Japan
http://www.jnto.go.jp/eng/

Republic of Korea
http://english.visitkorea.or.kr/enu/index.kto
Malaysia
http://www.tourismmalaysia.gov.my/

Philippines
http://www.tourism.gov.ph/

Singapore
Thailand
http://www.tourismthailand.org/

Oceania
Australia

New Zealand
Table 2.2 Website Features

<table>
<thead>
<tr>
<th>Features</th>
<th>Website Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Video</td>
<td>14</td>
</tr>
<tr>
<td>Audio</td>
<td>14</td>
</tr>
<tr>
<td>Search engine</td>
<td>13</td>
</tr>
<tr>
<td>Multiple pictures/photo gallery</td>
<td>13</td>
</tr>
<tr>
<td>Interactive map</td>
<td>11</td>
</tr>
<tr>
<td>E-card/ Wallpaper/Screensaver/ Messenger icon</td>
<td>10</td>
</tr>
<tr>
<td>E-book/Newsletter/Online Brochures</td>
<td>10</td>
</tr>
<tr>
<td>Auto-play slide show</td>
<td>7</td>
</tr>
<tr>
<td>Travel planner</td>
<td>6</td>
</tr>
<tr>
<td>Animation</td>
<td>5</td>
</tr>
<tr>
<td>Virtual tour (panorama)</td>
<td>3</td>
</tr>
<tr>
<td>Game</td>
<td>2</td>
</tr>
<tr>
<td>Webcam</td>
<td>1</td>
</tr>
</tbody>
</table>

From Table 2.2, it is found that video and audio are adopted on all of the 14 DMO websites, however, some of them only provide TV advertising video clips. The majority of DMO websites offer search engine function, multiple pictures/photo gallery, interactive map, and other value-added features, but the interactive level and complexity are varied. For example, the interactive map on Indonesia’s website is much simpler than that on New Zealand’s website. The number of images and the
presentation types of photo galleries on different websites are varied as well. Figure 2.8 demonstrates the four-quadrant framework of website design of current DMO websites.

From Figure 2.8, it is found that Singapore and Hong Kong are destinations that have best adopted advanced ICTs on their websites, and both of them have successful achievement in their tourism development. Singapore has been ranked as the most attractive environment for developing the travel and tourism industry in the Asia region (World Economic Forum 2009). There is a “Fun Stuff” section on its website, in which users can select their favourite e-Card and send it to their friends (see Figure 2.9), watch 360 degree panoramic views of different attractions and video clips with deeper introduction of local culture (see Figure 2.10), play exciting games (see Figure 2.11), download maps, images, wallpapers, and screensaver (see Figure 2.12). Another section “Photos, videos, maps” provides an interactive photo gallery (see Figure 2.13), which allows users to obtain more detailed information with multiple images, video clips, and a map for each attraction (see Figure 2.14).
Hong Kong is the 16th top tourism destination in the world (WTO 2005). There is an “interactive corner” section on its website, in which users can read or order an e-newsletter online (see Figure 2.15), watch or share videos (see Figure 2.16), look at 360 degree panoramic views of different attractions (see Figure 2.17) and up-to-the-minute glimpses of Hong Kong from the webcams (see Figure 2.18), select their
favourite e-Card and send it to their friends (see Figure 2.19), and download high-resolution images and wallpaper. The PDA download allows business travellers to download travel information into their personal PDA (see Figure 2.20).
Given the increasing importance of the Internet on destination marketing aimed at meeting promotion objectives, it is crucial for DMOs to understand how to build an effective website.

2.9 Evaluations of Tourism Websites

Tourism websites have received serious attention in two main areas: effective tourism website building has been analysed, and website effectiveness evaluation has been examined from various perspectives (Han & Mills 2006). However, there are no standardised criteria for evaluation of tourism websites (Corigliano & Baggio 2006; Law & Bai 2006; Morrison, Taylor & Douglas 2004). Research concerned with website evaluation and the identification of success factors, has emerged in various disciplines, such as tourism, marketing, information systems, human-computer interaction and advertising. Likewise, the measurement of success has been labelled by different approaches, such as website evaluation, e-satisfaction, website quality, e-quality and e-loyalty (Park & Gretzel 2007). Although using different approaches, the primary goal is the implementation of successful online marketing strategies that will achieve tourism development. A review of the literature on tourism website evaluations has been done to examine the existing measurements. Table 2.3 shows the identified evaluation criteria on tourism related research.

Table 2.3 Evaluation Criteria on Tourism Research

<table>
<thead>
<tr>
<th>Authors</th>
<th>Key Factors Identified</th>
<th>Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baloglu &amp; Pekcan</td>
<td>Interactivity; Navigation; Functionality; Marketing.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>(2006)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benckendorff &amp; Black</td>
<td>Site planning; Design; Content; Management.</td>
<td>DMOs’ websites</td>
</tr>
<tr>
<td>(2000)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blum &amp; Fallon (2001)</td>
<td>Product; Price; Promotion; Place; Customer relations;</td>
<td>Visitors attraction</td>
</tr>
<tr>
<td></td>
<td>Technical aspects.</td>
<td>website</td>
</tr>
<tr>
<td>Chen (2006)</td>
<td>Functionality; Usability; Efficiency; Reliability; Likeability.</td>
<td>Travel websites</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Website Features</td>
<td>Website Type</td>
</tr>
<tr>
<td>---------------------------</td>
<td>----------------------------------------------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>Chu (2001)</td>
<td>Informative; Interactive; Attractive.</td>
<td>Airline/travel</td>
</tr>
<tr>
<td>Chung &amp; Law (2003)</td>
<td>Facilities information; Customer contact information; Reservations information; Surrounding area information; Website management.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>Douglas &amp; Mills (2004)</td>
<td>User friendliness; Site attractiveness; Marketing effectiveness.</td>
<td>NTOs’ websites</td>
</tr>
<tr>
<td>Fam, Foscht, &amp; Collins (2004)</td>
<td>Calculation; Predictability; Intentionality; Capability; Transference; Tangibilization; Interactivity</td>
<td>Hotel/Motel websites</td>
</tr>
<tr>
<td>Feng, Morrison &amp; Ismail (2003)</td>
<td>Marketing strategies; Marketing information; Web page design; Technical quality.</td>
<td>DMOs’ websites</td>
</tr>
<tr>
<td>Gretzel &amp; Fesenmaier (2005)</td>
<td>Relevance; Transparency; Effort; Perceived personalization; Perceived enjoyment; Perceived fit.</td>
<td>Destination recommendation system</td>
</tr>
<tr>
<td>Ham (2004)</td>
<td>Impression; Content usefulness; Accuracy; Navigation; Accessibility; Online reservations; Timeliness of information.</td>
<td>Lodging websites</td>
</tr>
<tr>
<td>Han &amp; Mills (2005)</td>
<td>Consumers’ online brand preference (differentiation, quality, and value); Online market data (price, distribution, Web presence, promotions, direct mail, and ad identification).</td>
<td>Australia.com website</td>
</tr>
<tr>
<td>Han &amp; Mills (2006)</td>
<td>Aesthetic; Informative; Interactive.</td>
<td>NTO websites</td>
</tr>
<tr>
<td>Hashim, Murphy &amp; Law (2007)</td>
<td>Information and process; Value added; Relationships; Trust; Design and usability.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>Hellemans &amp; Govers (2005)</td>
<td>Picture motifs; Picture contexts; Words and picture themes.</td>
<td>DMO websites</td>
</tr>
<tr>
<td>Ho &amp; Lee (2007)</td>
<td>Information quality; Security; Website functionality; Customer relationship; Responsiveness.</td>
<td>Travel websites</td>
</tr>
<tr>
<td>Ismail et al. (2002)</td>
<td>Technical; Site visitor relationship; Marketing effectiveness; Cultural.</td>
<td>NTOs’ websites</td>
</tr>
<tr>
<td>Jeong &amp; Lambert (2001)</td>
<td>Perceived usefulness; Perceived ease of use; Perceived accessibility; Attitude.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>Jeong, Oh &amp; Gregoire (2003)</td>
<td>Information accuracy; Information clarity; Information completeness; Perceived ease of use; Navigational quality; Colour combination; Information satisfaction; Behavioural intentions.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>Jung &amp; Butler (2000)</td>
<td>Regular updating; Repeat visits; Appearance; Useful information; Interactivity, Web design; Promotion (off-line); Forming partners; Value-added info; Institutional support; Building a loyalty; Clear navigation paths.</td>
<td>NTOs, hotels, airlines and travel agencies websites</td>
</tr>
<tr>
<td>Kao et al., (2005)</td>
<td>Information quality; System quality; Intention to reuse website; Intention to recommend website; Intention to actually visit Singapore; Web satisfaction.</td>
<td>DMOs’ websites</td>
</tr>
<tr>
<td>Author(s)</td>
<td>Characteristics</td>
<td>Type of Website</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>---------------------------------------------------------------------------------</td>
<td>--------------------------------------</td>
</tr>
<tr>
<td>Kaplanidou &amp; Vogt, (2004)</td>
<td>Navigation; Content; Accessibility.</td>
<td>DMOs' websites</td>
</tr>
<tr>
<td>Kaplanidou &amp; Vogt, (2006)</td>
<td>Accessibility; Ease of navigation; Content (trip information functionality); Content (motivating visuals).</td>
<td>DMOs’ websites</td>
</tr>
<tr>
<td>Kaynama &amp; Black, (2000)</td>
<td>Reliability; Tangibles; Responsiveness; Assurance; Empathy.</td>
<td>Travel agencies websites</td>
</tr>
<tr>
<td>Kim &amp; Lee, (2004)</td>
<td>Information content; Reputation and security; Usefulness; Responsiveness and personalisation; Structure and ease of use.</td>
<td>Travel agencies/Travel Suppliers</td>
</tr>
<tr>
<td>Kline, Morrison, &amp; St. John, (2004)</td>
<td>User friendliness; Site attractiveness; Marketing effectiveness; Technical qualities.</td>
<td>B &amp; B websites</td>
</tr>
<tr>
<td>Kim &amp; Fesenmaier, (2007)</td>
<td>Informativeness; Usability; Credibility; Inspiration; Involvement; Reciprocity.</td>
<td>DMOs’ websites</td>
</tr>
<tr>
<td>Kim &amp; Fesenmaier, (2008)</td>
<td>Informativeness; Usability; Credibility; Inspiration; Involvement; Reciprocity.</td>
<td>DMOs’ websites</td>
</tr>
<tr>
<td>Law, Ho &amp; Cheung, (2004)</td>
<td>Facilities information; Customer contact information; Reservations information; Surrounding area information; Website management.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>Law &amp; Hsu, (2006)</td>
<td>Reservations information; Facilities information; Contact information; Surrounding area information; Website management.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>Law &amp; Leung, (2002)</td>
<td>Information quality; System use; System quality; Service quality; Customer loyalty.</td>
<td>Travel websites</td>
</tr>
<tr>
<td>Law &amp; Wong, (2003)</td>
<td>Secure payment methods; Different price ranges for products/services; User-friendly system; Rapid information search; On-line booking and confirmation; Comprehensive destination information; Availability of help functions; Provision of related Web links; Late availability information; Availability of virtual tours/video files of destination; Presentation style; Specifically designed for user group.</td>
<td>Travel websites</td>
</tr>
<tr>
<td>Liang &amp; Law, (2003)</td>
<td>Customer contact information; Facilitation information; Reservations information; Surrounding area information; Management of website.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>Mich, Franch, &amp; Martini, (2005)</td>
<td>Identity; Content; Services; Location; Maintenance; Usability</td>
<td>Tourist destination websites</td>
</tr>
<tr>
<td>Mills &amp; Morrison, (2003)</td>
<td>Travel website interface; Perceived quality of travel website services; Perceived value of travel website.</td>
<td>Travel websites</td>
</tr>
<tr>
<td>Morrison et al. (1999)</td>
<td>Technical; Marketing; Internal; Customer.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>Morosan &amp; Jeong, (2006)</td>
<td>Prior experience; Perceived usefulness; Perceived ease of use; Perceived playfulness.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>Authors</td>
<td>Topics</td>
<td>Websites</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>------------------------------------------------------------------------</td>
<td>------------------------</td>
</tr>
<tr>
<td>Nysveen, Methlie, &amp; Pedersen (2003)</td>
<td>Search engine; Service integration; Personalization; Trust; Reversed pricing; Auctions; Collective volume discount; Service aggregation; Customer community.</td>
<td>Tourism business websites</td>
</tr>
<tr>
<td>Park (2002)</td>
<td>Online selling system; Web-based marketing mix; Customer supports.</td>
<td>Travel agencies websites</td>
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<tr>
<td>Park &amp; Gretzel (2007)</td>
<td>Information quality; Ease of use; Security/Privacy; Visual appearance; Personalization; Responsiveness; Interactivity; Trust; Fulfillment.</td>
<td>DMOs' websites</td>
</tr>
<tr>
<td>Perdue (2001)</td>
<td>Speed and quality of site accessibility; Ease of navigation; Visual attractiveness of the site; Quality of the site; Quality of information content.</td>
<td>Ski resorts websites</td>
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<tr>
<td>Qi, Buhalı &amp; Law (2007)</td>
<td>Language; Website Layout; Information architecture; User interface and navigation; general.</td>
<td>DMOs' websites</td>
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<td>Schaffer &amp; Mills (2004)</td>
<td>Product quality; Processing capacity; Credit card protection; Data handling/privacy policy; Web site design; Navigation; Customer service.</td>
<td>Travel agencies websites</td>
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<td>Scharl, Wöber, &amp; Bauer (2003)</td>
<td>Product; Speed; Intelligence; Layout; Services; Languages; Navigation; Interactivity.</td>
<td>Hotel websites</td>
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<td>Schegg, et al. (2002)</td>
<td>Service Process; Customer relationship; Value creation; Trust; Cybermarketing.</td>
<td>Hotel websites</td>
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<td>Sigala (2004)</td>
<td>Playfulness; Aesthetics; Consumer return on investment; Service excellence.</td>
<td>Tourism related website</td>
</tr>
<tr>
<td>Sigala (2005)</td>
<td>Convergence; Connectivity; Interactivity.</td>
<td>Museum websites</td>
</tr>
<tr>
<td>So &amp; Morrison (2004)</td>
<td>Technical; Marketing; Customer; Destination information.</td>
<td>NTOs' websites</td>
</tr>
<tr>
<td>Wan (2002)</td>
<td>User interface; Variety of information; Online reservation.</td>
<td>Hotels, tour wholesalers websites</td>
</tr>
<tr>
<td>Wang &amp; Fesenmaier (2006)</td>
<td>Web site features; Web site promotion techniques; CRM programs.</td>
<td>DMOs' websites</td>
</tr>
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<td>Wang (2008)</td>
<td>Website function design; Website promotion; Website performance measurement; Web marketing impact assessment; Organisation technology environment.</td>
<td>DMOs' websites</td>
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<tr>
<td>Wöber, et al. (2002)</td>
<td>Interactivity features; Navigational mechanisms; Layout and multimedia characteristics; Content related features.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>Zafiropoulos &amp; Vrana (2006)</td>
<td>Facilities information; Guest contact information; Reservations/price information; Surrounding area information; Management of the website; Company profile.</td>
<td>Hotel websites</td>
</tr>
<tr>
<td>-----------------------------</td>
<td>----------------------------------------------------------------------------------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Zins et al. (2004)</td>
<td>Design/layout; Functionality; Ease of Use; Learnability; Outcome/Future Use; Errors/system reliability.</td>
<td>Destination recommendation system</td>
</tr>
</tbody>
</table>

This array of publications reveals different success factors on tourism-related websites. In terms of evaluation approach, Morrison et al. (1999, p. 105) applied a modified Balanced Scorecard (BSC) in evaluating a group of small Scottish hotel websites from four perspectives: technical, marketing, internal and customer, which were operationalized through a set of critical success factors (see Table 2.4). Ismail et al. (2002) adopted the modified BSC approach in evaluating the marketing of culture on European national tourism organization’s (NTO) websites. They substituted a cultural aspect for the internal perspective, due to the purpose of the study. They also renamed the customer perspective as the site visitor relationship, and here developed four new evaluation criteria of critical success factors: ease of navigation, ease of contact, attractiveness of the site, and general availability of travel and tourism links. Similarly, Feng, Morrison and Ismail (2003) evaluated and compared DMO websites in China and the United States, using the modified BSC approach. The four perspectives were altered to technical quality, marketing strategy, web page design, and marketing information provided, to evaluate the effectiveness of DMO websites as a destination marketing tools. So and Morrison (2004) applied the modified BSC approach, and changed internal aspects to destination information perspective to evaluate 14 NTO websites in East Asia. Kline, Morrison and St. John (2004) developed the modified BSC approach into four perspectives: user friendliness, site attractiveness, marketing effectiveness and technical aspects, to evaluate 20 Bed and Breakfast websites in Indiana. Douglas and Mills (2004) compared the NTO websites of the top ten Caribbean destinations using the modified BSC approach. The result was then used to develop and test a model of Caribbean NTO website visitor retention. This model identified user friendliness, site attractiveness, and marketing effectiveness as being the factors important for the creation of website retention or ‘stickiness’.
Table 2.4 Critical Success Factors for Effective WWW Sites

<table>
<thead>
<tr>
<th>Perspectives</th>
<th>Critical Success factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical</td>
<td>Currency of links</td>
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<tr>
<td></td>
<td>Effective use of HTML</td>
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<tr>
<td></td>
<td>Reciprocal hyperlinking</td>
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<td></td>
<td>Registration with search engines</td>
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<tr>
<td></td>
<td>Short download time</td>
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<tr>
<td></td>
<td>Traffic monitor and analysis</td>
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<tr>
<td>Marketing</td>
<td>Positioning approach</td>
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<tr>
<td></td>
<td>Market segmentation and target marketing</td>
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<tr>
<td></td>
<td>Marketing research and database marketing</td>
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<tr>
<td></td>
<td>Relationship marketing</td>
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<tr>
<td></td>
<td>Partnerships</td>
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<tr>
<td></td>
<td>Tangibilising of hotel services</td>
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<td></td>
<td>Marketing evaluation</td>
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<tr>
<td>Internal</td>
<td>Ease of site maintenance</td>
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<tr>
<td></td>
<td>Schedule for site maintenance and updating</td>
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<tr>
<td></td>
<td>Skills to maintain site</td>
</tr>
<tr>
<td>Customer</td>
<td>Attractiveness</td>
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<tr>
<td></td>
<td>Availability and reservations</td>
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<tr>
<td></td>
<td>Content and organization</td>
</tr>
<tr>
<td></td>
<td>Currency of information</td>
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<tr>
<td></td>
<td>Interactivity</td>
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<td></td>
<td>Needs of special customer groups</td>
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<td></td>
<td>Response verification and speed</td>
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<tr>
<td></td>
<td>Security of purchases</td>
</tr>
<tr>
<td></td>
<td>User friendliness</td>
</tr>
</tbody>
</table>

Source: Morrison et al. 1999

Except for the modified BSC approach, content analysis is also well recognised by researchers. Han and Mills (2006) reviewed the existing research on evaluation of tourism websites and found that the most common approach is content analysis. Benckendorff and Black (2000) proposed an Internet Marketing Star framework, using four points including site planning, design, content and management characteristics, to evaluate 16 Regional Tourism Authorities’ websites in Australia. Blum and Fallon (2001) used a content analysis of 53 Welsh visitor attraction websites to evaluate the performance of these websites. The features were investigated in six dimensions: product, price, promotion, place, customer relations,
and technical aspects. Park (2002) developed a framework of components of web-based tourism marketing, and conducted a content analysis of the top 60 travel agencies websites in Korea. Wan (2002) analysed the website content of 60 international tourist hotels and 78 tour wholesalers in Taiwan using three criteria: user interface, variety of information and online reservation. Law and Leung (2002) used a content-based analysis and proposed five major dimensions – information quality, system use, system quality, service, and customer loyalty – to evaluate 30 North America-based travel websites and 30 Asia-based travel websites. Govers and Go (2004) used the content analysis of the textural elements to examine the online promotion of Dubai. Ham (2004) developed a content analysis evaluation approach to explore the websites of limited-service lodging properties. The criteria comprised impression, content usefulness, accuracy, navigation, accessibility, online reservations and timeliness of information. Hellemans and Govers (2005) adopted content analysis to compare the image projected on the websites of 10 European Travel Commission (ETC) member countries with the pictorial and textual information offered by the websites of ETC. Baloglu and Pekcan (2006) utilised content analysis to evaluate a select group of hotels in Turkey by their website design characteristics (interactivity, navigation and functionality) and site marketing practices on the Internet.

Information quality analysis is also a well-recognised evaluation approach. Jeong and Lambert (2001) developed a framework to evaluate the information quality of simulated lodging websites by combining the concepts of information quality and consumer decision behaviour. Four attributes were emphasised in their study: perceived usefulness, perceived ease of use, perceived accessibility and attitude. Chung and Law (2003) measured the performance of hotel websites in Hong Kong in the context of information richness, which included facilities information, customer contact information, reservations information, surrounding area information and website management. Liang and Law (2003) proposed the same measurement as Chung and Law (2003) to evaluate the content of hotel websites in China. Law, Ho and Cheung (2004) as well as Law and Hsu (2006) adopted identical criteria on evaluating hotel websites. Zafiropoulos and Vrana (2006) also used the same evaluation, but added company profile as another criteria in their study of evaluating
Greek hotel websites. Kao et al. (2005) employed both information quality and system quality to examine the website satisfaction on Singapore Tourism Board’s traditional Chinese website.

Website quality analysis is another commonly used evaluation approach. Perdue (2001) developed a conceptual model, comprising speed and quality of site accessibility, ease of navigation, visual attractiveness of the site, and quality of information content, to evaluate the top 50 North American downhill ski resorts. Jeong, Oh and Gregoire (2003) conceptualised the relationship between website quality, information satisfaction, and behavioural intentions to evaluate 16 hotel websites. They found that information satisfaction is a complete mediator of information quality and behavioural intentions in the luxury and economy hotels, and a partial mediator in the mid-scale hotels. Kaplanidou and Vogt (2004) proposed three basic elements of website quality: navigation, content and accessibility, to investigate the importance and performance of DMO websites in Michigan. Kim and Lee (2004) identified six dimensions of web service quality, including ease of use, usefulness, information content, security, responsiveness, and personalisation, to compare online travel agencies and travel suppliers in evaluating user satisfaction. Other evaluations such as trust examination (Chen 2006; Fam, Foscht & Collins 2004; Schaffer & Mills 2004), persuasiveness investigation (Gretzel & Fesenmaier 2005, Kim & Fesenmaier 2008), problematic integration theory (Han & Mills 2005), modular approach (Mich, Franch & Martini 2005), usability testing (Qi, Buhalis & Law 2007; Yeung & Law 2004; Zins et al. 2004), and technology acceptance model (Kaplanidou & Vogt 2006; Morosan & Jeong 2006; Scharl, Wöber, & Bauer 2003; Wöber et al. 2002) were also developed.

