## Application Internet Multimedia on Region Travel Route Information Establishment

TINGSHENG WENG

Department of Management Information Systems
National Chiayi University
580 Sinmin Rd., Chiayi City 600
TAIWAN

politeweng@mail.ncyu.edu.tw http://www.mis.ncyu.edu.tw/english/Tea\_weng.php

Abstract: - This research applies to Alishan area which is filled with unique and rich culture resources as the case study area. Through the applications of information technology and multimedia techniques, a website with the functions, such as browsing an e-book and multi-languages, integrating particular history, people, and nature environment resources aspects of the traffic route information have been established in Chinese, English, and Japanese versions. The purpose of this study aims to display the characteristic of sufficient information of this area, and to attract tourists to understand the relationship between the eco-environment, people and geography, and industrial development. By leading people to familiarize nature, the study also intends to achieve several goals, such as promoting people's concept of the environmental protection and increasing further understanding of local natural information, and fostering local industry simultaneously. The discussion of the paper is also in accordance with various information and theories the browsers can search on net. The aim of website design in this study takes digital education into concern and improve digital life and e-learning. By means of the information abundance, the goal of this paper is to enhance flourishing development of culture, travel marketing, digital education value and society.

Key-Words: - Multilanguage website, Traveling and Internet, 3D, International, Digital life, e-Learning, flow

#### 1 Introduction

The Internet has brought unlimited possibilities of the space development to business applications. The travel guide application combined with the Internet can improve additional value, and appeal to tourists. The Internet's pluralism and multimedia network offer plenty of space to fulfill the demand of tourism which is designed for individual needs. The travel guide combines with the digital content become a new trend.

In the era of information explosion, there is abundant online information available in traveling guide. Information Richness [1] theory suggests only the right amount of information could reach the goal of optimal dissemination.

The amount of information on scenic spots has increased constantly from sources of newspapers, magazines, and the Internet, such as internationally renowned forest recreational area – Alishan Forest Park, and Kenting international park, etc. Daft and Lengel (1984) propose the information task in an organization making the appropriate information demand, and reducing equivocally [1]. Under the situation of high task uncertainty, the increasing

amount of information becomes ineffective. The administrator in an organization needs to identify problems, instead of presenting more information. Internet browsers are facing the same situation as the administrator does, namely to digest and utilize the massive information available, instead of searching for information. information richness should focus on the appropriate amount of information that contributes to the comprehension of information, which is beneficial to the achievement of information task. What marketing should emphasize is explosion. In other words, the popularization of products increases the people's acceptance of the products. Therefore, it is necessary to understand if the content of the online information would be comprehensible acceptable by the browsers. Daft and Lengel's theory is applied to the design of online travel guide to change the traditional concept that the more abundant the information is, the better it is [1].

By 3D visual design and appropriate selection of information, the study intends to effectively achieve multiple aspects of educational benefits, including the introduction of the local culture and even the protection of ecological environment. Our study gives full support to environmental education and efforts to reduce the loss of cultural heritage by allowing people to understand the landscape ecology, such as biodiversity and microclimate, and encouraging people to personally observe the landscape beauty [2][3][4][5]. Although Internet is a powerful global communication tool to achieve these educational appeals, the selection of information and 3D visual effects are our major concerns to attract people's attentions, help people to easily access these information, and further encourage people to experience these precious natural and cultural resources by visiting the area personally [6].

### 2 Traveling and Internet

The development of Internet brings unlimited possibilities for business application. The traveling business has been starting to connect with internet in attempt to enhance the additional traveling value, and to attract consumers. Traveling website offers people various functions to suit every individual need. Based on the concepts from abundant information, it tends to adopt means for developing a more attractive traveling website.

Every different need requires adequate information requirements. If the media is less rich to support the needs, it may not able to transfer the information efficiently. Hence, this study aims to design a traveling website by the concept of abundant information by applying the well-known international tourist spot, Alishan. It anticipates

applying the results to the content design of other on line traveling information

#### 3 Websites for Alishan

People can plan the trips to Alishan more effectively if useful and abundant information could be provided via multimedia. Presenting an interactive website, can attract browsers to visit Alishan, which would enhance the local economy and better preserve the local ecology and culture.