Web marketing plays an important role in tourism marketing development (Lo & Law 2007). Wang and Fesenmaier (2006) suggest that a successful Web-based marketing strategy should implement and co-ordinate three interrelated aspects: efficient use of website features/capabilities for information provision, effective website promotion techniques, and effective online customer relationship management programs. Web-based approach and technologies enhance the capability of tourism suppliers to reduce services costs and attract customers (Coriglinao &
Baggio 2006). Wang (2008) proposes five critical factors in successful development and management of DMO websites: website function design, website promotion, website performance measurement, web marketing impact assessment, and organization technology environment. The main purpose of a DMO website is to attract more tourists in order to increase visitation to the destination (Shanshan, Bulais & Law 2007). Gretzel, Yuan, and Fesenmaier (2000) assert that the website success factors for marketing include attracting users, engaging their interest and participation, retaining them and ensuring their return, learning about their preferences, and relating back to users to provide customized interactions. In other words, a prominent factor in the success of destination web marketing is how to efficiently utilise the features and capabilities of the Internet on web page design, to attract users and engage them through user involvement.

2.10 Tourism Website Design

The importance of web design has been recognised by tourism researchers. Hanna and Millar (1997) analyse the development of the tourism website by focusing on three categories: page design, managerial issues and information content. Jung and Butler (2000) identify twelve success factors of tourism websites: regular updating, repeat visits, appearance, useful information, interactivity, web design, promotion (off-line), forming partners, value-added info, institutional support, building loyalty, and clear navigation paths. Kaynama and Black (2000) assert that accessibility, navigation, design and presentation contribute to the tangible dimension of tourism e-service quality. Kim and Fesenmaier (2007) indicate that the design of a tourism website is a powerful tool for tourist decision-making. Lo and Law (2007) claim that website design plays an important role in the success of an NTO’s web marketing strategy.

Website design undoubtedly is one of the determinants of a website’s success (Kim, Shaw & Schneider 2003; Muylle, Moenaert & Despontin 2004; O’Connor 2004; Palmer 2002), particularly for tourism websites, as it is more important due to tourism’s experiential nature, which can not be reached prior to purchase (Sigala
The design and the presentation of a website are vital, as they help to meet tourists’ expectations (Kaynama & Black 2000). Website design contributes to the attraction, sustenance, and retention of a user’s interest in the site (Ranganathan & Ganapathy 2002). Szymanski and Hise (2000) assert that website design influences the user’s satisfaction with the site. Liang and Lai (2002) indicate that design quality influences users’ purchase decision. However, it has been found that research involving tourism website evaluation tends to focus more often on expert assessments or predetermined benchmarks and on the tangible aspects of a website, rather than on the users’ perspective (Park & Gretzel 2007). Jeong and Lambert (2001) indicate that a favourable attitude toward the website has a positive effect on the use of the information. As has been mentioned in the previous section, information contributes to the formation of destination image, which influences the decision-making process of tourists. Therefore, it is important to develop criteria from the users’ perspectives.

Chu (2001) conducted a focus group interview to identify what users want on airline/travel websites, and found that users believed the content of travel websites should be informative, interactive and attractive. Perdue (2001) indicates that visual attractiveness and information content strongly relate to website quality, which influences users’ perceptions of the website and consequently has an impact on the destination image. Kaplanidou and Vogt (2006) indicate that motivating visuals and trip information functionality contribute to website usefulness, which is a significant predictor of intention of real visitation. They believe that clear and comprehensive presentations of the destination’s features, by motivating and realistic visuals, are prominent requirements for users. Han and Mills (2006) use the ground theory technique developed by Strauss and Corbin (1998), to produce a benchmark model, which listed proposed factors to evaluate tourism websites and resulted in three categories: aesthetic features, informative features and interactive features. Aesthetic features stimulate the attention of online users and form an incipient impression of the destination; informative features offer relevant information that online users may need and intensify their interest in the destination; and interactive features facilitate engagement in the website. Similarly, Park and Gretzel (2007) use a quantitative analysis to categorise the established criteria, which is comprised of evaluations from
experts and customers. They conclude that there are nine success factors for
destination marketing websites: information quality, ease of use, security/privacy,
visual appearance, personalization, responsiveness, interactivity, trust, and
fulfilment.

Although different success factors were suggested from users’ point of view, before
building a website, the priority is to clarify the construction of website design.
Werthner and Klein (1999, p. 288) propose design parameters for tourism websites,
focused on four aspects: content, graphical design, features and technical design (see
Table 2.5). Robbins and Stylianou (2003) assert that website design includes both
content and design features. Content embraces the information provided on the
website. Design features include presentation, navigation, security, speed and
tracking. Presentation is the way information is presented for visual appeal.
Navigation is the ease of information access, both internal and external. Security
relates to the transaction online. Speed is the time users need to reach the
information, and tracking is the use of cookies to track users’ behaviours. Huizingh
(2000) also distinguishes content from design, in which content refers to the
information or services offered in the website, and design refers to the way which
content is made available for users. Spiliopoulou (2000) states that users’ perceptions
of a website are affected by website content, web page design and overall site design.
Website content refers to the goods, services or data provided on the site. Web page
design and the overall site design refer to the way in which the content is conveyed
to be accessible and comprehensible for the user. Hence, it can be concluded that
website design comprises information content which refers to products or services
offered from the supplier, and information presentation which refers to the
transmission of information content with accessible navigation for users by design
features, including text, images and multimedia technologies.

Table 2.5 Design Parameters of Web Sites

<table>
<thead>
<tr>
<th>Design parameter</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Content</td>
<td>Background information</td>
</tr>
<tr>
<td></td>
<td>Product and price comparison</td>
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<tr>
<td></td>
<td>Edutainment</td>
</tr>
</tbody>
</table>

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The demand of specialised and in-depth presentation of information to facilitate decision-making has been found in tourism websites (Bonn, Furr & Susskind 1998; Wang 2008), and the importance of information/product presentation has been emphasized in a wide range of research (Constantinides 2004; Jeong & Choi 2004; Jiang & Benbasat 2007; Kim & Lennon 2008; Qi, Buhalis & Law 2007). Researchers have found presentation format influences users’ response and behaviour intention toward the website. Kaplanidou and Vogt (2004) suggest that the improvement of information presentation can upgrade the website and increase user satisfaction. Park, Lennon & Stoel (2005) demonstrate product presentation evokes positive mood and reduces perceived risk, which may further lead to a greater purchase intention. Kim, Kim and Lennon (2009) also support the findings that product presentation has a significant impact on consumers’ emotional responses. People with higher pleasure have more positive attitudes toward the website and greater purchase intention.

<table>
<thead>
<tr>
<th>Graphical design</th>
<th>Innovative, graphical presentation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Media adequacy</td>
</tr>
<tr>
<td></td>
<td>Links, hypermedia structure</td>
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<tr>
<td></td>
<td>Interface (navigation, orientation, ease of use)</td>
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<tr>
<td></td>
<td>Consistency</td>
</tr>
<tr>
<td></td>
<td>Transaction and security ergonomics</td>
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<td></td>
<td>Animation</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Features</th>
<th>Interactivity, feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Virtual communities</td>
</tr>
<tr>
<td></td>
<td>Transaction support</td>
</tr>
<tr>
<td></td>
<td>Customisable filter</td>
</tr>
<tr>
<td></td>
<td>Collaborative filtering</td>
</tr>
<tr>
<td></td>
<td>Product and service configuration</td>
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<td></td>
<td>Customisation</td>
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</table>

<table>
<thead>
<tr>
<th>Technical design</th>
<th>Optimise loading time</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Security features</td>
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<tr>
<td></td>
<td>Plug-in etc.</td>
</tr>
<tr>
<td></td>
<td>Plug-in requirements</td>
</tr>
</tbody>
</table>

Source: Werthner & Klein 1999
Hartmann, Angeli and Sutcliffe (2008) indicate that different presentation formats with consistent information have an impact on further appreciation of a website. Jeong et al. (2009) examined the effect of product presentation on Pine II and Gilmore’s (1998) four consumption experience concept, and found that different levels of product presentation positively affected the entertainment experiences, educational experiences, escapist experiences, and aesthetic experiences. It has also been found to have a positive impact on user satisfaction (Chang & Chen 2008; Koivumäki 2001).

Several researchers suggest that multimedia technologies, which enhance the product presentation, should be used to arouse a positive emotion on website design (Chang & Chen 2008; Jeong et al. 2009). The advanced technology enhances website performance which sustains the site and increases its success in a competitive web environment (Kim & Forsythe 2008; Park, Lennon & Stoel 2005). The employment of 3D product presentation has also been found to positively influence brand attitude and purchase intention (Fiore, Jin & Kim 2005; Li, Daugherty & Biocca 2003). In the context of the tourism website, users tend to like to have rich and colourful information about a destination (Qi, Buhalis & Law 2007), and multimedia technologies are able to increase information richness and interaction (Buhalis & Law 2008). Information presentation utilising advanced technologies such as panoramic views, animation, and interactive photos provide a virtual environment, which allows users to experience the destination on the Internet (Wan et al. 2007). Cho, Wang and Fesenmaier (2003) indicate this virtual experience may empower tourists to become more confident about their trips as well as increase satisfaction with actual travel experience. As the development of ICTs has advanced, it is imperative to understand the consequence of ICT application to tourism websites from the users’ perspective. This research attempts to investigate the effectiveness of the use of advanced ICTs on tourism websites from the evaluation of real users in order to promote cultural identity. It contributes to the area of tourism marketing where the effectiveness of tourism website design is the main concern, and the user’s viewpoint will be emphasised in the next section.
3.1 Introduction

In chapter 2, it was found that the design of tourism websites should be developed from the users’ perspective. This chapter explores three major constructs that have been widely used and are well recognised in academic research on users’ perspectives; user satisfaction, website quality, and user attitude toward a website. It is proposed that user attitude toward a website would be the appropriate construct to test user response to tourism websites, in terms of three underlying dimensions: attractiveness value, informative value, and enjoyment value.

Tourism is an experiential product and user attitude toward a website is induced from user experience of the interaction with a website. Therefore, users’ online experiences, namely virtual experiences, are explained in terms of direct experience, which has been acknowledged as the most effective approach for user behaviours. The concept of telepresence, a theory believed by researchers to be able to enhance
the relationship of virtual experiences to direct experience, is then explored. The major determinants of telepresence are explained to give a further understanding of the effects of interactivity and vividness. It is found that the overlap between interactivity and vividness is apparent, and they are correlated to website features. Multimedia technology enhances the level of user control, a key feature of interactivity, and vividness of presentations. Virtual reality systems, an important type of multimedia presentation, are introduced in terms of web-based virtual tours for the purpose of this study. Finally, the research model is proposed for the experiment to investigate the effects of website features on user attitude toward a tourism website.

3.2 The Measure Construct from Users’ Perspectives

**User Satisfaction**

User satisfaction is one of the most frequently used measures of website success (Hong & Kim 2004). The importance of user satisfaction has long been emphasised by marketing researchers (Law & Bai 2008; Oliver 1999). Understanding user satisfaction may facilitate the improvement of web marketing efforts, better offers of web service quality, and the retention of loyal customers (Mills & Morrison 2003). Researchers have demonstrated that user satisfaction is positively related to purchase intentions (Bai, Law & Wen 2008; Law & Bai 2008). The contribution of user satisfaction to the intention of revisiting a website and trust has also been revealed (Lin, Wu & Tsai 2005; Flavián, Guinaliu & Gurrea 2006). Due to the above benefits, user satisfaction has been recognised to correlate with website effectiveness (Negash, Ryan & Igbaria 2003). Several researchers have found that positive user satisfaction induces user loyalty toward the website (Anderson & Srinivasan 2003; Chang & Chen 2008; Flavián, Guinaliu & Gurrea 2006; Hong & Kim 2004; Oliver 1999; Shankar, Smith & Rangaswamy 2003). It is critical to attract users and maintain their loyalty in the competitive web environment (Lin, Wu & Tsai 2005).

User satisfaction is one of the most important achievements for web designers (Zhang & von Dran 2000). ISO (1998) defines satisfaction as a comfortable and
positive attitude towards the use of the product. Anderson and Srinivasan (2003) define satisfaction as contentment with prior purchasing experience of a given electronic commerce firm. They believe that a dissatisfied customer is more likely to search for information on alternative sites. Shankar, Smith and Rangaswamy (2003, p. 154) define satisfaction as ‘the perception of pleasurable fulfilment of a service’. Teo, Oh and Liu (2003) assert that satisfaction is the antecedent which contributes to the formation of a user’s perceived value of a website. In summery, user satisfaction is produced as the result of a global evaluation of the overall performance of a website.

Researchers have proposed that different underlying dimensions contribute to user satisfaction. Szymanski and Hise (2000) find that convenience, site design, and financial security determine a consumer evaluation of satisfaction. Shankar, Smith and Rangaswamy (2003) suggest depth of information increases overall satisfaction. Hong and Kim (2004) indicate that robustness, utility and aesthetic appeal influence user satisfaction. Internal reliability and external security contribute to the robustness of a website; content usefulness and navigation usability impact the utility of a website; and system interface attractiveness and communication interface attractiveness affect aesthetic appeal. Lin, Wu and Tsai (2005) demonstrate that perceived playfulness and perceived usefulness are positively associated with user satisfaction. Zviran, Glezer and Avni (2006) elucidate both usability and user-based design as both contributing to user satisfaction. Bai, Law and Wen (2008) indicate that functionality and usability positively relate to user satisfaction. Chang and Chen (2008) investigate the impact of customer interface quality, and reveal that customisation, interactivity, and character have impacts on user satisfaction, in which character refers to the aesthetics and functional look-and-feel of a website.

**Website Quality**

Jeong, Oh and Gregoire (2003) indicate that user satisfaction with the information obtained from a website is an important consequence of website quality. Indeed, user satisfaction and website quality are correlated (Bai, Law & Wen 2008; Law & Bai
Negash, Ryan and Igbaria (2003) state that user satisfaction is the reflection of website quality effectiveness, and the importance of website quality has been confirmed. The study by Ahn, Ryu and Han (2007) indicates that web quality influences user beliefs and behavioural intention. Ethier et al. (2006) demonstrate that website quality positively influences the cognitive appraisal of situational state and the emotions of liking, joy and pride, which lead to a positive online shopping experience. Huang (2005) indicates that improvement of website quality enhances traffic performance. Researchers have developed varied measurement approaches to examine website quality from different disciplines. Some have attempted to examine the concept of website quality in terms of usability, mainly focusing on ease of use (Moon & Kim 2001). Nielsen (2003) defines usability as a quality attribute that assesses the level of ease of use on the user interface. Researchers who focus on usability, claim that it is a critical factor of website success (Nielsen 2000, 2003; Palmer 2002; Qi, Buhalis & Law 2007). However, it is argued that usability approaches are too limited (Blythe & Wright 2003; Hassenzahl 2003; Kuan, Bock & Vathanophas 2008) and there should be something more than ease of use (Overbeeke et al. 2003). Website quality is a complex concept, concerning more than usability, and its measurement should be multi-dimensional (Aladwani & Palvia 2002; Kim & Stoel 2004).

As mentioned in the previous section, website quality evaluation has been widely used on tourism research. However, these evaluations seem rather inconsistent, depending on different research purposes. In the context of e-commerce, several researchers have utilised the information systems (IS) success model developed by DeLone and McLean (1992) to evaluate website success. The IS success model has become the best-known theoretical model (Leonard & Riemenschneider 2008). It proposes six major dimensions – system quality, information quality, use, user satisfaction, individual impact and organisational impact – as the success construct. DeLone and McLean (2003) further added service quality in their original model as an antecedent to use and user satisfaction. Their model has been evident in evaluating e-commerce success as well as websites success.

Mckinney, Yoon and Zahedi (2002) separate website quality into information quality and system quality to measure user satisfaction within the expectation-
disconfirmation paradigm. Negash, Ryan and Igbaria (2003) suggest that website effectiveness is influenced by information quality and system quality. Information quality is comprised of two aspects: informativeness and entertainment. Informativeness refers to the ability to inform users about the product information, which can be received accurately, completely, and in a timely way. Entertainment refers to the ability to make receiving the interface enjoyable, entertaining, pleasing, fun and exciting. System quality includes interactivity and access. Interactivity refers to the ability with which users can manipulate the form and content of the website. Access refers to the availability of the website, in terms of ease of information retrieval and ease of support contact. However, their survey results indicate that both information quality and system quality contribute to user satisfaction, while service quality has no impact on web-based customer support systems. Cao, Zhang and Seydel (2005) also utilise the IS success model and modify it as system quality, information quality, service quality, and attractiveness, the four factors of website quality. The result indicates that information quality, system quality, and service quality influence users’ perception, but attractiveness is less important in the business-to-business context. Lee and Kozar (2006) propose a hierarchy model, consisting of information quality, service quality, system quality and vendor-specific quality, to provide insights into website quality improvement. Information quality is defined as the quality of information produced and delivered by the system. Service quality refers to the overall support provided by the Internet retailers. System quality is defined as system performance in delivering information. Vendor-specific quality refers to the awareness of retailers, their reputation and price competitiveness. Their findings indicate that system quality is the most important factor, and users preferred to have a vivid and interactive web experience. Kuan, Bock and Vathanophas (2008) suggest that website quality consists of three dimensions: perceived system quality, perceived information quality and perceived service quality. Perceived system quality is defined as the degree to which the user considers the website has ease of navigation and the consistency of interaction with the interface. Perceived information quality is defined as the degree to which the user considers that the information offered on the website possesses the attributes of content, accuracy, format and timeliness. Perceived service quality is defined as the degree to which the user considers that the website is interactive, responsive, secure, and effective in its
search and comparison functions. The results of their study demonstrate a positive relationship between website quality and intentions of initial and continued purchase.

**Attitude toward a website**

Attitude toward a website is another construct similar to website quality (Kim & Stoel 2004), because website quality is positively correlated with attitude toward a website (Donthu 2001). In fact, user satisfaction also can be defined as the attitude toward the website produced by a user who has visited it (Chang & Chen 2008; Muylle, Moenaert & Despontin 2004). It can be a substitute for attitude, as both of them possess fundamental similarity (Melone 1990). Huang (2008) indicates that both significantly perform as a predictor of behaviour intention. Flavián, Guinaliu and Gurrea (2006) state that user satisfaction demonstrates the user’s favourable attitude toward the website. Hence, attitude toward a website, user satisfaction and website quality are intrinsically alike.

Attitude toward a website is a well-recognised indicator of website effectiveness (Bruner II & Kumar 2000; Chen & Wells 1999; Elliott & Speck 2005). Traditionally, advertising and marketing researchers have emphasised the importance of attitude toward an advertisement and utilised it as a construct to measure its effectiveness (Chiagouris, Long & Plank 2008). Lutz (1985, p. 46) defines attitude toward the advertisement as a ‘predisposition to respond in a favourable or unfavourable manner to a particular advertising stimulus during a particular exposure situation’. Researchers who focus on this construct have found that attitude toward the ad influences brand attitude and purchase intention (Brown & Stayman 1992; Gresham & Shimp 1985; Homer 1990; MacKenzie, Lutz & Belch 1986; Mitchell & Olson 1981).

In terms of web context, Chen and Wells (1999, p. 28) defined attitude toward the website as a “predisposition to respond favourably or unfavourably to web content in natural exposure situations.” It has been found that web design of information presentation influences users’ attitudes toward the website (Chiagouris, Long & Plank 2008). Researchers have proven the positive association between attitude
toward the website and attitude toward the advertisement. They assert that the more a website is liked, the greater the impact on attention to the advertisement, brand attitude, and purchase intention (Bruner II & Kumar 2000; Poh & Adam 2002; Stevenson, Bruner II & Kumar 2000). Lee, Hong and Lee (2004) indicate that positive attitude toward a website increases the likelihood of brand choice. Seock and Norton (2007) claim that attitude toward a website has a direct and positive effect on users’ behaviour, including intention of using the website for information search, as well as buying items from the site. A recent study conducted by Hausman and Siekpe (2009) further indicate that as well as purchase intentions, intentions to return to the website are also positively related to attitude toward the website.

Researchers have suggested that antecedents influence user attitude toward a site. The main goal of a DMO website is to promote the respective destination in order to attract potential tourists and thereby increase its visitation. From this perspective, DMO websites not only perform as information providers, but also need to achieve advertising outcomes. Ducoffe (1996) proposed three perceptual dimensions to examine the perceived value of web advertising. He found that informativeness, entertainment, and irritation act as important predictors of web advertising value, and have a significant impact on respondents’ overall attitudes. Chen and Wells (1999) explained that entertainment, informativeness and organisation factors were the dimensions which concern Internet users about a website. Later, Chen, Clifford and Wells (2002) conducted two follow-up studies and found that these three dimensions account for most of the variation in attitude toward a website. Gao and Koufaris (2006) adopt Ducoffe’s model and support that perceived informativeness and perceived entertainment are positively related in attitude toward a website.

Several researchers also employ the theory of Uses and Gratifications (U&G) and the Technology Acceptance Model (TAM) to examine users’ attitude. U&G theory was first developed to measure the effectiveness of the radio medium in the 1940s. Due to the basic interaction concept of U&G, it was then broadly applied in the web context (Luo 2002). The most important dimensions of U&G include entertainment, informativeness, and irritation. The TAM was developed by Davis, Bagozzi and Warshaw in 1989, and it established the relationship between two behavioural beliefs – perceived ease of use, perceived usefulness – and behavioural intentions. Davis,
Bagozzi and Warshaw (1992) further included perceived enjoyment in the original model, to examine the intrinsic motivation of users. Moon and Kim (2001) assert that playfulness, a pleasure state of enjoyment, has a positive effect on users’ attitudes. The researcher, van der Heijden (2003) extends the TAM, and integrates perceived visual attractiveness as one of the underlying dimensions. The results demonstrate perceived visual attractiveness influences usefulness, enjoyment, and ease of use. Huang (2008), integrating the dimensions of U&G theory and TAM, proposes entertainment, perceived usefulness, perceived ease of use, and irritation to examine users’ attitudes. The results indicate that these four factors are significantly related to users’ behaviour intention. Hausman and Siekpe (2009) state that perceived informativeness, perceived entertainment and perceived usefulness are positively associated with attitude toward a website.

From the above, it is found that researchers emphasise not only the functionality and usability value of websites, but also embrace non-utilitarian aspects. Indeed, it has been found that researchers support both utilitarian value and hedonic value as important in web environments (Childers et al. 2001; Fiore, Kim & Lee 2005; Hassenzahl 2003; Kim & Forsythe 2008). Eighmey (1997) conducted pilot and field studies to examine users’ perceptions of commercial websites. The result indicated that users benefit from finding information they needed, as well as the enjoyment produced during the process. He suggested effective websites should demonstrate a productive intersection of information and entertainment. Similarly, Huang (2005) believes that the quality of a website should be able to meet or exceed users’ expectations in both information and enjoyment dimensions. Lee and Kozar (2009) suggest that websites comprised of legible, coherent, diverse, and mysterious characteristics can successfully communicate with users and evoke positive assessments. In fact, tourism website content is comprised of four purposes: information, education, advertising/persuasion, and entertainment (Werthner & Klein 1999). Therefore, based on the previous studies, focusing on attitudes toward a website, user satisfaction, and website quality, this study proposes three underlying dimensions – attractiveness value, informative value, and enjoyment value – to examine the effect of presentation formats on user attitudes toward the website.
The attractiveness of a product is the most important factor that arouses customers’ behaviour intention (Lin 2008). In the context of tourism websites, there is an explicit need for many travel-related organizations to build the best website and to enhance its attractiveness (Law & Huang 2006). Attractiveness is vital in website design (Feng, Morrison & Ismail 2003; Kim, Shaw & Schneider 2003), and its importance has been proven by researchers. Visual attractiveness is asserted by van der Heijden (2003) to play an important role in the intention to use a website. Skadberg and Kimmel (2004) claim that attractiveness has a medium direct impact on user attitude and behaviour, as well as a strong direct impact on the perception of a website’s ease of use. In addition, it is the most important factor influencing user experience. Kim and Fesenmaier (2008) indicate the presence of visually appealing stimuli is the most important factor in the persuasion of users to stay longer on the website. Braddy, Meade and Kroustalis (2008) reveal that an attractive website has a substantial impact on improving users’ impressions of an organization. Several researchers have embraced attractiveness as one of the evaluation attributes for website effectiveness in tourism research (Cao, Ahang & Seydel 2005; Douglas & Mills 2004; Kline, Morrison, & St. John 2004) as well as non-tourism research (Hong & Kim 2004; Mahlke 2002; Thoms et al. 2004).

Perdue (2001) defines visual attractiveness as users’ perception of the visual quality of the website, and indicates that it is strongly related to website quality, which influences the overall website evaluation and then in turn influences the perceived quality of the destination. In fact, visual appearance or aesthetics has been emphasised because of its ability to attract the attention of new visitors and form an initial destination image (Han & Mills 2006). It is the most important determinant for overall attractiveness (Sutcliffe & Namoune 2008). Traditionally, the prominence of usability criterion surpassed aesthetics in the area of human and computer interaction (HCI) (Tractinsky, Katz & Ikar 2000). However, aesthetics is increasingly being recognised as an important factor (see Norman 2004) that contributes to the overall success of a product or system beyond usefulness and usability (Hartmann 2006). It has been found that the judgement of aesthetics influences users’ judgement of usability, and content, as well as overall preference (Hartmann 2006), and a halo
effect of good aesthetic design can even overcome some usability problems (Hartmann, Sutcliffe & De Angeli 2008; Tractinsky, Katz & Ikar 2000). Lindgarrd et al. (2006) also state that aesthetics or visual appeal may become the prior factor which influences users’ later judgement of a website. Given the increasing attention on the importance of visual appeal, website attractiveness will be one of the underlying dimensions in this study.

**Informative value**

Information provision is the most important aspect of a website (Cardamone & Rentschler 2006). Tourism is an information-intensive product (Doolin, Burgess & Cooper 2002; Gretzel, Yuan & Fesenmaier 2000; Pan & Fesenmaier 2006), and information obtained from destination websites influences tourists’ decision-making (Kao et al. 2005). According to Park and Gretzel (2007), information quality is the most common criterion that has been proposed in tourism research. Researchers suggest that enhancing the information content increases user satisfaction and loyalty (Shankar, Smith & Rangaswamy 2003). The importance of informative value on website evaluation has been recognised both by tourism researchers (Chu 2001; Han & Mills 2006; Kim & Fesenmaier 2007, 2008) and non-tourism researchers (Chen, Clifford & Wells 2002; Gao & Koufaris 2006; Luo 2002). It has been found that informativeness is positively related to attitude toward a website (Gao & Koufaris 2006; Hausman and Siekpe 2009; Luo 2002).

The nature of tourism is experiential; tourists experience a destination and simultaneously receive informal learning during their visit. As mentioned in chapter 2, learning plays a specific and important role for cultural tourists. Richards (1996) states that the ATLAS research acknowledged that the learning element is the central feature that distinguishes cultural tourism. Learning new things and experiencing the atmosphere of the place are the most important factors for cultural tourists (Richards 2002). However, although the importance of informative value has been recognised, it seems no existing research has investigated how much knowledge the user can gain from a destination website and how much the obtained information can be stored in
users’ memories. Tourists may visit a variety of tourism websites during their decision-making process, and the impression of a destination that is stored in their memories may influence their final decision. Stamboulis and Skayannis (2003) indicate that the interaction between intermediaries (e.g., tourism websites) and tourists leads to the accumulation of knowledge, which further reinforces trust and reputation of the destination. This learning process produces competitive advantages for destinations. Hence, it is necessary to understand the influence of information presentation formats on users’ knowledge production and destination impressions.

**Enjoyment value**

The hedonic features have become vital elements in web design (Lee & Kozar 2009). It is necessary to develop hedonic pleasure in website design in order to attract users’ visitation, stimulate their participation, improve their concentration, and enhance their enjoyment (Liu & Arnett 2000). Although different terms, such as entertainment, playfulness, or pleasure are used, the importance of enjoyment on websites has been emphasised in a wide range of tourism research (Gretzel & Fesenmaier 2005; Powley, Cobanoglu & Cummings 2004; Sigala 2004) as well as non-tourism research (Chung & Tan 2004; Koufaris, Kambil & LaBarbera 2001; Wulf et al. 2006). Ahn, Ryu and Han (2007) state that playfulness usually implies that the interaction with websites results in enjoyment or cognitive absorption. They have discovered that playfulness is an important factor which influences users’ intention to visit the website. Another researcher van der Heijden (2003) also indicates that perceived enjoyment positively influences users’ intention to visit a website. It is also correlated with the purchase intention on the website (Fiore, Jin & Kim 2005; van der Heijden & Verhagen 2004) as well as intention to revisit the website (Koufaris 2002; Lin, Wu & Tsai 2005).

Huang (2003) contends that users visit a website not only for information needs, but also for entertainment. Researchers claim that the entertainment value of a website enhances users’ experience of the website (Ducoffe 1996; Gao & Koufaris 2006). Lin, Wu and Tsai (2005) indicate that perceived playfulness is an important factor
contributing to user satisfaction with the website, which in turn is positively related to the continuance intention. Zhang and von Dran (2000) prove that enjoyment increases user involvement while interacting with the website, which contributes to user satisfaction toward the website. Leonard and Riemenschneider (2008) conclude that website design should consider how to make users feel involved and experience enjoyment. Several researchers have also found that enjoyment is positively related to attitude toward a website (Huizingh 2000; Kim, Kim & Lennon 2009; Richard 2005). Hence, an understanding of the relationship between information presentation and users’ perceived enjoyment value is imperative for DMO websites.

Tourism is an experiential product (Castañeda, Frías & Rodríguez 2007; Oh, Fiore & Jeoung 2007; Richards 2001), and the experience develops from the interaction between tourists and destinations (Stamboulis & Skayannis 2003). Oh, Fiore and Jeoung (2007) contend that tourist motivations in visiting a destination are mainly driven by the mental and emotional images of a pre-experience of the expected experience at the destination. According to Pine II and Gilmore (1998), the realms of experience can be classified into four categories: entertainment, educational, aesthetic, and escapist. Prentice (2004) indicates that escape is one of the most important motives for visiting a destination. Tourism is basically a way by which people escape from their daily life and experience the extraordinary (Oh, Fiore & Jeoung 2007). The entertainment, educational and aesthetic experiences are consistent with the underlying dimensions of the measurement proposed in this study. In terms of web context, the feeling of satisfaction or the formation of attitude results from users’ online experience at the website (Gao & Koufaris 2006; Mills & Morrison 2003; Teo, Oh & Liu 2003). Therefore, it is believed that the attractiveness value, informative value, and enjoyment value will play roles as valid and reliable predictors of user attitudes.

3.3 User Experience

Understanding experience is a critical issue for designing interactive systems (Forlizzi & Battarbee 2004). It has been found that a rich online experience is a functional factor for website effectiveness (Coyle, Mendelson & Kim 2008), and the
importance of user experience has drawn increasing attention in website environments (Järveläinen 2006). Tourists’ experiences are stored in their memory, and are retrieved and combined into a frame of new decision-making as another travel need emerges (Choi, Lehto & Oleary 2007). A measurement of user experience, on their visit to a DMO website, is essential for improving the online service quality (Kao et al. 2005). Han and Mills (2006) indicate that a positive experience and judgement, induced from browsing the website, influence the overall image of the destination and the decision-making. Castañeda, Frías and Rodriguez (2007) believe that the tourist’s online experience has a moderating effect on destination satisfaction. Therefore, the experiential value of tourism websites has been recognised by scholars (e.g., Cho, Wang & Fesenmaier 2003; Gretzel & Fesenmaier 2003). Bogdanovych et al. (2006) indicate that tourists have to rely on virtual experience prior to purchase, so it has become an important issue for destinations to have appealing presentations online. Due to the rapid development of the Internet and ICTs, virtual experience has been utilised to promote tourism destinations (Wan et al. 2007). Researchers indicate that tourism websites create virtual experiences for the potential tourist, which directly influence the perceived image of a destination (Cho & Fesenmaier 2001; Doolin, Burgess & Cooper 2002). A positive experience resulting from the interaction with a website, enhances users’ attitude toward the website and the host firm (Mathwick & Rigdon 2004; Nambisan & Baron 2007). It has also been found to influence users’ decision-making process (Constantinides 2004). More and more tourism websites now provide virtual experience, such as panoramic views, animations, and interactive photo galleries for tourists, all of which empower them through direct experience before their real visit to the destination (Chiou, Wan & Lee 2008). It is suggested that tourism website must provide a positive user experience (Mills & Morrison 2003).

Past researchers divide user experience of learning about products into indirect experience and direct experience (Hoch & Deighton 1989; Wright & Lynch Jr. 1995). Direct experience is an unmediated interaction between a consumer and a product (Gibson 1966), whereas indirect experience comes from various sources such as word-of-mouth, brochures, and advertising (Li, Daugherty & Biocca 2003). Direct experience is believed to be more predictive of behaviour than indirect
experience (Fazio & Zanna 1981; Smith & Swinyard 1983). The advantage of direct experience is based on its first-hand evaluation of products, which enhances consumers’ confidence (Griffith & Chen 2004). Information obtained from direct experience is more accessible and creates higher confidence (Petty & Wegener 1998). Direct experience also has greater impact on recall, attitude and purchase intention than traditional advertisements (Sigh, Balasubramanian & Chakraborty 2000). In contrast, indirect experience has more limits and is less effective. However, with the development of information technology, recent researchers claim another type of experience – virtual experience – to elucidate the experience in computer-mediated virtual environments (Li, Daugherty & Biocca 2001, 2003; Park, Lennon & Stoel 2005; Suh & Lee 2005). Virtual experience has the advantage of combining both indirect experience and direct experience (Edwards & Gangadharbatla 2001; Li, Daugherty & Biocca 2001). Researchers indicate that the provision of a high level of realism is one of the most distinctive features the Internet possesses (Coyle & Thorson 2001). Advanced website features may help approximate a direct experience by delivering product information in a way that makes users perceive it in a way that more closely resembles the way they acquire in the real world (Klein 2003; Song, Fiore & Park 2006). The more user engagement, sensation and reaction is provided by a website, the more users will concentrate on using the Web, and are more likely to have increased enjoyment experience (Lin, Gregor & Ewing 2008).

Griffith and Chen (2004) further develop this approach by employing the term virtual direct experience (VDE) as the concept of direct product experience in a simulated computer environment, and assert that VDE is similar to direct experience due to its ability to convey experiential product attributes. Their study found that the employment of VDE was more effective than no VDE in advertising. It is suggested that VDE provides greater opportunities for marketers than the use of traditional advertising formats. Similarly, in their study investigating the advertising effects on cognitive preference between virtual experience and traditional brochures, Chiou, Wan and Lee (2008) found that virtual experience had significantly greater effect than traditional brochures. Daugherty, Li and Biocca (2008) also proved that virtual experience is an alternative consumer experience, resembling product trial better than traditional advertising forms. It has also been found to increase online purchasing
The capability of virtual experience, combining indirect experience and direct experience, increases product knowledge and influences brand attitude (Daughery, Li & Biocca 2008; Lui, Piccoli & Ives 2007). It is commonly recognised that virtual experience encourages website exploration (Yoon, Laffey & Oh 2008). The effects of virtual experience on Internet advertising have been verified (Keng & Lin 2006).

3.4 Virtual Reality and Presence

Due to the importance of virtual experience, it is suggested that marketers should strive for verisimilitude in their web communication (Klein 2003). Reeves and Nass (2002) assert that people often have identical behaviour in virtual environments to what they do in the real world, and it has been found that computer simulations have a positive influence on changing user attitude and behaviour (Fogg 2003). Virtual reality (VR) is a popular term meaning verisimilitude in a mediated environment in which scenes and objects are simulated realistically. The main objective of VR is to create a belief that users are located in another synthetic environment by inducing emotions or affective response similar to that of the real world (Lee et al. 2004). Researchers have identified that VR has been increasingly referred to as a communication system (Biocca & Levy 1995; Parés & Parés 2006; Riva 2001), and VR in the web environment has become increasingly desirable because it is capable of creating realistic experience, thereby reducing the effect of customers’ inability to make direct contact with products (Suh & Chang 2006; Suh & Lee 2005). The benefits of VR have been elucidated in a wide range of research. Burke (1996) asserts that VR provides excellent opportunities for marketing strategies in the development of new products, promotions, packing and merchandising. Suh and Lee (2005) indicate that VR has a positive effect on product knowledge, product attitude, and purchase intention. It has the potential to enhance the competitiveness of Web advertising (Kassaye 2006). A VR shopping environment provides the functionality of a physical, face-to-face interaction that creates a superior shopping experience and improves the trust formation (Papadopoulou 2007). It provides a better user experience and enhances consumers’ decision-making (Chuah, Roland & Teh 2008). VR allows users to actively participate in and experience the system, which
facilitates the assessment of a destination (Cho, Wang & Fesenmaier 2003). At the same time, it increases the attractiveness of a tourism destination (Guráu & de Co Montpellier 2007), and reduces the degree of travel anxiety (Lee & Oh 2007). Although VR contains huge potential in the field of marketing and promotion, there is no unified definition of virtual reality.

VR emerged from an unlikely compound of technologies developed for use by the military, aerospace, entertainment, and computer industries. The earliest form of VR was developed as a flight simulator for training pilots in the US military and NASA. In the entertainment industry, it lay in the search for more realistic movie experience (Stanovsky 2004). Coelho et al. (2006) explain that VR systems include two main parts: a technological component and a psychological experience. They classify definitions and the explanation of the feeling of presence from two approaches – media presence (rationalist perspective) and inner presence (psychological perspective). Media presence refers to a set of technological hardware, put together to generate a system where users are active participants in an immersive mediated environment. Inner presence refers to the synthetic experience, which is generated from the interaction between man and simulated environments and the perceptive process is identical with the real world. The equipment disappears when the user is concentrating on the task through his action in the virtual environment.

Steuer (1992, p. 75) claimed that VR is a type of human experience, rather than a set of technological hardware, and it can be explained by using the concept of presence, which he defined as ‘the sense of being in an environment’. Costello (1997) and Bertol (1997) considered the sense of immersion, or the degree of presence that the mediated environment provided, to be the primary feature of VR systems. From this perspective, Costello categorised VR systems as non-immersive, semi-immersive and fully immersive. Non-immersive systems are desktop systems, where the virtual environments are viewed through a monitor, and the interactions occurred through conventional devices such as keyboards and mice. The merit of the non-immersive system is the low cost, due to its dispensability of high-level graphical performance and special supported devices. Semi-immersive systems have borrowed considerably from technologies developed in the flight simulation field. They consist of relatively high graphical performance computing systems with large screen or multiple
television projection capacity, in which the wide field of view enhances the feeling of immersion. Fully immersive systems are those where the user wears a head mounted display to receive the most direct experience of the virtual environment. Similarly, Whyte (2002) classified VR systems as immersive, non-immersive and augmented reality. Immersive systems provide an unmediated experience through completely surrounding the user by specific devices such as head-mounted and large wall-mounted displays. Non-immersive systems use generic hardware, which does not provide users with a total field of view. Augmented reality systems allow users to interact with both the virtual and real worlds. Kirner and Kirner (2008) have likewise classified virtual reality into two types based on sense of presence: non-immersive and immersive. The non-immersive VR partially transports users into the virtual world through a window or screen, while the immersive system fully transports users into the application through multi-sensorial devices, such as helmets. Regardless of which type of immersive system, VR thus can be defined as an immersive, interactive experience in a computer-generated environment (Pimentel & Teixeira 1993), and the feeling of presence is induced during this experience.

In fact, the design goal of VR is to create the feeling of presence (Biocca 1997). IJsselsteijn et al. (2000) assert that there are two types of presence: physical and social. Physical presence refers to the sense of being located in somewhere, whereas social presence refers to the sense of communication with someone else. Similarly, Mantovani et al. (2006) explain that the relationship between communication and presence at a theoretical level can be interpreted from two sides: physical/environmental presence and social presence, in that communication take place in the phenomena of being-in-the-world and being-with-others. As mentioned above, VR systems allow users to interact with virtual environments alone or to interact with the others via the environment. The sense of physical presence and social presence is a psychological state, which coincides with the communication exchange in the real world. Riva, Waterworth and Waterworth (2004, p. 414) assert that presence is ‘a feeling of being in a world that exists outside of the self but in which the self is situated.’ They propose three layers of presence to link presence and self: Proto presence (self versus non-self), Core presence (self versus present external world), and Extended presence (self relative to present external world).
*Proto presence* is based on feelings of knowing bodily orientation in the world, sometimes referred as ‘spatial presence’. *Core presence* is based on conscious perception of current displays in which a person feels himself being in a perceived world, which is also equivalent to ‘sensory presence’. Usually, these two levels integrate to generate the degree of immersion. *Extended presence* depends on the significance of the current situation to the self in the external world. The more the three layers are integrated, the stronger the feeling of presence is produced. Steuer (1992, p. 75) defined presence as ‘the sense of being in an environment’ where natural surroundings impinge directly upon human senses. As an extension from this concept, telepresence is defined as the experience of presence in mediated environments (Steuer 1992; Shih 1998). In other words, telepresence is a facet of presence, which implies a state of presence in a remote environment (Jahng, Jain & Ramamurthy 2000; Kim & Biocca 1997). A high degree of telepresence makes users feel that they in the virtual environment, rather than in the physical world where they are actually located (Coyle, Mendelson & Kim 2008).

### 3.5 Telepresence

Researchers have found that VR has a positive relationship with telepresence (Suh & Chang 2006; Suh & Lee 2005), because the key determinant of telepresence is the user’s sensory immersion in the mediated environment (Kim & Biocca 1997). Cho, Wang and Fesenmaier (2003) define virtual experience as an experience in a computer-mediated virtual environment based on the concept of telepresence. The active process of virtual experience is connected with three components: presence, involvement, and enjoyment (Li, Daugherty & Biocca 2001). Virtual experience often occurs in an interactive computer-mediated environment where presence is a central characteristic, which contributes to perceived illusion (Park, Lennon & Stoel 2005). Telepresence creates virtual experience that simulates the direct experience in a physical environment (Jahng, Jain & Ramamurthy 2000; Song, Fiore & Park 2006; Suh & Chang 2006). The degree of telepresence is greater, the more similar the mediated experience is to the direct experience (Klein 2003). However, in some academic research, *presence* and *telepresence* seem to be considered as identical.
concepts, sharing the same characteristics. The term **telepresence** was first coined by Marvin Minsky in 1980, and refers to the phenomenon that a person generates a sense of being physically present at a remote location through interaction with the system’s human interface via a teleoperation (IJsselsteijn et al. 2000). Teleoperations are a specific type of virtual reality where a device or machine is operated from a distance. The operator perceives the physical environment where she/he is actually located, and the distant environment is presented via the technology (Coelho et al. 2006). Since Minsky’s definition, telepresence has been used to refer to a sense of transportation to a space created by technology (Lee 2004). However, the psychological presence in a remote or mediated environment has been studied in various disciplines since the 1990s. The term ‘presence’ caused debate in 1992 when Sheridan and Furness used it for a new journal dedicated to the study of teleoperations and virtual environment systems. Sheridan (1992) refers to the term **presence** as the presence elicited by a virtual environment, whereas the term **telepresence** is only used for the case involving teleoperation. Nevertheless, in the same section of the journal, Held and Durlach (1992) use the term **telepresence** for the experience of both teleoperation and virtual environments. Kim and Biocca (1997) draw on the concept of Minsky, developing the idea of telepresence as a type of transportation. This involves departure, arrival and return from a mediated place or space, in which arrival refers to the situation where users feel themselves to be located in a virtual environment, whereas departure refers to the feeling of not being in the physical world. They also indicate that the sense of presence is not generated only from virtual environments but in many traditional media such as books, magazines, and television. It is acknowledged that even less sophisticated techniques can evoke the sense of presence (Lombard & Snyder-Duch 2001). Although some researchers use the term **presence** as ‘the perceptual illusion of non-mediation’ (Lombard & Ditton 1997) to explain the superior of mediated environment, the identical concept of telepresence, in this study, **telepresence** is used due to the transported nature of tourism, and the concept of direct experience from Coyle and Thorson (2001, p. 66): telepresence is a ‘simulated perception of direct experience’.