The keywords related to Alishan can include: humanity economy, geography, scenic spots, traveling schedule, etc., and the details are as follows:

- 1. Humane economy: Introducing the culture, economy, and historical background of Alishan.
- 2.Geography: Introducing the weather, animals, plants, and geographical location of Alishan.
- 3. Scenic spots: Introducing the popular scenic spots in Alishan, including sunrise, sea of clouds, divine tree, and forest railway, etc.
- 4.Traveling schedule: Taking into consideration of the seasons to offer the most appropriate traveling schedule to the visitors

The followings are the 10 most popular websites for Alishan in Taiwan. This research utilized 2 largest portal sites, Yahoo and Google to sort out keywords regarding to Alishan between January to March of 2007 which is the peak of traveling occasion due to the Chinese New Year vacation and winter break of schools. The top 10 websites are shown in Table 1 and Table 2.

Table 1: Using the keywords "Alishan" to search from Yahoo.

Website's name	Website address	Website's description				
1.Alishan national scenic area administration official site	http://www.ali.org.tw/	With 3 languages available, the contents contain animations.				
2.The Alishan forest railway	http://railway.forest.gov.tw/	Abundant content with a series of introductions to humanity and history of Alishan.				
3.Foothills forest garden of Alishan	http://www.greencom.com.tw/alishan2000	The photos present the beautiful scenery of Alishan, interactive function is available.				
4.Recreation network of Alishan	http://www.alishan.com.tw	The content is inclusive for everything.				
5.Forest traveling area of Alishan	http://recreate.forest.gov.tw/for est.php?init=05&char=big5&fo rest=3	Introducing the scenic around Alishan by presenting beautiful photos				
6.CTIN Taiwan travel alliance	http://alishan.network.com.tw	Travel information guide				
7.Tourist service network of Alishan	www.ali.org.tw/tc-index.php	The content contains both pictures and the music				

8. Stroll in the clouds	alishan.cyc.edu.tw	It provides interactive guide on direction and others.					
9.Farm of Alishan	www.reylee.com.tw	It presents local sceneries with photos.					
10.National administrative information net of management office of scenic spot of Alishan	www.ali-nsa.gov.tw	Abundant content, with a series of introductions to humanity and history of Alishan					

(Data collected from January to March, 2007)

Table 2: Using the keywords "Alishan" to search from Google.

Website's name	Website address	Website's description				
1.Alishan national scenic area administration official site	http://www.ali.org.tw/	With 3 languages available, the contents contain animations.				
2.Tourist service network of Alishan	www.ali.org.tw/tc-index.php	The content contains both pictures and the music				
3.Traveling area of national forest	http://recreate.forest.gov.tw/f orest.php?init=05&char=big5 &forest=3	Introducing the scenic around Alishan by presenting beautiful photos				
4.CTIN Taiwan travel alliance	http://alishan.network.com.tw	Travel information guide				
5.Alishan house	www.alishanhouse.com.tw	Introducing the scenic around Alishan by presenting beautiful photos				
6.The Alisha forest railway	http://railway.forest.gov.tw/	Abundant content with a series of introductions to humanity and history of Alishan.				
7.Stroll in the clouds	alishan.cyc.edu.tw	It provides interactive guide on direction and others.				
8.Constellation networks of the Bed and Breakfast of Alishan	http://alih.cru.com.tw/	Presenting the beautiful scenery of Alishan by map, and interactive features				
9.Alishan Gou Hotel	www.agh.com.tw	Provides information on local plants and peripheral view				
10. Ying Shan Hotel in Alishan	www.ying-shan.com.tw	The photos present the beautiful scenery Alishan, interactive function is available				

(Data collected from January to March, 2007)

The 20 websites this research found do not display in 3D technology. This caused us to design 3D digital technology and present the vision in 360 degrees stereoscopic effect. In addition, the ecological environment of Alishan is introduced by the mode of e-book.

### **4 Literature Review**

## 4.1 Present situation and features of online tour

Beside the suggestions for money-saving trips, in order to appeal browsers, the online tour websites

should offer services, such as information collection and design of traveling plans for individual needs. With the change of lifestyle and family type, the trend of traveling has become popular. Thus, if the service quality can be improved, including shortening the transportation time, reducing cost, providing more useful information, consumers would be more willing to travel.

Browsers would undergo five steps in order to select the optimal traveling location: forming the idea, information collection, evaluation of the plan, making the choice, and action. The most influential step depends on whether the information collection is convenient or not [7]. Browsers are concerned more about the functions of the introduction to the

scenic spots, and authentic pictures displayed on a website.