Researchers indicate that the feeling of presence, being in an environment, induces enjoyment and enhances persuasion, which are the primary goals of advertising.
Telepresence influences consumers’ attitudes and their consequent behaviours (Zahedi & Song 2009). The positive effect of telepresence on user response has been well demonstrated in academic research. Kim and Biocca (1997) state that telepresence stimulates direct experience and enhances attitude confidence. Shih (1998) believes that telepresence helps web marketers keep visitors staying longer on their website, as well as increasing repeat visitation. Fiore, Kim and Lee (2005) prove that there is a significant positive relationship between telepresence and attitude toward the online retailer, willingness to purchase from the website, as well as willingness to patronize the website. Klein (2003) indicates that telepresence has a positive impact on users’ beliefs about the examined products, and increases positive user attitude toward the product. Keng and Lin (2006) prove that Internet advertising effects are positively related to the degree of telepresence, in terms of user recall and recognition. Suh and Chang (2006) contend that telepresence enhances consumers’ product knowledge, directly influences attitudes and indirectly affects purchase intentions, because it helps to diminish the perceived risk and the inconsistency of examined products. Consumers under a high level of telepresence have a virtual experience resembling direct experience, and their attention and memory are enhanced. In a study of the online shopping context, Song, Fiore and Park (2006) indicate that telepresence positively stimulates the feeling of fantasy, influences shopping enjoyment and the willingness to purchase on the website. For experiential products, designing a website with a high level of telepresence is suggested (Keng & Lin 2006).

The cause of telepresence depends on one’s attention shifting from the located physical world to the virtual environment (Witmer & Singer 1998). In fact, humans experience different degrees of presence within various physical circumstances in daily life. For example, when walking in the street, and passing by a luxury house, one might feel envious and imagine the situation of standing inside the house. At that moment, one might forget his/her surroundings, and experience a certain degree of presence within that luxury house. The degree of presence depends on how much the focus of attention moves from the physical environment to the virtual environment (Witmer & Singer 1998). The sense of telepresence is influenced by integrating the stimuli from both the physical and mediated environment, and depends on users’
inherent traits and shifting states of attention. When the mediated stimuli surpass the physical stimuli, a sense of telepresence is produced (Kim & Biocca 1997). Telepresence therefore is the situation of precedence of the mediated environment (Steuer 1992).

Flow and Telepresence

Researchers indicate that flow and telepresence are similar concepts (Cho, Wang & Fesenmaier 2003; Coyle & Thorson 2001). Flow is considered as an important indicator to understand user behaviour (Huang 2003). Takatalo, Nyman and Laaksonen (2008) integrate the concepts of presence and flow, and propose a presence-flow-framework (PFF) to measure user experience in a virtual environment. The PFF includes three dimensions: physical presence, situational involvement, and competence. Csikszentmihalyi (1975, p. 36) is the pioneer of the concept of flow, which he defines as ‘the holistic sensation that people feel when they act with total involvement.’ When users are in the flow state, they are engaged with an activity in which their focus of awareness is diminished, and they feel in control of the environment (Rettie 2001). Hoffman and Novak (1996, p. 57) developed Csikszentmihalyi’s concept in a hypermedia system and defined flow in a computer mediated environment as ‘the state occurring during network navigation which is: (1) characterized by a seamless sequence of responses facilitated by machine interactivity, (2) intrinsically enjoyable, (3) accompanied by a loss of self consciousness, and (4) self-reinforcing.’ There are four antecedents of flow experience: focused attention, perceived congruence of skills and challenges, interactivity and telepresence. Huang (2003) and Rettie (2001) also indicate that interactivity facilitates flow experience. However, some researchers (e.g., Skadberg & Kimmel 2004) argue that skills and challenge are not appropriate to be included in the web environment. Skadberg and Kimmel (2004) propose another four dimensions as the determinants of flow on a website: contents, design, performance, and visitors’ individual differences. Within these, three elements contribute to flow: telepresence, visitor’s knowledge about the topic presented, and content of the web pages. They
assert that the state of telepresence is similar to the characteristics of flow, because they both require complete involvement, focused attention, and loss of awareness.

Hoffman and Novak (1996) indicate that the consequences of flow include increased consumer learning, increased perceived behavioural control, increased exploratory behaviour, positive subjective experience, and perception of time distortion. Skadberg and Kimmel (2004) assert that flow experience not only increases learning, but also changes user attitudes and behaviours. Users with flow experience tend to ask for more information, come back to the website for information, and take positive action. Skadberg, Skadberg and Kimmel (2005) indicate that a tourism website can induce flow experience with characteristics of time distortion and enjoyment. Visitors who have flow experience possess greater interest in visiting the destination presented on the website.

**Dimensions of Telepresence**

Heeter (1992) proposes three dimensions of telepresence: personal presence, social presence, and environmental presence. Personal presence refers to the feeling of location in the virtual environment. Social presence refers to the feeling of other people or other entities co-existing in the virtual environment, who are providing a response to the user. Environmental presence refers to the environment itself, acknowledging the user and responding to her/him in the virtual environment. Schloerb (1995) defines two types of telepresence: subjective presence and objective presence. Subjective presence refers to the probability that a person perceives she/he is presented in a remote environment. Objective presence refers to the probability of successfully completing a task. Lombard and Snyder-Duch (2001) explicate several dimensions of telepresence: spatial presence, perceptual realism, social realism, engagement, social presence, social actor with the medium and para-social interaction, shared space, and medium as social actor. Spatial presence is generated when the user’s perception fails to accurately recognise the medium in use and feels she/he is in an environment that differs from her/his physical location.
Perceptual realism occurs when user perception of the medium is diminished, making him/her feel that he/she is in the physical world in which the sensory characteristics are corresponding. Social realism is elicited when user perception of the medium is diminished, which makes she/he feel that they are in the physical world where the social characteristics are corresponding. Engagement is produced when the user’s perception is directed toward mediated objects, events or people, and away from those in the physical environment. Social presence occurs when the user’s perception of the medium is diminished and this induces the feeling of communication with other people. Social actor with the medium and para-social interaction happens when the user perception of the medium is diminished, and she/he feels engaged in two-way communication with another, although the communication is just one-way, from the medium to the person, without feedback from the person or the entity. Shared space occurs when the user perception of the medium is diminished, and she/he feels that communication with others is happening in the same physical place, but they actually are in different physical locations. Medium as social actor happens when the user perception of the medium is diminished, and she/he feels that communication is happening with another entity, but that entity in fact is merely technology or a medium.

**Determinants of Telepresence**

Research into the causes of telepresence has been suggested in the literature. Sheridan (1992) asserts that degree of telepresence depends on three factors:

1. The degree of sensory information content,
2. The ability of the user to alter the sensors relative to the virtual environment,
3. The ability of the user to manipulate the environment.

Lombard and Ditton (1997) suggest that the causes of telepresence are determined by three dimensions:

1. Form variables: including number and consistency of sensory outputs, visual display characteristics, image quality, image size, image size and viewing
distance, motion and colour, dimensionality, camera techniques, aural presentation characteristics, stimuli for other senses, interactivity, obtrusiveness of medium, live user recorded or constructed experience, and number of people.

2. Content variables: including social realism, use of media conventions, and nature of task or activity.

3. Media user variables: including willingness to suspend disbelief, knowledge and prior experience with the medium, and other variables.

Witmer and Singer (1998) state that the factors influencing telepresence depend on involvement or immersion, and propose four dimensions of these factors.

1. Control factors: including immediacy of control, anticipation, mode of control, and physical environmental modifiability.

2. Sensory factors: including sensory modality, environmental richness, multimodal presentation, consistency of multimodal information, degree of movement perception, and active search.


4. Realism Factors: including scene realism, consistency of information with the objective world, meaningfulness of experience, and separation anxiety/disorientation.

IJsselsteijn et al. (2000), and Freeman, Lessiter and IJsselsteijn(2001) elucidate four factors underlying telepresence.

1. The extent and fidelity of sensory information: the amount of useful and salient sensory information, which is presented as consistent with the appropriate sense of the user.

2. The match between sensors and the display: the response contingent on the user’s actions.

3. Content factors: including the objects, actors, and events represented by the medium.
4. User characteristics: including users’ demographical difference, perceptual, cognitive and motor abilities, prior experience, and willingness to suspend disbelief.

From above, it is found that causes of telepresence can be classified into technical features and user characteristics. In the context of web environments, a variety of website features have been explored to increase user’s sense of being transported to the environment. The major determinants are interactivity and vividness (Coyle & Thorson 2001; Jones, Spence & Vallaster 2008; Schuemie et al. 2001; Steuer 1992).

3.6 Interactivity

Interactivity has been considered as one of the most predominant features of the Internet (Mohler & Duff 2000; Rafaeli & Sudweeks 1997), and it is also an important attribute, which distinguishes the Internet from other media (Huang 2003). A wide range of research has been conducted that investigates the relationship between interactivity and websites (Bhatt 2004; Damangeot & Broderick 2006; Olson & Widing II 2002; Thorbjornsen et al. 2002), while the advantages of interactivity have been discussed in literature. Interactivity has consequences in the creation of engagement in the process of communication and in relationship building between companies and consumers (Ha & James 1998). It has been recognised as a valuable way of improving communication quality of business websites (Chen & Yen 2004). Rafaeli and Sudweeks (1997) contend that interactivity positively connects to the sense of involvement and belonging. Ghose and Dou (1998) indicate that the degree and nature of interactivity significantly influences the website quality. They found that attractiveness of a website derives from the operation of interactivity. Gammack and Hodkinson (2003) contend that interactivity attracts and maintains user attention. Increasing the level of interactivity on a website enhances users’ engagement and purchase intention. Huang (2003) indicates that interactivity affirmatively influences control, curiosity, and interest. Macias (2003) asserts that interactivity helps enhance comprehension. Sunder, Kalyanaraman and Brown (2003) contend that interactivity applied in the political arena influences users’ perceptions of the political candidate and their agreement with the candidate’s policy positions. Ballantine (2005)
demonstrates that interactivity has a positive impact on user satisfaction. Consumers appreciate higher level of interactivity when browsing a shopping website. Chiu, Hsieh and Kao (2005) assert that interactivity is positively related to consumers’ behavioural intention due to the improvement of website quality. Fortin and Dholakia (2005) indicate that the most significant impact of interactivity is on the degree of perceived presence. Yoon, Choi and Sohn (2008) acknowledge the heightened effect of interactivity on the relationship building process.

Several researchers have found that interactivity has positive effects on users’ attitudes toward the website and advertised products. Wu (1999) indicates that users’ attitudes toward a website has a positive correlation with their perceived interactivity of the website. McMillan and Hwang (2002) developed a set of scales to measure perceived interactivity (MPI) and indicate these MPI scales can be strong predictors of attitude toward a website. Teo et al. (2003) conducted an empirical study to examine the effects of different levels of interactivity on user attitude, and the result shows that higher level interactivity on a website contributes to user satisfaction, effectiveness, and efficiency, which increases the website value and positive attitude toward a website. Sunder and Kim (2005) investigated the relationship between interactivity and persuasion. They found the level of interactivity positively influenced the attitude toward the advertisement and the product, and indicated that interactivity is a strong cue to enhance the persuasive function of online advertisements.

Although researchers have investigated different facets of interactivity, there is no common definition of the concept (Macias 2003). Researchers define interactivity from different perspectives. Heeter (2000) indicates that ‘interactivity is an overused, under-defined concept.’ Ha and James (1998) define interactivity as the extent to which the communication between the two communicators is willing to facilitate each other’s needs. Some researchers put it in a simple way, such as the ‘information exchange between a website and its users’ (Huang 2003, p. 427) or ‘the response triggered by the user’ (Skadberg & Kimmel 2004, p. 407). However, these definitions do not consider the control power of the user on given media. Steure (1992, p. 84) defines interactivity as ‘the extent to which users can participate in modifying the form and content of a mediated environment in real time.’ Similarly,
Jensen (1998) defines interactivity as the medium’s potential ability to allow users to make changes to the content and/or form of the mediated environment. Lombard and Snyder-Duch (2001) propose a consistent definition and argue that interactivity is a characteristic of a medium which empowers the user to influence the presentation or experience. Shih (1998) agrees that interactivity is a media characteristic and states this capability can give responses to the user, as if an individual is having a conversation. Based on Ha and James’ (1998) concept, Macias (2003, p. 32-33) defines interactivity as ‘The state or process of communicating, exchanging, obtaining and/or modifying content and/or its form with or through a medium which responds to both the communicator’s and the audience’s communication needs by including hypertext links, reciprocal communication, etc.’ Some researchers emphasise that an interactive communication needs to be happening in real time, rather than the manipulation on given media. Rafaeli and Sudweeks (1997) define interactivity as a condition of communication in which exchanges happen simultaneously and continuously, and these exchanges produce a social and binding outcome. Liu & Shurm (2002, p. 54) define interactivity as ‘the degree to which two or more communication parties can act on each other, on the communication medium, and on the messages and the degree to which such influences are synchronised.’ Swain (2005) also believes interactive communication must provide instant feedback. Kiousis (2002) asserts interactivity allows participants to communicate one-to-one, one-to-many, or many-to-many in reciprocal message exchanges, both synchronously and asynchronously. Other researchers consider both control and message exchange in synchronization. Liu (2003) claims that interactivity provides opportunities for user active control and reciprocal and synchronous communications. Fortin and Dholakia (2005, p. 388) give a broader concept of interactivity: ‘The degree to which a communication system can allow one or more end users to communicate alternatively as senders or receivers with one or many other users or communication devices, either in real time (as in video teleconferencing) or on a store-and-forward basis (as with electronic mail), or to seek and gain access to information on an on-demand basis where the content, timing and sequence of the communication is under control of the end user, as opposed to a broadcast basis.’
Interactivity is multidimensional (Chen & Yen 2004; Haubl & Trifts 2000; Liu & Shrum 2002). Steuer (1992, p. 85-86) proposes three factors contribute to interactivity: speed, range, and mapping. Speed refers to the response time, range refers to the amount of user options in manipulation, and mapping refers to ‘the ability of a system to map its controls to changes in the mediated environment in a natural and predictable manner.’ Ghose and Dou (1998) identify 23 forms of interactive functions based on five dimensions: customer support, marketing research, personal-choice helper, advertising/promotion/publicity, and entertainment. Ha and James (1998) propose five dimensions of interactivity – playfulness, choice, connectedness, information collection, and reciprocal communication – based on the different needs of communication. They believe that information collection and reciprocal communication are higher levels of interactivity due to the involvement of direct, two-way message exchange, and that these two can be classified as source-oriented dimensions.

Dimensions of playfulness, choice and connectedness are deemed as self-communications, which are classified as audience-oriented interactivity. Jensen (1998) identifies four underlying dimensions of the concept of interactivity: transmissional, consultational, conversational, and registrational interactivity. Transmissional interactivity refers to the media’s potential ability for the provision of user choices in one-way communication. Consultational interactivity refers to the media’s potential ability for the provision of user choices in two-way communication. Conversational interactivity refers to the media’s potential ability to provide user production of her/his own information in a two-way communication. Registrational interactivity refers to the media’s potential ability to register information based on user needs and actions.

Lombard and Snyder-Duch (2001) contend that interactivity depends on five subsidiary variables: 1) the number of inputs that users can access and get a response from the medium; 2) the number and type of characteristics which users can modify in the mediated presentation; 3) the range or amount of attributes which users can control; 4) speed of response from the medium; 5) the degree of correspondence between user inputs and media response. Kiousis (2002) conceptualises three dimensions of interactivity from both media and psychological perspectives: the
The contingency view emphasises the relationship between user, media, and messages, in which the messages need to relate to one another, so that the subsequent message is responded to, contingent or dependent to the previous one. Chen and Yen (2004) utilise the five dimensions from Ha and James (1998), and place the emphasis on playfulness, connectedness, and reciprocal communication, which are exhibited as strong predictors of website quality. Tremayne (2005) identifies the concept of interactivity into two domains: functional and perceptual. The functional concept regards interactivity as a process of message exchange, whereas the perceptual concept considers interactivity as a perceptual variable. Keng and Lin (2006) conceptualise interactivity as interaction with media, a communication process, and a method of controlling a message, concluding that there are four characteristics of interactivity: participant equity (exchange of roles, communication linkage), dynamic communication process (immediacy of feedback, controlling of process, dialog), control of message (controlling of content, personalisation, responsiveness), and mutual understanding (social presence, mutual understanding).

In terms of the relationship between user and medium, Hoffman and Novak (1996) propose machine interactivity, in which users access interactivity with content, and person interactivity, in which users communicate through the medium.
Galley (2000) identifies online interaction into computer-mediated human interaction and media interaction, in which the defining characteristic is feedback. Computer-mediated human interaction occurs between two or more people, whereas media interaction refers to the medium itself giving the feedback. Kiousis (2002) indicates that interactivity in participant relationships includes human-to-machine, human-to-human via machine, and machine-to-machine. Liu and Shurm (2002) classify interactivity into three types: user-machine interaction, user-user interaction, and user-message interaction. Similarly, in a recent study, Cho and Cheon (2005) categorise the dimensions of interactivity into human-message interaction, and human-human interaction. Human-message interaction indicates the interaction between users and message, that is, the content of information systems. This dimension focuses on the technical aspect, in which the interaction occurs between users and media. Human-human emphasises the reciprocal communication between senders and receiver. This dimension signifies the communication aspect, in which interaction occurs between the user and marketer or/and other users via media. This study investigates the effects of website features on information presentation. Therefore, the dimension of human-message interaction is adopted as the central concept of interactivity.

User control is the key characteristic of interactivity (Klein 2003; Lombard & Snyder-Duch 2001; Shih 1998). The more control a user has over the virtual environment, the greater degree of telepresence (Witmer & Singer 1998). Liu and Shrum (2002) suggest that active control induces user cognitive involvement, and has a positive influence on user learning and satisfaction. Users who feel they have more control feel more confident than users who do not feel in control (Huang 2003). Kristof and Satran (1995) propose seven interactivity levels based on available control: control over pace, control over sequence, control over media, control over variables, control over transaction, control over objects, and control over simulation. Shih (1998) indicates user control allows users to tailor certain aspects of the contents based on their individual needs. Lombard and Snyder-Duch (2001) claim that interactivity is made greater by expanding the amount of change possibility, through which users can control the attribute of the mediated environment. Sicilia, Ruiz and Munuera (2005) indicate ‘machine interactivity’ allows users to control
what information will be presented, and decide the order and duration. Fiore and Jin (2003) describe ‘image interactivity’ as enabling manipulation of product or environment on web sites. For instance, the user can control the viewing angle or distance, simulate the product’s operation, or change the product’s features. Swain (2005) states interactive marketing communication allows consumers to initiate and control communication and decide what messages are received.

Researchers have conducted different studies to examine the effects of user control. Ariely (2000) investigates the merits and defects of control over the information flow, and indicates that this user control provides a better match of users’ preferences, enhances their memory and knowledge about the examined product, and increases confidence in their judgement. Klein (2003) indicates that in direct physical experience, consumers can observe, hear, touch, smell or taste the product, depending on their preferred control, whereas in mediated environments the options of user control are fewer. In her studies, by using wine and face cream as the product categories to examine the relationship between user control and telepresence, she found the higher the level of user control, the greater the level of telepresence. Coyle and Thorson (2001) come to the same conclusion in their study by manipulating the number of clickable images. Klein (2003) further demonstrates that telepresence has a significant and positive effect toward an advertised product. Chen, Griffith and Shen (2005) explore the effects of interactivity by manipulating the level of user control in an online product trail context. The results indicate that interactivity facilitates users to develop greater trust for the online retailer, and improves their evaluations of products, which in turn influences the purchase intention both online and offline. Sicilia, Ruiz and Munuera (2005) manipulate interactivity in terms of hyperlink provision in their study, and the results exhibit the positive relationship between interactivity and information processing. The effect is particularly significant on the low need-for-cognition group. It is suggested that interactivity benefits marketers in both information processing and persuasiveness of the website.

Other researchers focus on another type of user control: image interactivity, in which users can create and manipulate the image of a product to mimic the real experience in a physical shop. Fiore, Kim and Lee (2005) demonstrate that the level of image interactivity influences the instrumental value, and experiential value, as well as the
feeling of telepresence. This, in turn, has a positive impact on users’ attitude toward the online retailer, their willingness to purchase on the website, and willingness to patronise the website. Fiore, Jin and Kim (2005) indicate that image interactivity is positively related to emotional arousal and pleasure, which predicts users’ behavioural willingness. They believe that image interactivity influences both hedonic and utilitarian satisfaction.

3.7 Vividness

Vividness, also referred to as media richness, is the representational richness of a computer-mediated environment that conveys the information to user senses (Steuer 1992). The conceptualisation of vividness is based on the assumption that the richness of media in computer-mediated environments can enhance users’ perception of the content and increase user engagement with the content, so that users’ perception of mediation is diminished (Klein 2003). Steuer (1992, p. 81) proposes two variables that contribute to vividness: ‘sensory breadth’ and ‘sensory depth’. Sensory breadth refers to the number of sensory channels being utilised by the medium to present information to users simultaneously, and sensory depth refers to the quality of information. For instance, video possesses higher sensory breadth than still images, due to the use of both audio and visual senses (Suh & Chang 2006). In terms of sensory depth, commercial films have a greater depth on visual resolution, in terms of colours and pixels, than regular television (Steuer 1992). A large-sized moving image has greater sensory depth than a small-sized moving or non-moving image (Park, Lennon & Stoel 2005). Website features, such as multimedia technology, integrate multiple media elements to enhance the performance of computer-mediated environments that produce superior vividness compared to the traditional single medium. Therefore, rich media presentation, such as animation, audio, and video, may increase the vividness of a website (Coyle & Thorson 2001).

Research concerning the effect of website vividness has been well documented. Jones, Spence and Vallaster (2008) state that vividness is one of the emotion-causing antecedents that are believed to influence the likelihood of emotional reaction to a brand, and in turn affect consumer behaviour. Sunder and Kalyanaraman (2004)
emphasis the importance of vividness and argue that vivid information is more appealing and more likely to be remembered. Coyle and Thorson (2001), and Klein (2003) indicate that levels of vividness are positively related to telepresence. Coyle and Thorson (2001) further claim that websites with animation, audio, and video, which create greater virtual experience, can make users have stronger and more enduring attitudes toward the website. Fortin and Dholakia (2005) demonstrate identical findings, in which the enhancement of vividness, by means of colours, graphics, and animation, produces favourable impacts on telepresence. In addition, they indicate that vividness exhibits a stronger effect on the affective dimension than interactivity. Sunder and Kim (2005) agree that the importance of animation, is due to its capability of positively influencing attitudes toward the advertisement. Appiah (2006) also supports the advantage of multimedia presentation, in which users prefer a website featuring audio/video than a website featuring text/picture. This suggests that multimedia presentation positively influences users’ attitudes toward the website and the examined product. Simon and Peppas (2004) indicate that participants favoured websites with more information and richer presentation. The sample possessed more positive attitudes and greater satisfaction with websites featuring pictures, audio and video, than with text-based websites. This evidence all confirms the positive effects of multimedia technology that flow from its format and which provides richer information delivery than traditional brochures or catalogues (Wulf et al. 2006).

Researchers in the field of Media Richness Theory (MRT) argue that an information-rich medium is more effective for complex tasks, whereas information-lean medium is suitable for simple tasks (Järveläinen 2007). Palmer and Griffith (1998) state that media richness better supports information-intensive products, because richer communication formats not only increase interactivity, but also reduce uncertainty (Ramirez Jr & Burgoon 2004). Tourism is an information-intensive product (Doolin, Burgess & Cooper 2002), and tourist decision-making is a complex task that particularly requires rich media to support its information needs. Therefore, it is believed that the use of multimedia to enhance the vividness of websites may bring positive effects.
3.8 Web-based Virtual Tour

Many DMOs have developed websites with different levels of interactivity (Palmer & McCole 2000), because interactivity and multimedia are key components in the creation of virtual experience (Cho & Fesenmaier 2000). Rosen and Purinton (2004) assert that sensory experience in the web environment is critical. The interaction with multimedia-enhanced websites produces telepresence, and empowers users to experience tourism products and destinations without the real visit (Buhalis & Law 2008). Researchers indicate that virtual experience in a three-dimensional (3D) computer simulation creates visual affordances that allow users to interact with a product in a similar way to direct experience (Li, Daugherty & Biocca 2001). Several researchers have indicated that 3D environments provide a better outcome on user experience (Berneburg 2007; Li, Daugherty & Biocca 2003; Yoon, Laffey & Oh 2008). Virtual tours, one of the VR systems, featuring a 3D virtual environment, have been adopted in a number of DMO websites (e.g., Hong Kong and Singapore).

The importance of the virtual tour on tourism websites has been emphasised (e.g., Cho & Fesenmaier 2000; Sung et al. 2000). It has been found that many DMOs have created virtual tours on their websites because it is considered to be an effective tool for destination marketing (Cho, Wang & Fesenmaier 2003). Bastanlar (2007) claims that interactive virtual tours not only improve the visual presentation, but also facilitate spatial understanding of the place. It provides more visual sensory information that may be found and experienced during a real visit to the place. This more complete information is important in evaluating the attraction accurately and in reducing the uncertainty of pre-visititation. Virtual tours play an important role in destination marketing, due to their ability to provide virtual experience, which in turn enables tourists to evaluate the real travel experience more accurately (Cho, Wang & Fesenmaier 2003).

Cho, Wang and Fesenmaier (2003) argue that virtual tours help reduce the cost of seeking tourist information and facilitate the search for experiential tourism information. This experiential information influences the formation of destination images and makes tourists more confident about their trips. In addition, it may increase tourist satisfaction with the actual visit, due to the consistence of expectation.
and actual travel experience. Even though the tourist might select another
destination, the vivid destination images from the virtual tour experiences still linger
in her/his mind, which may induce a desire to visit in the future (Cho & Fesenmaier
2000).

Currently, there are two major approaches to the creation of virtual tours: 3D model-
based rendering and image-based presentation. In constructing virtual environments,
3D model-based rendering requires laborious procedure and much higher cost than
image-based presentation (Chen 1995; Koizumi & Ishiguro 2005; Tsukamoto 2000).
Image-based VR presentation skips the laborious 3D modelling process (Yoon et al.
2004), by utilising photographs to create photo-realistic virtual environments, where
high quality rendering is achieved (Zara 2006). Since QuickTime VR was created by
Apple in 1995, this approach has become increasingly popular on web-based virtual
environments (Villanueva, Moore & Wong 2004), and it has become the most
common type of virtual tour on the Internet (Zara, Benes & Rodarte 2004).

Apple QuickTime VR uses panoramic images, in which users interactively pan the
panorama with mouse and keyboard to control the viewpoint (Zara, Benes & Rodarte
2004). The objectives of Apple QuickTime VR are to create a 3D environment in
most personal computers without extra hardware (e.g., data gloves or head-mount
displays) and without laborious computer modelling and rendering, while displaying
high quality images independent of scene complexity (Chen 1995). This technology
brings flat photographs from the 2D world into a more immersive and interactive
virtual environment (Lee 2002), and tourism and cultural promotion has become one
of the most suitable applications for its use (Gonçalves 2007). Researchers indicate
that users in a QuickTime VR environment have better memory for products and
better navigation performance (Howes et al. 2001). The use of 360° panoramic
images has become a standard technique applied in various areas (Farin, Effelsberg
& de With 2007; Mazzoleni et al. 2006), and they are also adopted in commercial
usages such as entertainment, interactive TV, real estate and virtual tourism (Gledhill
et al. 2003). It represents the reality valued in the creation of qualitative impressions
(Chapman & Deacon 1998), and changes the static presentation to an interactive
approach (Gonçalves 2007).
There are four major processes in making 360° panorama movies: image capturing, image processing, image stitching, and movie rendering (Gledhill et al. 2003). Basically, image capturing uses a digital camera to shoot different amounts of images, depending on the type of camera. Fisheye lenses are the most popular one to capture panoramic images (see Figure 3.1). The camera, installed on a tripod, is set in the centre and rotated to different angles to shoot the images. After shooting, those images have to go through processing, necessary adjustments are made, and they are then stitched together by image stitching software. The stitching process creates a big flat image (see Figure 3.2), which can then be rendered into a 360° panorama movie.

Figure 3.1   Original Images from Fisheye Lenses for Making A Panorama
3.9 Research Model

Based on the review of literature, a model for this research is proposed (see Figure 3.3). As mentioned on chapter 2, the relationship of tourism and cultural identity is inseparable in this global market, and the importance of web design has been recognised by tourism researchers. As the information technology has been developed advanced, it is significant to investigate that whether varied website features used on tourism websites have different effects on users’ evaluations for the website. Website features construct information presentations, which create different virtual experiences and may influence user attitude toward a website. Telepresence creates a feeling of ‘being there’, which may bring the user to the destination she/he intends to visit or to examine within a web environment. Although previous research has examined the relationship between interactivity, vividness, and telepresence, the product and website features being investigated are different. Coyle and Thorson (2001) controlled interactivity in terms of number of choices and clickable images, and vividness in terms of audio and animation. Klein (2003) controlled interactivity by manipulating the level of user control over the order and form, and controlled vividness by using text/still images in comparison with text/still images plus video/audio elements. Suh and Chang (2006) used video-clip (no audio), mutiple-picture and 3D VR model as the design factors to test user response. These studies all use general tangible products and do not include panoramic images or other website features.
features commonly used on tourism websites (e.g. auto-played slideshow, photo gallery). Therefore, it is necessary to investigate how different website features influence telepresence in tourism websites, especially the use of panorama, a popular and efficient approach to create virtual tour on the Internet. The three underlying dimensions of user attitude have been proposed in chapter 3. Hence, attractiveness value, informative value, enjoyment value, and telepresence will comprise the four dimensions of measurement. Besides website features, past experiences have been found to influence the formation of destination images. It should be taken into account if prior visitation influences users’ perception of these four dimensions. In addition, it was indicated that gender and age are two important factors to identify cultural tourists. Researchers argue that female cultural tourists are more active than male, and that older people are not the only important group. It is interesting to investigate if gender and age have any impact on the measurement as well.

Figure 3.3 Research Model

Due to the importance of user attitude and positive effect of telepresence, this model will be used to examine the effect of website features on the creation of telepresence, attractiveness value, enjoyment value and informative value from potential users. The purpose of these measurements is to discover if varied website features used on tourism websites function as well as the finding of previous research, particularly, the effects of panoramic images. The result should be able to provide a reliable evidence for tourism marketers and website designers to successfully promote
cultural identity in the competitive global market. In addition, the model also attempts to find out whether users’ prior experience, gender, age have different impacts on their evaluation for the experimental website. As the tourism market has been fragmentised, user preferences of different groups should be emphasised in the marketing strategy. These measurements will provide further evidence for tourism marketers and website designers to consider the adoption of different ICTs on tourism websites to promote tourism products more efficiently.
4.1 Experimental Approach

In the area of design research, quantitative methods are often used to link attitudes to behaviours and to evaluate the improvement of attitude resulting from design (Purpura 2003). Berger (2000) indicates that experiments are often conducted to test whether something is true, examine the validity of hypotheses or theory, or discover new information. It provides strong evidence that a given variable has an effect on the study interests. Hence, most empirical studies take this approach to investigate the relationship between independent variables and dependent variables. Independent variables are variables manipulated by experimenters to examine whether these factors exert impacts on dependent variables. As part of research design, experimenters have to operationalise the dependent and independent variables that can be observed and measured (Piper 1998). Empirical studies on attitude toward a website (e.g., Chen & Wells 1999; Elliott & Speck 2005; Gao & Koufaris 2006) and telepresence (e.g., Coyle & Thorson 2001; Klein 2003; Suh & Chang 2006) also follow this approach to experiments by using convenience samples of subjects – normally undergraduate students from universities – and laboratory settings. Indeed, researchers found that laboratory experiments were the most common method in
academic advertising research and its popularity has been increased during the last two decade. It is found that 27% of articles in the *Journal of Advertising* were based on laboratory experiments in 1984, and the rate increased to 58% by 2004 (Bergkvist & Rossiter 2006). A large amount of information system research was also based on the laboratory experiment approach (Introna & Whitley 2000). It is also broadly used in marketing research (Stayman & Hagerty 1985).

The main advantage of laboratory experiments is high internal validity (Bergkvist & Rossiter 2006; Gardner & Raj 1983). Internal validity refers to the degree to which independent variables have impact on the dependent variables, and external validity refers to the degree of generalisability of the results produced from the experiment (Piper 1998). Lab research is the only type of research in which researchers can have complete control over exposure, so that they can be certain that a respondent has been exposed for a specific time to a specific stimulus (Ray & Sawyer 1971). However, researchers argue that the high level of control may decrease the external validity due to the lack of realism (Bergkvist & Rossiter 2006; Diamond 1986; Reips & Zürich 2000). The artificial settings of a laboratory environment place a tension between external and internal validity (Schram 2005). Researchers use laboratory experiments to study a particular context, but the tasks are schemed by experimenters, and participants are doing the experiment in a controlled environment, which differs from their own natural environment (Kellar et al. 2008).

In the laboratory experiment, experimenters manipulate one or two factors as independent variables to examine the effects and control all other situations. This approach gives insights into the relationship between independent variables and dependent variables of the study, but neglects the complex interactions in the real world (Gardner & Raj 1983). Many features of a laboratory experiment are not relevant for decision making in the real world (Loewenstein 1999). The laboratory provides limited usage from both academic and practical perspectives (Introna & Whitley 2000), and researchers have called for a strong need for external validity in experiment based research (e.g., Smith 1985; Starmer 1999; Winer 1999).

In fact, generalisability of experimental results has been viewed as a serious question since Campbell and Stanley (1963) first introduced the concept of external validity (Vissers et al. 2001). Issues concerning the validity of laboratory experiments have
been well documented in varied areas, such as marketing (e.g., McQuarrie 2004; Stayman & Hagerty 1985), economics (e.g., Guala & Mittone 2005; Loewenstein 1999), advertising (e.g., Bergkvist & Rossiter 2006; Gardner & Raj 1983), psychology (e.g., Anderson & Bushman 1997), and information systems (e.g., Introna & Whitley 2000; Sorensen et al. 2001). Diamond (1986) indicates that laboratory experiments are unrealistic and lack generality. Others have also identified these potential problems in laboratory research (e.g., Greenberg 1967; Ray & Sawyer 1971). List and Levitt (2005) emphasise four characteristics of laboratory experiments from the marketing point of view, which present potential problems for producing generalisability from the lab to the real world. The first characteristic is that participants know they are being observed, which might influence their behaviours during the experiment. Because of this awareness, they might behave according to the expectation of experimenters. The second characteristic is context matters, which may be beyond experimenters’ control but have strong impacts on participants’ behaviours. The third characteristic is the stakes involved for the participants, which are usually quite small in experiments, but the decisions are actually more important in the real world. The fourth characteristic is self-selection. The participants used in experiments may completely differ from a real group of people, and the results from the experiment will not be extrapolated due to this dissimilarity. One of the most criticised arguments of experimental research is the use of undergraduate students (Reips & Zürich 2000). Sorenson et al. (2001) indicate that student subjects might act in the way that the teachers expect them to respond, and the limited duration of the experiment also influences their engagement to act naturally. Introna and Whitley (2000) contend that the performances of undergraduate students participating in an experimental study will not be the same as managers, or a specific group for a study, and this dissimilar behaviours result limited validity of the study. In addition, the world of managers is not as simplified as a laboratory environment, but is the involvement of a whole environment, where many possibilities combine together. Piper (1998) proposes an identical assertion in terms of sampling problems and artificial environments. The criticism is often that the laboratory environment cannot represent real life elements, so that the findings might be distorted (Vissers et al. 2001). Hence, there is a need to situate research in
the real world environment if researchers want to be more confident in the conclusions of their research (Introna & Whitley 2000).

Experimenter effects are another factor that threaten the validity of an experiment (Piper 1998; Reips & Zürich 2000; Vissers et al. 2001). Rosenberg (1969) indicates that participants are sensitive to subtle cues from experimenters due to the fear of judgement during the procedure. Rosenthal (1976) provides a comprehensive summary of experimenter effects, such as unintentional or intentional errors in the data interpretation, experimenters’ biosocial attributes and psychosocial attributes, experimenter modelling and experimenters’ expectancy. These experimenter effects may influence participants’ behaviours and thus elicit different responses, rather than merely being produced from the manipulation of independent variables. Hewson, Laurent and Vogel (1996) state that the demand characteristics of the experimental situation may make participants feel a need to please the experimenter or feel a pressure to act conforming to social norms.

Naturalistic Decision Making (NDM) is a decision behaviour theory, which first emerged in 1989 at a conference in which researchers discussed their findings outside of the traditional decision approaches (Zsambok 1997). It is marked by the emphasis on expertise of participants and the highlighting of field settings where the decisions are made (Lipshitz et al. 2001). NDM researchers argue that decision research fails to take into account the situational variable that everyday life involves (see Montgomery, Lipshitz & Brehmer, 2005). They strive to understand decision-making as it happens in the real world (Bazerman 2001) and abandon laboratory environments to conduct their research in real world settings (Roelofsma 2001). Orasanu and Connolly (1993, p. 6) assert that ‘Decision event research in the laboratory tends to require decisions apart from any meaningful context. In natural settings, making a decision is not an end in itself. Usually it is a means to achieving a broader goal.’ They argue that utilising ‘naïve subjects in context-limited environments’ (i.e. when university students are required to do surveys to obtain credits) excludes situational, lifestyle, time-constrained, and aspirational variables. These variables provide real-world motivators that vary over time and circumstance. Klein (1997) argues that NDM based research should result in better decision quality than traditional approaches, for several reasons. First, traditional methods lack a
naturalistic setting. Second, experienced decision makers can serve as performance standards. Third, NDM researchers do not attempt to completely replace the strategies that have been traditionally used, but improve upon these strategies. Fourth, experience enables people to generate a reasonable course of action. Fifth, situation awareness may be more important than deliberating about alternative courses of action. Sixth, decision requirements are contextual, which is the target of interventions.

The intention of this study is to design an experiment in which a central concept of NDM, the naturalistic real world setting, was used to enhance the external validity of the research. Schram (2005, p. 225) points out that: ‘External validity is relatively more important for experiments searching for empirical regularities than for theory-testing experiments.’ Stayman and Hagerty (1985) contend that methods for applied studies must correspond to real life in order to produce generalisable findings. Winer (1999) asserts that consumer behaviour research should be concerned about the importance of generalisability of experimental results, beyond the lab into other contexts. Reips and Zürich (2000) indicate that the web provides a new tool for experimental research. The web experiment works as a solution to reduce these experimenter effects, because there is no direct contact between experimenters and participants. It breaks some limitations that influence the external validity of laboratory experiments (Piper 1998). User behaviour studies on the web, conducted in a field setting, can provide a more reliable outcome of natural behaviours than in a controlled laboratory setting, because participants access their usual web browsers in familiar physical environments, and complete the tasks on their own, rather than working on tasks when motivated by researchers (Kellar et al. 2008).

### 4.2 Online Survey

The survey is a useful method by which to understand individual opinions, attitudes and behaviours toward a range of topics and issues (Hansen et al. 1998). Schonlau, Fricker and Elliott (2001) indicate that technology has revolutionised ways of survey presentation, since the first email survey was conducted in the 1980s and the web-based survey was introduced in the 1990s. The Internet has been used extensively by
academic and marketing researchers, to conduct surveys for different purposes (Piper 1998) and the popularity of the online survey has been verified. In 2002 almost half a billion US dollars were spent on online surveys in the USA (Hogg 2003), and it was expected to reach about 960 million US dollars in 2004 (Aster 2004). It has been expected that the majority of survey research will be conducted online (Schonlau, Fricker & Elliott 2001), because the cost is less and the design and implementation are more efficient than off-line market research (Hewson, Laurent & Vogel 1996; Schmidt 1997). Jackson (2003b) indicated that online market research would account for 33% of all survey formats.

The benefits and drawback of online surveys have been well documented by researchers. Schmidt (1997) indicates that the greatest benefit of online survey is its ability to access to a large number of populations. It also saves time and money, and offers various presentation formats that are hard to achieve by other survey approaches. The potential problems include incomplete responses, unacceptable responses, multiple submissions, and security and data integrity. Reips and Zürich (2000) state that the online survey offers easy access to a demographically and culturally diverse population; provides easy access to specific populations; increases generalisability of the findings; avoids time constraints; heightens statistical power; enables voluntary participation; reduces experimenter effects; and reduces the cost. The drawbacks include multiple submissions; lack of control; self-selection, and drop out.

Archer (2003) compares the advantages and disadvantages of online surveys with mail surveys. He explains that online advantages include: elimination of paper; postage, mail out and data entry costs; reduced implementation time; reduced survey costs; simultaneous data display with tabulation; data presentation in graphic and numerical format; ease of reminders and follow-up for non-respondents; and ease of data processing. The disadvantages of online survey include: limitation of survey scope due to restricted Internet connection; inequality of computer skills; different screen setting for individual respondents; difficulty of sampling e-mail addresses; and the fact that a non-response decision is made more quickly.
Evans and Mathur (2005) present a comprehensive and detailed consideration of the strengths and weaknesses of online survey. They explain that the major strengths encompass global reach; suitability for both B-to-B (business-to-business) and B-to-C (business-to-consumer) settings; high flexibility, speed and timeliness; featured technological innovations; convenience for respondents; ease of data entry and analysis; more diversified questions; low administration cost; ease of follow-up; controlled sampling; ease of obtaining large samples; control of answer order; control of completion; control of specific sequences and ability to obtain knowledge of respondent and non-respondent characteristics. The major weaknesses include: ease of regarding surveys as junk mail; skewed attributes of Internet population; sample selection problems; inexperienced online respondents; technological variations of respondents; lack of clear instruction; impersonal context; privacy and security issues; and low response rate.

Sue and Ritter (2007) state that the advantages of online survey include: shortening experimental speed; broadening the scope of audience; economy; adding various content options; expanding question types; the ability to ask sensitive questions, and anonymity. The disadvantages include: limited Internet user populations; ease of abandonment of survey and dependence on software. However, the overall advantages of online survey value higher than the disadvantages (Reips & Zürich 2000).

Although the Internet has been used as a venue for experimental research, only a few researchers have published the results of web experiments (Piper 1998), and the online survey research is still in its infancy (Sue & Ritter 2007). It is a difficult area of research through which to study user behaviours on the web (Kellar et al. 2008). Berger (2000) indicates that the survey is a method used to get information about certain groups of people who are representative of the larger group of people of the research interest. Researchers indicate that the sample selection for a web survey is the major weakness, because the characteristics of Internet users are too broad, and those subjects may not be representative of the specific group for the study (Evans and Mathur 2005; Piper 1998). However, the group of interest in this study has been identified in chapter 2, and it is not a problem if a specific group of people who are qualified as cultural tourists can be involved to support this study. Another criticism
threatening the validity of online survey is the lack of control and the invisible experimental processes. Researchers often cannot monitor respondents’ behaviours during the experiment, due to the absence of direct contact and the unpredictable location. To overcome this problem, the web database can be used to unobtrusively observe participants’ behaviours and reduce the uncertainty of the invisible process.

4.3 Questionnaire

The basic tool for survey research is the questionnaire (Hansen et al. 1998). In a web-based survey, the questionnaire resides on a website. The respondents visit the website and complete the survey (Sue & Ritter 2007). The objective of this research is the investigation of the relationship between website features adopted on cultural tourism websites and user attitude toward the website, as well as the feeling of telepresence. Hence, participants must visit the designed prototype website first and then answer the questionnaire linked to the website. Based on the purposed model, the questionnaire covered questions of user attitude toward a website, which consisted of three underlying dimensions, as described in chapter 3, and the measure of telepresence. Questions regarding the measure of user attitude and telepresence were referring from the related literature. Because the age, gender and prior experience are also of the research interest, the questionnaire consisted of six sections, as follows:

Section 1 requested age and gender. This should be able to test and find out whether there is a difference on the evaluation of the experimental website between different age groups and different gender groups.

Section 2 requested information on Prior Experience. This should be able to test and find out whether there is a difference on the evaluation of the experimental website when comparing users with prior experience and users without prior experience.

1. I have been to China.
2. I have been to Taiwan.
3. I have some knowledge about Taiwan’s temples.
Section 3 focused on the **Attractiveness Value** of the sites using a seven-point scale. This should be able to test and find out whether users have different responses for the attractiveness of the website and the destination after browsing the experimental website in which different website features were used.

1. The website looks attractive.
2. The temple looks interesting.

Section 4 focused on the **Enjoyment Value** of the sites using a seven-point scale. This should be able to test and find out whether users have different levels of enjoyment after browsing the experimental website in which different website features were used.