Online travel information has become abundant, but also makes users more confusing. The Economist magazine (2002) in Britain advised that traditional travel agencies should become customer service oriented by providing individualized information, and suggesting customers to choose the most appropriate traveling style [8].

#### 4.2 Search behavior on the Internet

According to the network report, the main purpose of Internet browsers is to browse/search information. And over 70% (Institute for Information Industry, 1999) network browsers thought that there is lack of useful information on shopping or selecting a service [9]. In the behavior of browsing, a website provides the function of informing, and the browser plays the role of evaluation. Therefore, the browser obtains large amount of information from the website for personal evaluation.

Most online browsers in Taiwan are using the Internet for shipping. Thus, information could reduce the uncertainty of the browsers, and assist them making decisions. Users with different objectives, experiences, and information demands, have different needs. By providing service and various amount of information for individuals, equivocation and uncertainty can be reduced.

Applying Internet technology, a large amount of information can be transmitted on the Internet, and multimedia technology brings more variation to Internet usage. Therefore, this study introduces 3D animation to provide the environment of education and entertainment.

# 4.3 Information enrichment theory and media richness theory

The information enrichment theory offers the method and skill to information users to help the communication. Information enrichment theory (Daft & Lengel, 1984) contains found constructs [1]: Information enrichment task complexity, uncertainty, and equivocation. The information richness is associated with the learning ability of communication. As soon as the information is highly filled with uncertainty and equivocation, it needs to cooperate with the media that can pass abundant information to effectively deal with the information. Therefore, the association between information richness and media depends on the media's ability of transmitting information. This is the concept of Media Richness.

#### **4.4 Flow theory**

Flow theory suggests that an individual is attracted by the activities and is integrated into a common experience which centralizes cognitions into a narrowed scope. The individual consciousness and thoughts that are irrelevant to the activities. Due to the loss of self-consciousness, the individual only reacts to a concrete goal and a clear response, and produces the sense of control through the control of the environment [10]. Susan and Csikszentmihalyi (1999) identified the following factors that influence individual flow and fundamentals [11]: (1) Challenge-skill balance: Challenge-skill balance is the golden rule of flow. In order for an individual to reach flow, not only the balance of challenges and skills should be reached but the balance has to excess the individual's standard ability. If an individual has strong skills but faces weak challenges, the individual would be bored. If the skills are inferior to the challenges, anxiety would occur. (2) Actions-awareness merging: It means that consciousness is integrated into actions, and all actions are carried out spontaneously by the individual, such as natural breathing with heartbeat. (3)Clear the goal: Clearing the goal can make individuals focused, and the goal is the work that the individual wants to finish instantly and has the control over the feedbacks of the work. (4)Unambiguous feedback: The feedbacks vary with individuals. An individual experiences fun only if the feedback is associated with individual's investment. (5) Concentration on the task at hand: The individual should neglect other independent consciousness as well as information when there is a task at hand; when there is no noise, the goal can be reached without obstacles. (6) Sense of control: The sense of individual control on the surrounding environment makes the individual believe that everything is under control and he/she is powerful. (7)Loss of self-consciousness: The individual loses the sense consciously, all negative consciousness (bear) are disappeared. (8) Transformation of time: The changes of the sense of time are that an individual perceives the length of time differently, and the experience through the realistic environment, such as the individual perceives several hours in reality as only several minutes, or perceives several minutes in reality as an imaginary or empty dream. An individual would be more easily to experience flow if the restriction of time is gotten rid of. (9) Autotelic experience: The individual would invest full efforts as soon as s/he does not pursue other feedbacks in the future but doing itself.

While experiencing the internet flow, challengeskill balance is the most important influential factor. Skills and challenges must be balanced and make the individual move towards a higher level. "Immerse" experience is a self-harmoniousness which makes the individual enjoys actions-awareness. Being wholeheartedly engaged in the activities, the individual is able to accomplish the task that he or she usually could not make. However, the individual is not aware that the challenges from the activities have exceeded the level that he or she can usually handle. "Immerse" experience has made an individual to further affirm oneself, and reinforce the individual to learn the new skills with full concentration [12].