1. I will return to this website.
2. I felt a strong sense of active involvement.
3. I found the website enjoyable to navigate.
4. I could have stayed on this website longer.
5. I have a favourable impression of the temple after my visit to the website.

Section 5 focused on the **Telepresence Value** of the sites using a seven-point scale. This should be able to test and find out whether users feel different levels of telepresence when browsing the experimental website in which different website features were used.

1. While on the website, I felt I was in the world that the computer created.
2. The computer-generated world seemed to me “somewhere I visited” rather than “something I saw.”
3. I forgot about my immediate surroundings when I was navigating through the website.

Section 6 sought to establish the **Informative Value** of the sites. This consisted of eight multiple-choice questions and in each answer set, only one was correct. This should be able to test and find out whether users remember much more information of the destination after browsing the experimental website with higher level of interactivity and vividness.
1. The temple was established in □ 1635 □ 1760 □ 1796 □ 1805

2. The God dedicated in the main hall is □ Mastu □ Guanshiyin Budda
   □ Confucius □ Baosheng Dadi

3. The most important religious activity of the temple is □ Baosheng Cultural Festival □ Mastu Birthday Ceremony □ New Year Blessing Ceremony □ Burn Wang Boat Festival

4. The temple mainly consists of □ two halls □ two halls with right and left protecting rooms □ three halls with right and left protecting rooms □ four halls

5. The delicate decoration on the temple’s roof ridge is □ wood carving □ stone carving □ “cut and paste” of bowl pieces □ golden painted wood

6. When worshiping the God in the temple, people place their offering at □ facade of front hall □ inside of front hall □ main hall □ back hall

7. People seek advice about their future at □ facade of front hall □ inside of front hall □ main hall □ back hall

8. There is a pair of stone lions at the facade of the front hall. Which one is female? □ on the right □ on the left □ there is no gender difference
CHAPTER 5

EXPERIMENT

5.1 Stimuli

Tourist attractions are one of the determinants that give a reason for tourists to visit a destination, and often become the central theme for the visit (McKercher & du Cros 2002). Baloglu and McCleary (1999) claim that attractions have a positive impact on tourist visitation intentions. Wang (2008) indicates that the most popular and important information provided on tourism websites is on tourist activities and attractions. This research selects a well-known cultural attraction in Taipei, Taiwan – the Dalongdong Baoan Temple, an international winner of the UNESCO Asia-Pacific Heritage Award for Cultural Heritage Conservation in 2003 – as an example to test the research model. The Dalongdong Baoan Temple is one of the most representative cultural attractions in Taiwan and has been introduced on many Taiwanese DMO websites. It was established in 1805, and has been classified as a second-grade historical site by the Taiwanese government. The temple is considered one of the most representative of traditional Taiwanese temples, and holds an important place in Taiwanese architectural history. In addition, its annual religious
event, the *Baosheng Cultural Festival*, attracts thousands of visitors to celebrate the birthday of the main worshiped deity, Baosheng Dadi.

To simulate the real world web environment, two complete websites of the Dalongdong Baoan Temple ([http://www.culturaltaiwan.com/high/index.php](http://www.culturaltaiwan.com/high/index.php); [http://www.culturaltaiwan.com/low/index.php](http://www.culturaltaiwan.com/low/index.php)), with a range of website features, were developed instead of using an approach involving comparison of individual website features only. The attraction information was divided into five topical categories — *Home*, *History*, *Deities*, *Architecture*, and *Ritual* — to give users a comprehensive understanding of the temple. The *Home* section provides an overview of the Dalongdong Baoan Temple; the *History* section tells the historical development of the temple; the *Deities* section introduces the main deity worshiped in the temple; the *Architecture* section gives an in-depth depiction of the architectural features of the temple, and the *Ritual* section introduces the annual religious event of the *Baosheng Cultural Festival*.

As mentioned on chapter 2, one of the most important function of tourism website is to promote the identity of the destination. Hence, the design of two stimuli must present the specific features of the Dalongdong Baoan Temple. Based on this concept, the unique structures of the temple – the dragon pillar and clay sculpture – were used on the main interface design. Also, the yellow and golden tone, the representative colour of ancient Chinese cultural, was used on the interface design to present the characteristics of traditional Chinese culture. Besides, the architectural feature is the most simple and direct way for tourists to understand a tourist attraction. It is also the most common approach to present the cultural identity of a place. Therefore, the architectural section was designed as the most important part of the website.

In order to allow comparison while evaluating the effects of website features that represent different levels of interactivity and vividness, two websites with different levels of user control and vividness (high-UCV versus low-UCV) have been designed in the same interface and transmit the same information. Figure 5.1 and Figure 5.2 show flow charts of two experimental websites. Figure 5.3 and Figure 5.4
show the home page of high-UCV and low-UCV website. Researchers indicate that the more functions a website provides, the greater interactivity it has (see Sunder, Kalyanaraman & Brown 2003). Therefore, the high-UCV website embraces more website features than the low-UCV website. It has been found that visual information strongly influences the degree of presence to a greater degree than other sensory channels (Witmer & Singer 1998). Hence, the website design focuses on visual simulation rather than audio effects. The audio element was excluded in this study.

The purpose of this research is to investigate the effectiveness of advanced ICTs on the promotion of tourism products. The comparison of two websites with different levels of interactivity and vividness can tell whether users browsing the high-UCV website have better responses than users browsing the low-UCV website. If the result is positive, user attitude will be more positive toward the website as well as the destination, which may increase their willingness to visit the place. In other words, the promotion of cultural identity of a destination will be more effective. Also, the finding will be consisted with previous researchers who examined the effect of interactivity and vividness on tangible products. That will support the statement, as mentioned in chapter 2, that websites with advanced ICTs increases its success in a competitive web environment. Besides, if participants in different gender and age groups respond inconsistent, tourism marketer and website designers should take varied approaches on tourism website design to match the preference of different users.
Figure 5.1 The Flow-chart of the Low-UCV Website
Figure 5.2 The Flow-chart of the High-UCV Website
The low-UCV website used Hypertext Markup Language (HTML) to present the temple by text and limited still images. Users were only allowed to have control over
the browsing flow. This is currently the common approach adopted by most of the DMO websites on the information offered for tourist attractions. The high-UCV website used Adobe Flash multimedia authoring program and Pano2QTVR to present the temple by more website features, such as auto-played slideshow and 360° QuickTime VR panorama. However, researchers indicate that the panorama tour is restrictive because of its inability to provide details of a place, which results in users failing to look more closely (Pan et al. 2004). Besides, it has been argued that although panoramic images provide an impressive view of the environment, users have difficulties in understanding the arrangement of the spatial scene (Farin, Effelsberg & de With 2007). Lee (2002) also identifies four main problems of panorama tours found in his evaluation: (1) ambiguous perceptual pointer, (2) misplacement of map indicator, (3) inappropriate metaphor design, and (4) inadequate movement in panoramic movies. To solve these problems, he proposes a list of guidelines suggesting elements to be used when designing a QuickTime VR interface, such as a bigger pointer, map aid, and metaphor use. Bastanlar (2007) claims the floor plan is the most preferred way to help users navigate through the environment. He also suggests that areas on the floor plan should be highlighted, if clickable, for easy recognition. Sayers et al. (2004) assert visual presentation of navigational aids improves navigation performance and user satisfaction. Therefore, a new approach – with interactive flat panoramic images – was used in the Architecture section with a 2D graphical map to provide spatial orientation in the navigation (see Figure 5.5). On tourism websites, pictures of tourist attractions are often delivered in either a full or limited view and taken from a specific angle to present the beauty of the attraction, because of the limited content space of web pages. Users are only allowed to see an unclear full view or clear partial views of an attraction. The interactive flat panoramic images broke the limitations of web page space, and allowed users to click and drag the image to see the whole view of the attraction. Within this, a detailed depiction was further provided inside the blue-animated spot for specific architectural features, and the zoom in/out button gave users a closer look at the attraction. Three 360° QuickTime VR panoramas were also embedded on the interactive flat panoramic images, which helps users to understand the position of these panoramas in the temple. When jumping between different parts
of the temple, the 2D graphical map also gave users spatial orientation on the website.

Control over the flow was not restricted in the experiment, and there was no predetermined order due to the nature of the Internet. Both websites allow participants to navigate through at liberty. Control over the form was manipulated in this experiment. On the low-UCV website, participants were not allowed to have control over the text or images. On the high-UCV website, participants could control the playback of slideshows (Figure 5.6); change the view area by clicking and dragging the images to move around, as well as change the size of flat panoramic images by dragging the zoom button; select the shown photos for a detailed depiction of specific architectural features (Figure 5.7), and alter the viewing angle and size of 360 degree omnidirectional panoramas (Figure 5.8).
Figure 5.6 Control Over the Slideshow

Figure 5.7 Control Over Photo Selections of Architectural Features
The vividness of the websites was manipulated via the content presentation. On the low-UCV website, the information was presented by text and limited still images. Participants needed to control the scroll bar up and down on their browsers to view the content if the information was longer than the height of their browsing windows. The identical information was presented in auto-play slideshows, the navigable 2D graphic map, interactive flat panoramic images, animated rollover buttons, sliding photo albums, and Quicktime VR (QTVR) on the high-UCV website. Slideshows and photo albums allowed participants to view multiple images without scrolling up or down their browsers. The navigable 2D graphic map pointed out their present positions in the temple, which helped in avoiding getting lost when exploring the architectural details of different locations. Animated rollover buttons (Figure 5.9) on interactive flat panoramic images facilitated catching participants’ attention in looking at the architectural details as well as indicating the locations of these features. QTVRs allowed participants to look around, left and right, and up and down, in different sites, as if they were physically standing in those locations.
5.2 Participants

In order to increase the external validity of the experiment, sixty participants were recruited from the members of Australians Studying Abroad (ASA) and from staff of the Faculty of Design, Swinburne University. ASA is a commercial tourism provider based in Armadale, Melbourne. It leads cultural tours for both university students and the general public, giving participants insights into different artistic and cultural traditions by facilitating their travel around the world. It believes that learning is intimately connected with physical experience of different landscapes, environments and cultures. The members of ASA are thus typical cultural tourists, who can be distinguished from those general tourists who do not have specific motives in understanding the culture of destinations they plan to visit. As well as being a commercial company, ASA has an interest in education and is currently linked with the Carrick Institute and several Australian Universities providing Student Study Away tours, which attract credits towards the students’ degrees. Hence, the ASA members were suitable participants for this study. The staff of the Faculty of Design at Swinburne University, are also qualified in the characteristics of cultural tourists.
Foo and Rossetto (1998) indicate that teachers and lectures are more likely to visit cultural attractions than other visitors. Hence, the ASA members and Design Faculty staff at Swinburne University were considered suitable participants for this study.

5.3 Procedure

In order to simulate real world website browsing, the target group was informed by e-mail that the Dalongdong Baoan Temple was available on the specified website. The experiment URL was also posted on the ASA website. Participants therefore chose to access the site only if it interested them. Participants were divided into two groups depending on their hardware and software requirement, and each group was only allowed to view one of the two websites. They viewed the website on their own equipment and in their own time. The first page of the websites is an introductory page explaining the purpose of the study and basic instructions of the task. Naturally, those who did not want to participate could drop out at this point. Participants enter the Home section via this introductory page and they were free to navigate without time restraint as real users surfing on the Internet. Participants were required to go through all of the five topical categories and read the content on the website. After viewing all of the information, they entered the online survey page by clicking the link on the Ritual section, where a reminder to ask participants to complete their browsing tasks was provided. They were required not to go back to view the website and look for answers to the questions when doing the survey. In order to invisibly observe participants’ behaviour, the PHP (Hypertext Preprocessor), a general-purpose scripting language, was embedded to generate a MySQL database that monitored which pages each participant had been viewing, and how much time they stayed on each page. This provided more accurate values for an objective measure of interest in this study, and indicated whether the participant went through all the content (because that influenced their knowledge in answering the survey). The post-experiment questionnaire covers four dimensions: website attractiveness measures, open-ended recall measures, user enjoyment measures, and telepresence measures. Except the open-ended recall measures, all measures use 7-point Likert ‘Disagree – Agree’ scales (1 means disagree and 7 means agree).
CHAPTER 6

RESULTS AND ANALYSIS

6.1 Introduction

This chapter analyses the survey results from two perspectives: directly from the survey data, and taking MySQL database into consideration. As mentioned in the previous chapter, MySQL database was used to unobtrusively observe participants’ browsing behaviour, in which the click actions, the pages visited, and the time spent per page were recorded (see Figure 6.1). From the database, it was found that many participants did not go through the whole content of the website, particularly those who chose to view the high-UCV website. Although most of them clicked all the buttons of the top five tabs, many of them did not click the buttons embedded in the content. On the high-UCV website, there were three 360° omnidirectional panoramas in the Home section and they were also embedded in the interactive flat panoramic images in the Architecture section. However, only 17 of 26 participants clicked the buttons of the panorama. In the Architecture section, there are four sub-buttons to introduce the different parts of the temple, in which participants should click all of the fours buttons to explore the architectural arts of the temple, by browsing the interactive flat panoramic images. However, only 10 participants clicked some sub-buttons in the Architecture section, and 9 clicked the buttons embedded in the flat panoramic images. That means participants who browsed the high-UCV website
missed a lot of information about the temple. While on the low-UCV website, there are four hyper-links on the History tab, two hyper-links on the Deities tab, four hyper-links on the Architecture tab. Every participant clicked all the buttons of the top five tabs, 21 out of 34 clicked hyper-links on the Deities tab, and 23 participants clicked hyper-links on the Architecture tab. In other words, participants on the high-UCV website may be exposed to less content of the website than those who browsed the low-UCV website. These behaviours might have impacts on user response toward the study. Therefore, two analyses have been conducted and presented in this chapter, to provide a deeper understanding of the experimental results.

![Figure 6.1 A Screenshot of MySQL Database](image)

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<th>currentTime</th>
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<td>architecture_m3602</td>
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<td>10</td>
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<tr>
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<td>architecture_mwall</td>
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6.2 Results 1

The central purpose of the research is to examine the possible differences that the design of the websites, high and low UCV (User Control and Vividness, which were proposed as the major determinants of telepresence) might have on user behaviour and outcome. Secondary interests are the possible differences in user experience attributable to gender and age, and also prior experience of China or Taiwan and its temples. The sample demographics and prior experience are listed in Table 6.1. There were more female participants than male, and the middle-aged participant group was the largest in this experiment, and this is identical with the characteristics of cultural tourists in previous studies. Participants possessing prior experience of visiting China or Taiwan were few, and only 5 had knowledge about Taiwan’s temples. However, initial data analysis revealed no effects due to prior experience, and this probably reflected the small number within the sample who had experience of either China or Taiwan. For this reason they have been excluded from the analysis presented here. Following the sectional construction of the questionnaire, the results were analysed directly based on the survey data, and presented section by section. Analysis of Variance was performed with website, gender and age as independent variables, the latter being treated as a covariate.

*It should be noted that in the analyses that follow there are very minor differences in n due to missing data. This is inevitable in survey data.
Table 6.1 Sample Demographics and Prior Experience

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<td>Female</td>
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<td>58.3</td>
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<td></td>
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<tr>
<td>55-64</td>
<td>11</td>
<td>18.3</td>
</tr>
<tr>
<td>&gt;65</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td><strong>Prior experience</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Been to China</td>
<td>17</td>
<td>28.3</td>
</tr>
<tr>
<td>Been to Taiwan</td>
<td>7</td>
<td>11.7</td>
</tr>
<tr>
<td>Have knowledge</td>
<td>5</td>
<td>8.3</td>
</tr>
</tbody>
</table>

*Attractiveness Value*

Given the domain of interest, cultural tourism, the nature of the website, and the ‘interested’ subject group, it was anticipated that the high-UCV website would be found more attractive than the low-UCV website.

*Question 1: The website looks attractive.*

The results for Q1 indicate no website main effect ($F_{1,58} = 1.20, p = .278$), though there is a significant gender effect ($F_{1,58} = 5.13, p = .028$), with women rating both sites higher than men. The Analysis of Variance table below (Table 6.2-1, 6.2-2) provides the summary statistics, accompanied by means and standard deviations for website by gender.
Table 6.2-1 ANOVA (by Website) of Attractiveness Question 1

Tests of Between-Subjects Effects
Dependent Variable: Attractiveness Question 1

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>167.730</td>
<td>1</td>
<td>167.730</td>
<td>94.246</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>.007</td>
<td>1</td>
<td>.007</td>
<td>.004</td>
<td>.951</td>
</tr>
<tr>
<td>website</td>
<td>2.136</td>
<td>1</td>
<td>2.136</td>
<td>1.200</td>
<td>.278</td>
</tr>
<tr>
<td>gender</td>
<td>9.125</td>
<td>1</td>
<td>9.125</td>
<td>5.127</td>
<td>.028</td>
</tr>
<tr>
<td>website * gender</td>
<td>1.241</td>
<td>1</td>
<td>1.241</td>
<td>.698</td>
<td>.407</td>
</tr>
<tr>
<td>Error</td>
<td>96.104</td>
<td>54</td>
<td>1.780</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1616.000</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.2-2 ANOVA (by Website) of Attractiveness Question 1

Descriptive Statistics
Dependent Variable: Attractiveness Question 1

<table>
<thead>
<tr>
<th>website</th>
<th>gender</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td>male</td>
<td>4.62</td>
<td>1.923</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>5.76</td>
<td>.903</td>
<td>17</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>male</td>
<td>4.53</td>
<td>1.463</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>5.06</td>
<td>1.197</td>
<td>17</td>
</tr>
</tbody>
</table>

Figure 6.2   ANOVA (by Website) Chart of Attractiveness Question 1
Question 2: The temple looks interesting.

While Q1 focused upon the web site, Q2 focused upon the subject of the web site, the Dalongdong Boan Temple. The high-UCV website provided considerably more information via interactivity and vividness than the low-UCV website. The results indicate no difference in the perceived attractiveness of the temple (F\(_{1,58} = 1.02, p = .317\)), but a significant gender effect (F\(_{1,58} = 13.03, p = .001\)), with women rating the temple higher than men, irrespective of the website.

Table 6.3-1 ANOVA (by Website) of Attractiveness Question 2

Tests of Between-Subjects Effects
Dependent Variable: Attractiveness Question 2

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>271.605</td>
<td>1</td>
<td>271.605</td>
<td>1.689E2</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>6.037</td>
<td>1</td>
<td>6.037</td>
<td>3.754</td>
<td>.058</td>
</tr>
<tr>
<td>website</td>
<td>1.640</td>
<td>1</td>
<td>1.640</td>
<td>1.020</td>
<td>.317</td>
</tr>
<tr>
<td>gender</td>
<td>20.951</td>
<td>1</td>
<td>20.951</td>
<td>13.028</td>
<td>.001</td>
</tr>
<tr>
<td>website * gender</td>
<td>.040</td>
<td>1</td>
<td>.040</td>
<td>.025</td>
<td>.876</td>
</tr>
<tr>
<td>Error</td>
<td>86.838</td>
<td>54</td>
<td>1.608</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1940.000</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.3-2 ANOVA (by Website) of Attractiveness Question 2

Descriptive Statistics
Dependent Variable: Attractiveness Question 2

<table>
<thead>
<tr>
<th>website</th>
<th>gender</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td>male</td>
<td>5.12</td>
<td>1.553</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>6.18</td>
<td>.951</td>
<td>17</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>male</td>
<td>4.71</td>
<td>1.532</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>6.00</td>
<td>1.225</td>
<td>17</td>
</tr>
</tbody>
</table>
As with attractiveness, we anticipated that the high-UCV website would be more enjoyable.

*Question 1: I will return to this website.*

The results for Q1 the main effect of website obtained a non-significant difference (F\(_{1,58} = 1.57, p = .216\)), with no gender or age effects.

Table 6.4-1 ANOVA (by Website) of Enjoyment Question 1

<table>
<thead>
<tr>
<th>Tests of Between-Subjects Effects</th>
<th>Dependent Variable: Enjoyment Question 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>Sum of Squares</td>
</tr>
<tr>
<td>Intercept</td>
<td>63.399</td>
</tr>
<tr>
<td>age</td>
<td>2.739</td>
</tr>
<tr>
<td>website</td>
<td>5.328</td>
</tr>
<tr>
<td>gender</td>
<td>1.875</td>
</tr>
<tr>
<td>website * gender</td>
<td>.465</td>
</tr>
<tr>
<td>Error</td>
<td>183.430</td>
</tr>
<tr>
<td>Total</td>
<td>988.000</td>
</tr>
</tbody>
</table>
Table 6.4-2 ANOVA (by Website) of Enjoyment Question 1

**Descriptive Statistics**

Dependent Variable: Enjoyment Question 1

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>website</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>High Interactive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>3.88</td>
<td>1.553</td>
<td>8</td>
</tr>
<tr>
<td>female</td>
<td>4.18</td>
<td>2.007</td>
<td>17</td>
</tr>
<tr>
<td>Low Interactive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>3.06</td>
<td>1.749</td>
<td>17</td>
</tr>
<tr>
<td>female</td>
<td>3.65</td>
<td>1.869</td>
<td>17</td>
</tr>
</tbody>
</table>

Figure 6.4  ANOVA (by Website) Chart of Enjoyment Question 1

**Question 2:** I felt a strong sense of active involvement.

The results for Q2 achieved a significant main effect for website ($F_{1,58} = 5.83$, $P = .019$), and a significant website by gender interaction ($F_{1,58} = 4.30$, $p = .043$).
Table 6.5-1 ANOVA (by Website) of Enjoyment Question 2

**Tests of Between-Subjects Effects**
Dependent Variable: Enjoyment Question 2

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>102.601</td>
<td>1</td>
<td>102.601</td>
<td>32.966</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>.178</td>
<td>1</td>
<td>.178</td>
<td>.057</td>
<td>.812</td>
</tr>
<tr>
<td>website</td>
<td>18.154</td>
<td>1</td>
<td>18.154</td>
<td>5.833</td>
<td>.019</td>
</tr>
<tr>
<td>gender</td>
<td>.240</td>
<td>1</td>
<td>.240</td>
<td>.077</td>
<td>.782</td>
</tr>
<tr>
<td>website * gender</td>
<td>13.370</td>
<td>1</td>
<td>13.370</td>
<td>4.296</td>
<td>.043</td>
</tr>
<tr>
<td>Error</td>
<td>164.954</td>
<td>53</td>
<td>3.112</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1081.000</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.5-2 ANOVA (by Website) of Enjoyment Question 2

**Descriptive Statistics**
Dependent Variable: Enjoyment Question 2

<table>
<thead>
<tr>
<th>website</th>
<th>gender</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td>male</td>
<td>5.25</td>
<td>1.581</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>4.12</td>
<td>1.668</td>
<td>16</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>male</td>
<td>3.06</td>
<td>1.749</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>3.94</td>
<td>1.886</td>
<td>17</td>
</tr>
</tbody>
</table>

Figure 6.5   ANOVA (by Website) Chart of Enjoyment Question 2
Question 3: I found the website enjoyable to navigate.