#### 4.5 Internet flow

As the internet network grows vigorously, a lot of scholars also begin to study the individual "internet network flow" experience. Based on how users interactively involve in Computer-Mediated Environment (CME), Hoffman and Novak (1996) define four types of "immerse internet network" symptoms, including "characterized by a seamless sequence of response facilitated by machine interactivity", "intrinsically enjoyable", "accompanied by a loss of self-consciousness", and "self-reinforcing" [13]. Scholars such as Hoffman consider that the internet network flow is influenced by the reinforcement of the following factors: high skill and perceived control, high challenge and arousal, the focus attention, interactivity, and telepresence. Thereafter a lot of researches indicated that the internet network flow experience is the main reason the network uses are addicted to internet [14]. When users encounter the internet network flow experience, their thoughts and consciousness may not directly be linked with the functions provided by the website, but plunge into the interactivity with the website.

After Hoffman (1996) and other scholars raised the concept structure of internet network flow, they further developed the scale to identify the factors that affect users entering internet network flow experience [13]. These factors include arousal, challenge, perceived control, focus attention, interactivity, involvement, playfulness, skill, telepresence, and time distortion [14].

People's interest in promotion activities or their responses may differ according to ages; younger people tend to have greater interest [15] to the advertisement. Those with higher educational level tend to be more open to new products or new things/information, and absorb as well as understand the new information easier. In terms of careers,

students may be prone to higher promotion due to consumption capacities [16]. If we consider incomes, a higher income person has higher promotion to react [17].

Users of travel websites are mostly consisted of younger generations. Regarding occupations of the users, Lu et al. (2006) found that students and business men are the most 2 populations [18]. Therefore, this research intended to employ the modern multimedia technology to construct an interactive travel guide website specifically for the younger generation, such as white-collar workers or business men. The website built by this study targets users of two major populations and applies the flow theory. The users would spend their leisure time to browse the website; in the meanwhile, they would enjoy the interactive information provided by our website.

#### 4.6 Tourism value of Alishan

Alishan was first developed at the end of the 19<sup>th</sup> century by setting up forestry regulations and administration under Japanese occupation. In 1986, a large area of Taiwan red cedar (false cypress) (Chamaecyparis formosensis Mats) and Taiwan cypress, Taiwan yellow cedar (Chamaecyparis taiwanesis) was found in Alishan, and it is still the largest area of Chinese juniper in Taiwan. The railway from Chiayi to Erwanping was constructed in 1911, and the section from Erwanping to Tashan, Mianyue was constructed in 1912, which led to over 30 years of lumbering history [19], as well as economic prosperity.

The tourism theme for Alishan in 2001 was "Green hill, green water, and cool paradise". For environmental production purpose, the function of Alishan forest has transformed from lumbering to eco-tourism and plantation today. The forest railway of Alishan is now the most well-known tourist attraction, and has accelerated the development and prosperity of local tourism. The local government now pays serious attention to protecting the resources of Alishan to make it a true world-class tourist spot.

Bring Alishan forest railway into the tour could show visitors the history and present of Alishan. By promoting Alishan forest railway, the beauty of Alishan can be promoted to the world. The train stations of the railway are presented in a 3D drawing, as shown in Figure 1. Based on the searching behaviors of the browsers, the website developed introductions of plant ecology, animal ecology, economy crops and aboriginal Zou race

along the Alishan railway line (Alishan mountain railroad/ ありさんとうざんてつどうろ) in order to accord with Information and Media Richness. In the meanwhile, we also study the flow theory and extend the personal flow to network flow.



Fig.1 Stations of the Alishan railway

This research attempted to identify the user groups of the travel guide website, and apply the information enrichment theory to the information content of the website. In Kil Soo Suh's (1999) research of the influence of information, Media Richness was used very often. The outcome of a task would be improved if the information demand corresponds to its carrying ability [20]. In other

words, only the appropriate amount of information would be helpful to the task. Over or under information would not achieve best results.

This research used Chinese, English, and Japanese versions of the multimedia websites (sunrise, station, ecology, tribe, etc.), and incorporated 2D/3D multimedia animation and audio-visual effects for Internet around the world to access the website.

## 5 Design

#### 5.1 Target

The cultural resources of Alishan forest railway are listed in Table 3, and local industries are listed in Table 4. The purpose is to promote local industries and economy.

This research intended to use the online multimedia technology, and information enrichment theory to construct an interactive websites for Internet users. The website structure is shown in Figure 2.

Table 3: Tourism resources in Alishan

Particularity	Fixed local festival celebration	Visit resources			
Alishan forest railway, and the ne festival, etc.	The Zou's life beans season, sand rice cultural festival, etc.	The sun rises, a sea of clouds, mini train, natural ecology (sakura, firefly, frog ,etc.)			