The results for Q3 obtained no significant differences, though the direction of the website main effect was in the anticipated direction ($F_{1,58} = 3.41, p = .070$).

Table 6.6-1 ANOVA (by Website) of Enjoyment Question 3

Tests of Between-Subjects Effects
Dependent Variable: Enjoyment Question 3

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>154.584</td>
<td>1</td>
<td>154.584</td>
<td>54.004</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>.132</td>
<td>1</td>
<td>.132</td>
<td>.046</td>
<td>.830</td>
</tr>
<tr>
<td>website</td>
<td>9.773</td>
<td>1</td>
<td>9.773</td>
<td>3.414</td>
<td>.070</td>
</tr>
<tr>
<td>gender</td>
<td>3.439</td>
<td>1</td>
<td>3.439</td>
<td>1.201</td>
<td>.278</td>
</tr>
<tr>
<td>website * gender</td>
<td>.854</td>
<td>1</td>
<td>.854</td>
<td>.298</td>
<td>.587</td>
</tr>
<tr>
<td>Error</td>
<td>154.573</td>
<td>54</td>
<td>2.862</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1444.000</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.6-2 ANOVA (by Website) of Enjoyment Question 3

Descriptive Statistics
Dependent Variable: Enjoyment Question 3

<table>
<thead>
<tr>
<th>website</th>
<th>gender</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td>male</td>
<td>5.00</td>
<td>1.690</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>5.24</td>
<td>1.480</td>
<td>17</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>male</td>
<td>3.88</td>
<td>1.536</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>4.65</td>
<td>1.967</td>
<td>17</td>
</tr>
</tbody>
</table>
**Figure 6.6** ANOVA (by Website) Chart of Enjoyment Question 3

**Question 4: I could have stayed on this website longer.**

The results for Q4 achieved a significant website main effect in the direction predicted (\( F_{1,58} = 4.49, p = .039 \)).

Table 6.7-1 ANOVA (by Website) of Enjoyment Question 4

<table>
<thead>
<tr>
<th>Tests of Between-Subjects Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable: Enjoyment Question 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>136.992</td>
<td>1</td>
<td>136.992</td>
<td>36.721</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>.364</td>
<td>1</td>
<td>.364</td>
<td>.097</td>
<td>.756</td>
</tr>
<tr>
<td>website</td>
<td>16.755</td>
<td>1</td>
<td>16.755</td>
<td>4.491</td>
<td>.039</td>
</tr>
<tr>
<td>gender</td>
<td>1.344</td>
<td>1</td>
<td>1.344</td>
<td>.360</td>
<td>.551</td>
</tr>
<tr>
<td>website * gender</td>
<td>.988</td>
<td>1</td>
<td>.988</td>
<td>.265</td>
<td>.609</td>
</tr>
<tr>
<td>Error</td>
<td>201.452</td>
<td>54</td>
<td>3.731</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1282.000</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6.7-2 ANOVA (by Website) of Enjoyment Question 4

**Descriptive Statistics**
Dependent Variable: Enjoyment Question 4

<table>
<thead>
<tr>
<th>website</th>
<th>gender</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interact</td>
<td>male</td>
<td>4.88</td>
<td>1.727</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>4.88</td>
<td>1.799</td>
<td>17</td>
</tr>
<tr>
<td>Low Interact</td>
<td>male</td>
<td>3.47</td>
<td>1.940</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>4.06</td>
<td>2.076</td>
<td>17</td>
</tr>
</tbody>
</table>

Figure 6.7 ANOVA (by Website) Chart of Enjoyment Question 4

**Question 5:** *I have a favourable impression of the temple after my visit to the website.*

The results for Q5 again achieved a significant website main effect in the direction predicted ($F_{1,58} = 5.06$, $p = .029$). However, this main effect was overshadowed by a strong gender main effect ($F_{1,58} = 8.60$, $p = .005$).
Table 6.8-1 ANOVA (by Website) of Enjoyment Question 5

**Tests of Between-Subjects Effects**

Dependent Variable: Enjoyment Question 5

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
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<td>1</td>
<td>179.424</td>
<td>92.455</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>.200</td>
<td>1</td>
<td>.200</td>
<td>.103</td>
<td>.750</td>
</tr>
<tr>
<td>website</td>
<td>9.830</td>
<td>1</td>
<td>9.830</td>
<td>5.065</td>
<td>.029</td>
</tr>
<tr>
<td>gender</td>
<td>16.692</td>
<td>1</td>
<td>16.692</td>
<td>8.601</td>
<td>.005</td>
</tr>
<tr>
<td>website * gender</td>
<td>.060</td>
<td>1</td>
<td>.060</td>
<td>.031</td>
<td>.861</td>
</tr>
<tr>
<td>Error</td>
<td>102.855</td>
<td>53</td>
<td>1.941</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1827.000</td>
<td>58</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.8-2 ANOVA (by Website) of Enjoyment Question 5

**Descriptive Statistics**

Dependent Variable: Enjoyment Question 5

<table>
<thead>
<tr>
<th>website</th>
<th>gender</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td>male</td>
<td>5.25</td>
<td>1.282</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>6.35</td>
<td>.786</td>
<td>17</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>male</td>
<td>4.31</td>
<td>1.302</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>5.53</td>
<td>1.875</td>
<td>17</td>
</tr>
</tbody>
</table>

Figure 6.8    ANOVA (by Website) Chart of Enjoyment Question 5
**Telepresence Value**

Again, we anticipated that the high-UCV website would outperform the low-UCV website on all three measures taken from the scales of Klein (2003).

**Question 1: While on the website, I felt I was in the world that the computer created.**

The results for Q1 the main effect of interest, website, was non-significant ($F_{1,58} = 1.52, p = .539$), as were gender and age.

Table 6.9-1 ANOVA (by Website) of Telepresence Question 1

<table>
<thead>
<tr>
<th>Tests of Between-Subjects Effects</th>
<th>Dependent Variable: Telepresence Question 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Source</td>
<td>Sum of Squares</td>
</tr>
<tr>
<td>Intercept</td>
<td>105.877</td>
</tr>
<tr>
<td>age</td>
<td>.127</td>
</tr>
<tr>
<td>website</td>
<td>1.522</td>
</tr>
<tr>
<td>gender</td>
<td>3.744</td>
</tr>
<tr>
<td>website * gender</td>
<td>.234</td>
</tr>
<tr>
<td>Error</td>
<td>210.917</td>
</tr>
<tr>
<td>Total</td>
<td>1185.000</td>
</tr>
</tbody>
</table>

Table 6.9-2 ANOVA (by Website) of Telepresence Question 1

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Dependent Variable: Telepresence Question 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>website</td>
<td>gender</td>
</tr>
<tr>
<td>High Interactive</td>
<td>male</td>
</tr>
<tr>
<td>female</td>
<td></td>
</tr>
<tr>
<td>Low Interactive</td>
<td>male</td>
</tr>
<tr>
<td>female</td>
<td></td>
</tr>
</tbody>
</table>
Figure 6.9 ANOVA (by Website) Chart of Telepresence Question 1

**Question 2:** The computer-generated world seemed to me “somewhere I visited” rather than “something I saw.”

This question yielded similar results with the website main effect being non-significant ($F_{1.58} = .42, p = .509$), as were gender and age.

Table 6.10-1 ANOVA (by Website) of Telepresence Question 2

**Tests of Between-Subjects Effects**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>47.259</td>
<td>1</td>
<td>47.259</td>
<td>11.644</td>
<td>.001</td>
</tr>
<tr>
<td>age</td>
<td>12.694</td>
<td>1</td>
<td>12.694</td>
<td>3.128</td>
<td>.083</td>
</tr>
<tr>
<td>website</td>
<td>1.793</td>
<td>1</td>
<td>1.793</td>
<td>.442</td>
<td>.509</td>
</tr>
<tr>
<td>gender</td>
<td>.722</td>
<td>1</td>
<td>.722</td>
<td>.178</td>
<td>.675</td>
</tr>
<tr>
<td>website * gender</td>
<td>.232</td>
<td>1</td>
<td>.232</td>
<td>.057</td>
<td>.812</td>
</tr>
<tr>
<td>Error</td>
<td>219.159</td>
<td>54</td>
<td>4.059</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1139.000</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 6.10-2 ANOVA (by Website) of Telepresence Question 2

**Descriptive Statistics**
Dependent Variable: Telepresence Question 2

<table>
<thead>
<tr>
<th>website</th>
<th>gender</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td>male</td>
<td>4.25</td>
<td>2.053</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>4.12</td>
<td>1.996</td>
<td>17</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>male</td>
<td>3.76</td>
<td>1.888</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>3.71</td>
<td>2.257</td>
<td>17</td>
</tr>
</tbody>
</table>

Figure 6.10   ANOVA (by Website) Chart of Telepresence Question 2

**Question3: I forgot about my immediate surroundings when I was navigating through the website.**

This result again yielded a non-significant website main effect ($F_{1,58} = 3.46, p = .068$), along with gender and age. While Q3 approaches statistical significance, it fails to combat the distinctly non-significant outcomes for Q1 and Q2. The conclusion that neither website achieved higher telepresence on the measures used, is unavoidable.
Table 6.11-1 ANOVA (by Website) of Telepresence Question 3

**Tests of Between-Subjects Effects**
Dependent Variable: Telepresence Question 3

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>69.972</td>
<td>1</td>
<td>69.972</td>
<td>15.121</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>2.910</td>
<td>1</td>
<td>2.910</td>
<td>.629</td>
<td>.431</td>
</tr>
<tr>
<td>website</td>
<td>15.994</td>
<td>1</td>
<td>15.994</td>
<td>3.456</td>
<td>.068</td>
</tr>
<tr>
<td>gender</td>
<td>.099</td>
<td>1</td>
<td>.099</td>
<td>.021</td>
<td>.884</td>
</tr>
<tr>
<td>website * gender</td>
<td>9.114</td>
<td>1</td>
<td>9.114</td>
<td>1.970</td>
<td>.166</td>
</tr>
<tr>
<td>Error</td>
<td>249.884</td>
<td>54</td>
<td>4.627</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>1098.000</td>
<td>59</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.11-2 ANOVA (by Website) of Telepresence Question 3

**Descriptive Statistics**
Dependent Variable: Telepresence Question 3

<table>
<thead>
<tr>
<th>website</th>
<th>gender</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td>male</td>
<td>4.75</td>
<td>2.252</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>4.12</td>
<td>2.118</td>
<td>17</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>male</td>
<td>2.82</td>
<td>1.912</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>female</td>
<td>3.76</td>
<td>2.333</td>
<td>17</td>
</tr>
</tbody>
</table>

![Figure 6.11](image) ANOVA (by Website) Chart of Telepresence Question 3
Informative Value

Finally, we anticipated that the high-UCV website would have higher informative value than the low-UCV website, and that a test of retentive memory would support this. Mann-Whitney U tests were conducted comparing performance on each site for each question.

*Question 1: The temple was established in □ 1635 □ 1760 □ 1796 □ 1805.*

The results indicate no significant differences between the two websites, and no differences were found due to gender and age.

Table 6.12 Binomial Test of Informative Question 1

<table>
<thead>
<tr>
<th>Binomial Test</th>
<th>website</th>
<th>answer</th>
<th>N</th>
<th>Observed Prop.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High Interactive</td>
<td>right</td>
<td>14</td>
<td>.56</td>
</tr>
<tr>
<td></td>
<td></td>
<td>wrong</td>
<td>11</td>
<td>.44</td>
</tr>
<tr>
<td></td>
<td>Low Interactive</td>
<td>right</td>
<td>21</td>
<td>.64</td>
</tr>
<tr>
<td></td>
<td></td>
<td>wrong</td>
<td>12</td>
<td>.36</td>
</tr>
</tbody>
</table>

P = .559

Figure 6.12   Binomial Test Chart of Informative Question 1
**Question 2:** The God dedicated in the main hall is □ Mastu □ Guanshiyin Budda □ Confucius □ Baosheng Dadi.

The results indicate no significant differences between the two websites, and no differences were found due to gender and age.

Table 6.13 Binomial Test of Informative Question 2

<table>
<thead>
<tr>
<th>website</th>
<th>answer</th>
<th>N</th>
<th>Observed Prop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td>right</td>
<td>24</td>
<td>.92</td>
</tr>
<tr>
<td></td>
<td>wrong</td>
<td>2</td>
<td>.08</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>right</td>
<td>32</td>
<td>.94</td>
</tr>
<tr>
<td></td>
<td>wrong</td>
<td>2</td>
<td>.06</td>
</tr>
</tbody>
</table>

P = .782

Figure 6.13   Binomial Test Chart of Informative Question 2
**Question 3:** The most important religious activity of the temple is □ Baosheng Cultural Festival □ Mastu Birthday Ceremony □ New Year Blessing Ceremony □ Burn Wang Boat Festival

The results indicate no significant differences between the two websites, and no differences were found due to gender and age.

**Table 6.14 Binomial Test of Informative Question 3**

<table>
<thead>
<tr>
<th>website</th>
<th>answer</th>
<th>N</th>
<th>Observed Prop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td>right</td>
<td>24</td>
<td>.92</td>
</tr>
<tr>
<td></td>
<td>wrong</td>
<td>2</td>
<td>.08</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>right</td>
<td>29</td>
<td>.85</td>
</tr>
<tr>
<td></td>
<td>wrong</td>
<td>5</td>
<td>.15</td>
</tr>
</tbody>
</table>

\[ P = .406 \]

**Figure 6.14  Binomial Test Chart of Informative Question 3**
Question 4: The temple mainly consists of □ two halls □ two halls with right and left protecting rooms □ three halls with right and left protecting rooms □ four halls

The results indicate no significant differences between the two websites, and no differences were found due to gender and age.

Table 6.15 Binomial Test of Informative Question 4

<table>
<thead>
<tr>
<th>Binomial Test</th>
<th>website</th>
<th>answer</th>
<th>N</th>
<th>Observed Prop.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>High Interactive</td>
<td>right</td>
<td>13</td>
<td>.50</td>
</tr>
<tr>
<td></td>
<td>High Interactive</td>
<td>wrong</td>
<td>13</td>
<td>.50</td>
</tr>
<tr>
<td></td>
<td>Low Interactive</td>
<td>right</td>
<td>21</td>
<td>.62</td>
</tr>
<tr>
<td></td>
<td>Low Interactive</td>
<td>wrong</td>
<td>13</td>
<td>.38</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>P = .366</td>
</tr>
</tbody>
</table>

Figure 6.15   Binomial Test Chart of Informative Question 4
Question 5: The delicate decoration on the temple’s roof ridge is □ wood carving □ stone carving □ “cut and paste” of bowl pieces □ golden painted wood

The results indicate no significant differences between the two websites, and no differences were found due to gender and age.

Table 6.16 Binomial Test of Informative Question 5

<table>
<thead>
<tr>
<th>Binomial Test</th>
<th>N</th>
<th>Observed Prop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>right</td>
<td>6</td>
<td>.24</td>
</tr>
<tr>
<td>wrong</td>
<td>19</td>
<td>.76</td>
</tr>
<tr>
<td>Low Interactive</td>
<td></td>
<td></td>
</tr>
<tr>
<td>right</td>
<td>12</td>
<td>.36</td>
</tr>
<tr>
<td>wrong</td>
<td>21</td>
<td>.64</td>
</tr>
</tbody>
</table>

P = .318

Figure 6.16 Binomial Test Chart of Informative Question 5
Question 6: When worshiping the God in the temple, people place their offering at □ facade of front hall □ inside of front hall □ main hall □ back hall

The results indicate no significant differences between the two websites, and no differences were found due to gender and age.

Table 6.17 Binomial Test of Informative Question 6

<table>
<thead>
<tr>
<th>Binomial Test</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>website</td>
<td>answer</td>
<td>N</td>
<td>Observed Prop.</td>
</tr>
<tr>
<td>High Interactive</td>
<td>right</td>
<td>13</td>
<td>.59</td>
</tr>
<tr>
<td></td>
<td>wrong</td>
<td>9</td>
<td>.41</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>right</td>
<td>13</td>
<td>.41</td>
</tr>
<tr>
<td></td>
<td>wrong</td>
<td>19</td>
<td>.59</td>
</tr>
</tbody>
</table>

P = .186

Figure 6.17 Binomial Test Chart of Informative Question 6
**Question 7:** People seek advice about their future at □ façade of front hall □ inside of front hall □ main hall □ back hall

The results indicate no significant differences between the two websites, and no differences were found due to gender and age.

Table 6.18 Binomial Test of Informative Question 7

<table>
<thead>
<tr>
<th>website</th>
<th>answer</th>
<th>N</th>
<th>Observed Prop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td>right</td>
<td>6</td>
<td>.30</td>
</tr>
<tr>
<td></td>
<td>wrong</td>
<td>14</td>
<td>.70</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>right</td>
<td>5</td>
<td>.17</td>
</tr>
<tr>
<td></td>
<td>wrong</td>
<td>25</td>
<td>.83</td>
</tr>
</tbody>
</table>

P = .270

![Figure 6.18 Binomial Test Chart of Informative Question 7](image)
Question 8: There is a pair of stone lions at the facade of the front hall. Which one is female? □ on the right  □ on the left  □ there is no gender difference

The results indicate no significant differences between the two websites, and no differences were found due to gender and age.

Table 6.19 Binomial Test of Informative Question 8

<table>
<thead>
<tr>
<th>website</th>
<th>answer</th>
<th>N</th>
<th>Observed Prop.</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Interactive</td>
<td>right</td>
<td>5</td>
<td>.25</td>
</tr>
<tr>
<td></td>
<td>wrong</td>
<td>15</td>
<td>.75</td>
</tr>
<tr>
<td>Low Interactive</td>
<td>right</td>
<td>11</td>
<td>.35</td>
</tr>
<tr>
<td></td>
<td>wrong</td>
<td>20</td>
<td>.65</td>
</tr>
</tbody>
</table>

P = .435

Figure 6.19  Binomial Test Chart of Informative Question 8
6.3 Summary 1

The statistical results indicate that there is no significant difference in Attractiveness Value, Telepresence Value, and Informative Value between the high-UCV and low-UCV websites. Significant differences were only found in three of five questions on Enjoyment Value. In the high-UCV website, participants felt a stronger sense of active involvement, liked to stay longer on the website and had a higher favourable impression of the temple after visiting the website. In other words, they enjoyed the high-UCV website more than the low-UCV one. However, significant differences were found for gender in the Attractiveness Value question, in which female participants considered the websites were more attractive than male participants did.

6.4 Results 2

A key feature of the High UCV site was the provision of 360° omnidirectional panoramas and interactive flat panoramic images. In order to test for differences between those who accessed the panoramas and those who did not, it was decided to run the analysis again, but using only the High UCV participants, and focusing on the response to panorama within this website. This analysis would indicate the effect of utilising the full resource of the High UCV site (i.e. panorama) or not. Initial data analysis revealed no effects due to the click of detail-buttons embedded in interactive flat panoramic images. For this reason they have been excluded from the analysis presented below. To test the impact of 360° omnidirectional panoramas, analysis of variance (ANOVA) was applied. ‘Panorama click’ and ‘Gender’ performed as independent variables, and age was treated as a covariate. The results are presented below.
**Attractiveness Value**

**Question 1: The website looks attractive.**

This question observed a significant gender difference only (F\_1,25 = 4.79, p = .040): women found the website more attractive whether they had accessed the panoramas or not.

Table 6.20-1 ANOVA (by panorama) of Attractiveness Question 1

<table>
<thead>
<tr>
<th>Tests of Between-Subjects Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable: Attractiveness Question 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>61.072</td>
<td>1</td>
<td>61.072</td>
<td>37.842</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>.351</td>
<td>1</td>
<td>.351</td>
<td>.218</td>
<td>.646</td>
</tr>
<tr>
<td>gender</td>
<td>7.736</td>
<td>1</td>
<td>7.736</td>
<td>4.794</td>
<td>.040</td>
</tr>
<tr>
<td>panorama</td>
<td>4.357</td>
<td>1</td>
<td>4.357</td>
<td>2.700</td>
<td>.115</td>
</tr>
<tr>
<td>gender * panorama</td>
<td>2.734</td>
<td>1</td>
<td>2.734</td>
<td>1.694</td>
<td>.207</td>
</tr>
<tr>
<td>Error</td>
<td>33.891</td>
<td>21</td>
<td>1.614</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>824.000</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.20-2 ANOVA (by panorama) of Attractiveness Question 1

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable: Attractiveness Question 1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>gender</th>
<th>click</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>yes</td>
<td>5.50</td>
<td>1.291</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>3.75</td>
<td>2.217</td>
<td>4</td>
</tr>
<tr>
<td>female</td>
<td>yes</td>
<td>5.85</td>
<td>.801</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>5.80</td>
<td>1.304</td>
<td>5</td>
</tr>
</tbody>
</table>
**Question2: The temple looks interesting.**

The results indicate a moderate difference in temple attractiveness between panorama click and non-click (F_{1,25} = 4.73, p = .051), and a significant difference due to gender. Women found the temple more attractive irrespective of whether they accessed the panoramas or not (F_{1,25} = 7.48, p = .017).

Table 6.21-1 ANOVA (by panorama) of Attractiveness Question 2

**Tests of Between-Subjects Effects**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>88.527</td>
<td>1</td>
<td>88.527</td>
<td>79.978</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>2.613</td>
<td>1</td>
<td>2.613</td>
<td>2.361</td>
<td>.139</td>
</tr>
<tr>
<td>gender</td>
<td>7.477</td>
<td>1</td>
<td>7.477</td>
<td>6.755</td>
<td>.017</td>
</tr>
<tr>
<td>panorama</td>
<td>4.726</td>
<td>1</td>
<td>4.726</td>
<td>4.269</td>
<td>.051</td>
</tr>
<tr>
<td>gender * panorama</td>
<td>1.828</td>
<td>1</td>
<td>1.828</td>
<td>1.652</td>
<td>.213</td>
</tr>
<tr>
<td>Error</td>
<td>23.245</td>
<td>21</td>
<td>1.107</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>939.000</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.21-2 ANOVA (by panorama) of Attractiveness Question 2

**Descriptive Statistics**

<table>
<thead>
<tr>
<th>gender</th>
<th>click</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>yes</td>
<td>6.00</td>
<td>1.414</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>4.25</td>
<td>1.258</td>
<td>4</td>
</tr>
<tr>
<td>female</td>
<td>yes</td>
<td>6.23</td>
<td>.832</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>6.20</td>
<td>1.304</td>
<td>5</td>
</tr>
</tbody>
</table>
**Enjoyment Value**

**Question 1:** I will return to this website.

The results indicate a significant panorama effect ($F_{1,25} = 6.37, p = .020$), whereby those who engaged with the panorama indicated a stronger wish to return to the website.

Table 6.22-1 ANOVA (by panorama) of Enjoyment Question 1

**Tests of Between-Subjects Effects**

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>24.384</td>
<td>1</td>
<td>24.384</td>
<td>9.053</td>
<td>.007</td>
</tr>
<tr>
<td>age</td>
<td>.078</td>
<td>1</td>
<td>.078</td>
<td>.029</td>
<td>.867</td>
</tr>
<tr>
<td>gender</td>
<td>.377</td>
<td>1</td>
<td>.377</td>
<td>.140</td>
<td>.712</td>
</tr>
<tr>
<td>panorama</td>
<td>17.168</td>
<td>1</td>
<td>17.168</td>
<td>6.374</td>
<td>.020</td>
</tr>
<tr>
<td>gender * panorama</td>
<td>1.448</td>
<td>1</td>
<td>1.448</td>
<td>.538</td>
<td>.472</td>
</tr>
<tr>
<td>Error</td>
<td>56.565</td>
<td>21</td>
<td>2.694</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>514.000</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.22-2 ANOVA (by panorama) of Enjoyment Question 1

**Descriptive Statistics**

<table>
<thead>
<tr>
<th>gender</th>
<th>click</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>yes</td>
<td>4.50</td>
<td>1.732</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>3.25</td>
<td>1.258</td>
<td>4</td>
</tr>
<tr>
<td>female</td>
<td>yes</td>
<td>4.85</td>
<td>1.676</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>2.40</td>
<td>1.517</td>
<td>5</td>
</tr>
</tbody>
</table>
Question 2: I felt a strong sense of active involvement.

The result delivered a highly significant panorama effect ($F_{1,25} = 9.59, p = .006$), whereby those who engaged with it felt a stronger sense of active involvement. Interestingly, there was a strong gender difference ($F_{1,25} = 6.65, p = .018$), with men more positively affected than women.

Table 6.23-1 ANOVA (by panorama) of Enjoyment Question 2

Tests of Between-Subjects Effects
Dependent Variable: Enjoyment Question 2

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>27.134</td>
<td>1</td>
<td>27.134</td>
<td>14.303</td>
<td>.001</td>
</tr>
<tr>
<td>age</td>
<td>1.025</td>
<td>1</td>
<td>1.025</td>
<td>.540</td>
<td>.471</td>
</tr>
<tr>
<td>gender</td>
<td>12.614</td>
<td>1</td>
<td>12.614</td>
<td>6.649</td>
<td>.018</td>
</tr>
<tr>
<td>panorama</td>
<td>18.186</td>
<td>1</td>
<td>18.186</td>
<td>9.586</td>
<td>.006</td>
</tr>
<tr>
<td>gender * panorama</td>
<td>.200</td>
<td>1</td>
<td>.200</td>
<td>.105</td>
<td>.749</td>
</tr>
<tr>
<td>Error</td>
<td>37.942</td>
<td>20</td>
<td>1.897</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>568.000</td>
<td>25</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.23-2 ANOVA (by panorama) of Enjoyment Question 2

Descriptive Statistics
Dependent Variable: Enjoyment Question 2

<table>
<thead>
<tr>
<th>gender</th>
<th>click</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>yes</td>
<td>6.25</td>
<td>.957</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>4.25</td>
<td>1.500</td>
<td>4</td>
</tr>
<tr>
<td>female</td>
<td>yes</td>
<td>4.67</td>
<td>1.435</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>2.80</td>
<td>1.304</td>
<td>5</td>
</tr>
</tbody>
</table>
Question 3: I found the website enjoyable to navigate.

The results indicate no significant differences due to panorama click, gender, and age.

Table 6.24-1 ANOVA (by panorama) of Enjoyment Question 3

Tests of Between-Subjects Effects
Dependent Variable: Enjoyment Question 3

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>62.268</td>
<td>1</td>
<td>62.268</td>
<td>26.546</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>.618</td>
<td>1</td>
<td>.618</td>
<td>.263</td>
<td>.613</td>
</tr>
<tr>
<td>gender</td>
<td>.639</td>
<td>1</td>
<td>.639</td>
<td>.273</td>
<td>.607</td>
</tr>
<tr>
<td>panorama</td>
<td>6.479</td>
<td>1</td>
<td>6.479</td>
<td>2.762</td>
<td>.111</td>
</tr>
<tr>
<td>gender * panorama</td>
<td>2.937</td>
<td>1</td>
<td>2.937</td>
<td>1.252</td>
<td>.276</td>
</tr>
<tr>
<td>Error</td>
<td>49.259</td>
<td>21</td>
<td>2.346</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>770.000</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.24-2 ANOVA (by panorama) of Enjoyment Question 3

Descriptive Statistics
Dependent Variable: Enjoyment Question 3

<table>
<thead>
<tr>
<th>gender</th>
<th>click</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>yes</td>
<td>6.00</td>
<td>1.414</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>4.00</td>
<td>1.414</td>
<td>4</td>
</tr>
<tr>
<td>female</td>
<td>yes</td>
<td>5.38</td>
<td>1.446</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>5.20</td>
<td>1.789</td>
<td>5</td>
</tr>
</tbody>
</table>
Question 4: I could have stayed on this website longer.

The results indicate no significant differences due to panorama click, gender, and age.

Table 6.25-1 ANOVA (by panorama) of Enjoyment Question 4

Tests of Between-Subjects Effects
Dependent Variable: Enjoyment Question 4

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>63.477</td>
<td>1</td>
<td>63.477</td>
<td>18.909</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>1.822</td>
<td>1</td>
<td>1.822</td>
<td>.543</td>
<td>.469</td>
</tr>
<tr>
<td>gender</td>
<td>.000</td>
<td>1</td>
<td>.000</td>
<td>.000</td>
<td>.993</td>
</tr>
<tr>
<td>panorama</td>
<td>1.221</td>
<td>1</td>
<td>1.221</td>
<td>.364</td>
<td>.553</td>
</tr>
<tr>
<td>gender * panorama</td>
<td>3.547</td>
<td>1</td>
<td>3.547</td>
<td>1.057</td>
<td>.316</td>
</tr>
<tr>
<td>Error</td>
<td>70.497</td>
<td>21</td>
<td>3.357</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>717.000</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.25-2 ANOVA (by panorama) of Enjoyment Question 4

Descriptive Statistics
Dependent Variable: Enjoyment Question 4

<table>
<thead>
<tr>
<th>gender</th>
<th>click</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>yes</td>
<td>4.75</td>
<td>2.217</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>5.00</td>
<td>1.414</td>
<td>4</td>
</tr>
<tr>
<td>female</td>
<td>yes</td>
<td>5.31</td>
<td>1.437</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>4.20</td>
<td>2.588</td>
<td>5</td>
</tr>
</tbody>
</table>
Question 5: *I have a favourable impression of the temple after my visit to the website.*

The results observed a significant gender difference ($F_{1,25} = 6.66, p = .017$), whereby women had a more favourable impression of the temple whether they had engaged the panoramas or not.

Table 6.26-1 ANOVA (by panorama) of Enjoyment Question 5

**Tests of Between-Subjects Effects**
Dependent Variable: Enjoyment Question 5

<table>
<thead>
<tr>
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<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>75.142</td>
<td>1</td>
<td>75.142</td>
<td>86.565</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>.502</td>
<td>1</td>
<td>.502</td>
<td>.578</td>
<td>.455</td>
</tr>
<tr>
<td>gender</td>
<td>5.783</td>
<td>1</td>
<td>5.783</td>
<td>6.662</td>
<td>.017</td>
</tr>
<tr>
<td>panorama</td>
<td>3.270</td>
<td>1</td>
<td>3.270</td>
<td>3.767</td>
<td>.066</td>
</tr>
<tr>
<td>gender * panorama</td>
<td>.077</td>
<td>1</td>
<td>.077</td>
<td>.089</td>
<td>.769</td>
</tr>
<tr>
<td>Error</td>
<td>18.229</td>
<td>21</td>
<td>.868</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>977.000</td>
<td>26</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.26-2 ANOVA (by panorama) of Enjoyment Question 5

**Descriptive Statistics**
Dependent Variable: Enjoyment Question 5

<table>
<thead>
<tr>
<th>gender</th>
<th>click</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>yes</td>
<td>5.75</td>
<td>1.500</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>4.75</td>
<td>.957</td>
<td>4</td>
</tr>
<tr>
<td>female</td>
<td>yes</td>
<td>6.54</td>
<td>.660</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>6.00</td>
<td>1.000</td>
<td>5</td>
</tr>
</tbody>
</table>
Telepresence Value

Question 1: While on the website, I felt I was in the world that the computer created.

The results indicate no statistically significant difference was found between those who accessed the panorama facility and those who did not (F_{1,25} = .67, p = .422): similarly, no gender or age effects emerged.

Table 6.27-1 ANOVA (by panorama) of Telepresence Question 1

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>56.274</td>
<td>1</td>
<td>56.274</td>
<td>14.632</td>
<td>.001</td>
</tr>
<tr>
<td>age</td>
<td>3.265</td>
<td>1</td>
<td>3.265</td>
<td>.849</td>
<td>.367</td>
</tr>
<tr>
<td>gender</td>
<td>1.324</td>
<td>1</td>
<td>1.324</td>
<td>.344</td>
<td>.564</td>
</tr>
<tr>
<td>panorama</td>
<td>2.583</td>
<td>1</td>
<td>2.583</td>
<td>.672</td>
<td>.422</td>
</tr>
<tr>
<td>gender * panorama</td>
<td>3.692</td>
<td>1</td>
<td>3.692</td>
<td>.960</td>
<td>.338</td>
</tr>
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<td>80.766</td>
<td>21</td>
<td>3.846</td>
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<td></td>
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</tbody>
</table>

Table 6.27-2 ANOVA (by panorama) of Telepresence Question 1

Descriptive Statistics

<table>
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<tr>
<th>gender</th>
<th>click</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>yes</td>
<td>4.50</td>
<td>2.646</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>4.50</td>
<td>1.291</td>
<td>4</td>
</tr>
<tr>
<td>female</td>
<td>yes</td>
<td>4.46</td>
<td>1.808</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>3.20</td>
<td>2.168</td>
<td>5</td>
</tr>
</tbody>
</table>
**Question 2:** The computer-generated world seemed to me “somewhere I visited” rather than “something I saw.”

The results delivered similar non-significant results for panorama, and no gender or age effects.

Table 6.28-1 ANOVA (by panorama) of Telepresence Question 2

**Tests of Between-Subjects Effects**

<table>
<thead>
<tr>
<th>Source</th>
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<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>65.394</td>
<td>17.786</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>6.867</td>
<td>1</td>
<td>6.867</td>
<td>1.868</td>
<td>.186</td>
</tr>
<tr>
<td>gender</td>
<td>.242</td>
<td>1</td>
<td>.242</td>
<td>.066</td>
<td>.800</td>
</tr>
<tr>
<td>panorama</td>
<td>7.041</td>
<td>1</td>
<td>7.041</td>
<td>1.915</td>
<td>.181</td>
</tr>
<tr>
<td>gender * panorama</td>
<td>4.067</td>
<td>1</td>
<td>4.067</td>
<td>1.106</td>
<td>.305</td>
</tr>
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<td>77.210</td>
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<td>3.677</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
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<td></td>
</tr>
</tbody>
</table>

Table 6.28-2 ANOVA (by panorama) of Telepresence Question 2

**Descriptive Statistics**

<table>
<thead>
<tr>
<th>gender</th>
<th>click</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>male</td>
<td>yes</td>
<td>4.50</td>
<td>2.646</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>4.00</td>
<td>1.633</td>
<td>4</td>
</tr>
<tr>
<td>female</td>
<td>yes</td>
<td>4.62</td>
<td>1.660</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>3.00</td>
<td>2.345</td>
<td>5</td>
</tr>
</tbody>
</table>
Question 3: I forgot about my immediate surroundings when I was navigating through the website.

Again, it delivered similar non-significant results for panorama, and no gender or age effects.

Table 6.29-1 ANOVA (by panorama) of Telepresence Question 3

Tests of Between-Subjects Effects
Dependent Variable: Telepresence Question 3

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>73.239</td>
<td>18.477</td>
<td>.000</td>
</tr>
<tr>
<td>age</td>
<td>8.230</td>
<td>1</td>
<td>8.230</td>
<td>2.076</td>
<td>.164</td>
</tr>
<tr>
<td>gender</td>
<td>3.684</td>
<td>1</td>
<td>3.684</td>
<td>.929</td>
<td>.346</td>
</tr>
<tr>
<td>panorama</td>
<td>7.036</td>
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<td>7.036</td>
<td>1.775</td>
<td>.197</td>
</tr>
<tr>
<td>gender * panorama</td>
<td>9.905</td>
<td>1</td>
<td>9.905</td>
<td>2.499</td>
<td>.129</td>
</tr>
<tr>
<td>Error</td>
<td>83.239</td>
<td>21</td>
<td>3.964</td>
<td></td>
<td></td>
</tr>
<tr>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.29-2 ANOVA (by panorama) of Telepresence Question 3

Descriptive Statistics
Dependent Variable: Telepresence Question 3

<table>
<thead>
<tr>
<th>gender</th>
<th>click</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>male</td>
<td>yes</td>
<td>4.75</td>
<td>2.872</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>4.75</td>
<td>1.893</td>
<td>4</td>
</tr>
<tr>
<td>female</td>
<td>yes</td>
<td>4.69</td>
<td>1.974</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>no</td>
<td>2.60</td>
<td>1.517</td>
<td>5</td>
</tr>
</tbody>
</table>
6.5 Summary 2

The statistical results indicate that panorama click did not exhibit significant difference in Attractiveness Value and Telepresence Value. Attractiveness Value and Telepresence Value. Again, significant differences were only found in three of five questions on Enjoyment Value. Participants who clicked the panorama buttons felt they would like to return to the website, had a stronger sense of active involvement, and had a higher favourable impression of the temple. However, significant differences were found for gender in both questions on Attractiveness Value and two of five questions on Enjoyment Value. Males who clicked the panorama buttons thought both the website and temple were more attractive than males who did not. Also, males who clicked the panorama felt more sense of involvement and had a higher favourable impression of the temple. Females found the website and temple attractive whether they had clicked the panorama or not.
7.1 Discussion

In this research, the levels of interactivity and vividness were manipulated in the information presentation on the Dalongdong Baoan Temple websites. The results from previous empirical research positively support the effects of interactivity and vividness on creating the feeling of telepresence. It was expected that high levels of interactivity and vividness would have positive impacts on participants’ attitudes toward the website, in terms of attractiveness value, informative value and enjoyment value, and increase the experience of telepresence. However, the results in this research were opposite to the findings of previous research notably Coyle and Thorson (2001), Klein (2003), and Suh and Chang (2006). Participants did not exhibit greater response to the website in the areas of Attractiveness Value, Informative Value, and Telepresence Value, despite the higher level of interactivity and vividness. Even participants who clicked the high visual 360° omnidirectional panoramas or interactive flat panoramic images did not feel higher immersion during their browsing nor increase their ranking of attractiveness. There might be several possible explanations for this non-effect.
The degree of presence depends on how much the focus of attention moves from the physical environment to the virtual environment. Previous empirical telepresence research (e.g., Coyle & Thorson 2001; Klein 2003; Suh & Chang 2006) utilised the laboratory experimental approach with convenience samples that were mostly university students. However, this research adopted a naturalistic setting and interested subjects, so that the web experiment was conducted in the normal daily life circumstances of a group of people who were characterised as real cultural tourists. These participants may have their own agendas in their daily life. Under such situations, the focus attention of participants may have been influenced by many possibilities found outside a laboratory environment, due to the environmental complexity in the real world. Participants in a laboratory environment often concentrate more on their required tasks, whereas those who attend an experiment at home or work may be more influenced by their surroundings than in a laboratory environment. This might be the reason why previous studies with laboratory experiments support the positive impact of interactivity and vividness on the creation of telepresence. In addition, the Internet connection speed and computer equipment are not controlled, as in a laboratory environment. Experimental labs in universities often possess faster Internet connection speed and more advanced computer equipment than most households, thus creating better conditions for website browsing. According to the Australian Bureau of Statistics (2008) in 2007-08, 67% of Australian households had home Internet access, and 52% of all households in Australia had a Broadband Internet connection. This means there are still some households using low-speed Internet connection, and it might be another factor influencing the measure of telepresence.

For Attractiveness Value, both websites provide identical information content with similar graphical interface design, which might give an equal first impression to the sample. Lindgaard et al. (2006) indicate that the visual appeal of a website can be made in 50 milliseconds, a mere exposure effect. Kim and Fesenmaier (2008) also state that the first impression is formed quickly, and the initial judgement tends to be consistent with the following decision-making or behaviours. This might be the reason why participants exhibited similar responses. Besides, participants on the high-UCV website did not utilise the full resource of the website, which might have influenced their judgement as well. However, the panorama click had a moderately
positive effect on the temple’s perceived attractiveness and had a significant impact on gender difference,

*Informative Value* is a recall testing of temple information on the website. According to Dale’s *Cone of Experience* (1969), people generally remember 10% of what they read (verbal), 20% of what they hear (sound), 30% of what they see (picture), 50% of what they hear and see (video), 70% of what they say and write, and 90% of what they do. That is, multimedia not only functions as heightening the visual aesthetic of web sites, but is also strengthening the comprehension of the user. It was anticipated that memory retention would increase by heightening the level of interactivity and vividness. However, in the study investigating the effect of multimedia on recall of product information, Appiah (2006) found there was no difference between websites that featured audio/video and text/picture. This research employed a web experiment in which the browsing content was not controlled. Although the instruction page placed a requirement to visit or click on all parts of the website, participants were free to decide what they would like to see and what they would not. If participants did not experience every part of the temple, it was difficult to answer the questions accurately. As has been mentioned in the previous chapter, participants on the high-UCV website seem be exposed to less content than participants on the low-UCV website, and this poor performance in this section might be due to the missing information. In addition, previous research indicates that telepresence simulates direct experience, which enhances the learning effect (Suh & Chang 2006). However, the results in this study failed to support the relationship between interactivity-vividness, and telepresence. Hence, it is reasonable to conclude that the interactivity and vividness do not have significant impacts on informative value.

The results of *Enjoyment Value* are mixed. The effects of interactivity and vividness were positive on the sense of active involvement, willingness to stay longer, and the enhancement of a favourable impression of the temple. Although participants did not show different responses for willingness of returning to the website, when comparing the high-UCV and low-UCV websites, the panorama click did have a positive effect. Participants who accessed the panorama exhibited a stronger wish to return to the website. In addition, the effect of interactivity and vividness on enjoyable navigating, although not significant, was close to the expected result. Therefore, the website was
found to be more enjoyable when the level of interactivity and vividness increased, and again the gender effect was noted.

7.2 Conclusion and Limitation of the Research

This research attempted to measure the effects of interactivity and vividness on users’ attitudes and telepresence, by employing different website features in the information presentation on tourism websites. It identifies that website features with a higher level of interactivity and vividness do not function as significant factors affecting the creation of telepresence, nor do they influence users’ attitudes in terms of attractiveness and informativeness under the theory of Naturalistic Decision Making (NDM). Berryman (2008) indicates that the NDM approach gives a broader perspective that facilitates understanding of how the decision-making process unfolds. NDM provides a different conceptual framework to investigate how users make judgments and decisions during their web browsing within a range of contextual factors, thereby extending the realm of the traditional laboratory approach. The web database provides further analysis in challenging the notion of telepresence for real users, in a real setting, with real stimuli. It gives insight into users’ browsing behaviours outside the artificiality of the laboratory environment. Within daily life circumstances, motivated users may be located in different situations, and these would determine their browsing behaviours on the website. A quick glance may be sufficient to inform users whether to not to further explore the website. The Internet users can be categorised as either information-seekers who browse the website with specific purposes, or information surfers who do not possess a specific purpose (Versen 1998). From the NDM perspective, users’ underlying goals will provide the motivations that direct their behaviours. A further factor is the gender effect. Female users gave overall more positive responses to both of the websites, irrespective of the level of interactivity and vividness. Graeupl and McCabe (2003) indicate that information provision on the Internet should pay attention to different market segments and target them with specialised service. The gender effect in this research appears equal to, if not greater than, the website effect, and further investigation may be worthwhile in this area.
Although the levels of interactivity and vividness in a website fail to support the enhancement of telepresence, attractiveness and informativeness, their positive effects on enjoyment should not be neglected. Researchers indicate that enjoyment contributes to user satisfaction (Zhang & von Dran 2000), which is a determinant of behaviour intention.

Ghose and Dou (1998) state that a company should critically examine the degree and form of interactivity on its website to improve the design quality. Virtual reality is growing in importance as a creative and communicational medium (Fencott et al. 2003). This research supports the assertion of Ghose and Dou, and suggests that DMOs should consider the effects of various website features, because the development of information communication technologies continues to advance and these innovations have been infrequently employed.

This research was carefully designed to strengthen the external validity and to avoid deceptively distorted results, but the internal validity could be undermined. The strengths of this research are the use of professionally designed stimuli for the target group of interest, the naturalistic setting of the task, and the real motivation of participants to engage in it. The weaknesses are the lack of precise control, as encountered in the laboratory setting, where the convenience sample would follow the instruction of experimenters with more care. The majority of participants in this research were more than 35 years old, and their Internet experience and familiarity with new technology may be less than university students, and this too may influence their use of website features. They might also have used older computers with slower Internet capacities in their homes than would be the case in a controlled laboratory situation. However, the sample participants were characterised as real users, and the generalisability of the results provides useful insights into the area of tourism marketing and tourism website design.
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