Table 4: Local industries in Alishan

Specialty				Production and marketing							
Wasabi	japonica	Matsum,	tea,	Jelly	Fig	Alishan	tea,	Wasabi	japonica	Matsum	product,
(Awkeotsang), bamboo shoot, phalaenopsis, etc.			orchid, c	offee	, etc.						

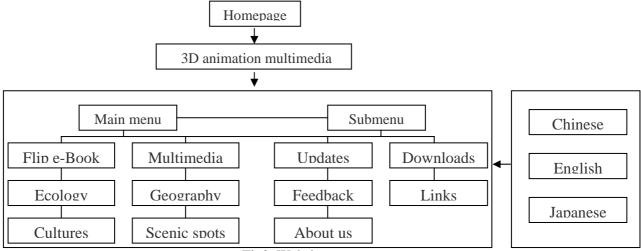


Fig2. Website structure

#### 5.2 Tools

In this research, Microsoft Windows XP was used as the basic operating system, and Macromedia Studio MX 2004 edition. Other software are used including: Macromedia Dreamweaver MX, Macromedia Fireworks MX, Macromedia Flash MX, and Autodesk 3Ds Max. The hardware used including: CPU: Intel(R) Celeron(R) CPU 2.40GHz, host computer board: GIGABYTE 8S648 FX-RZ (-

C) ,Storing device: 512MB, network card: SiS 900 PCI Fast Ethemet Adapter, hard disk: Hitachi HDS728080PLA380 (82 GB), and Display card: MIS NX6200 AX (CNVIDIA GeForce 6200 AX).

By using media software, animation clips can be connected together and further inserted special media effects, including subtitles, scene conversion, background music, audio effects, and visual effects. Fig.3 is the producing flow.

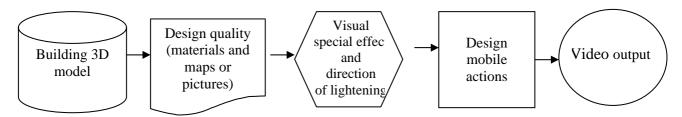


Fig. 3D producing flow

#### 6 Result

The multimedia website was constructed in Chinese version, and titled "Multimedia Network" (Figure 4). Dreamweaver was used to create 2D/3D multimedia effects to present the dynamics of Alishan forest railway with 3D technology. The multimedia information provided on the website are as below:

- (1).Naturally (Natural/ しぜん/自然) Environment: Because the elevation of Alishan is high, it contains tropic, subtropic, and temperate zone, which formed a vertical environment, and nurtured abundant species, making Alishan a perfect place for eco-tourism
- (2).Plant (Alpines/ しょくぶつ/植物) Ecology aspect: tropical forests grow at elevation below 800 meters, and include banyan, areca, longan, Taiwan acacia, and bamboos. The forests of the subtropics zone, between 800-1800 meters, include Taiwan incense cedar, redwood, and cryptomeria. The five most precious woods in Alishan are Taiwan juniper, Taiwan cypress, hemlock, Taiwan fir, and Taiwan pine, which can be found at elevation of 1800-3000 meters. They have very high economic value. The most popular season to visit Alishan is during the cherry blossom season, when a festival is also held. The species of cherry blossoms include prunus serrulata var, chitori cherry-tree(sakura), Yoshino cherry-tree, Osima cherry-tree, and Doubleflowered cherry-tree.
- (3).Animal (Animal/ どうぶつ/動物) Ecological resources: The abundant forests in Alishan have provided habitats for animal and insect. The indigenous species are valuable for researches. The mammal species include: Formosan black

- bear, Formosan macaque, gem-faced civet, red belly squirrel, etc. The bird species include: Syrmaticus mikado, Lophura swinhoii and Regulus goodfellowi, etc. The reptile species include: Ovophis monticola makazayazaya, Trimeresurus stejnegeri and oyster climb wooden lizard, etc. The Amphibia species include Hynobius formosanus, Rana sauteri Boulenger and oyster's frog. The fish species include Taiwan climb fish, etc, loach of rock and mouth of horse. The butterfly species include: Small and some red powder butterflies, phoenix's butterflies, etc. There are over 194 species of butterflies in Alishan.
- (4).Economy (Economy/ けいざい/經濟) Crops: Due to the cloud and mist, as well as high mountain terrain. Alishan is known production of quality tea, such as oolong tea/せい しんウーロン Tea), Julu tea, and Jinxuan tea. It is commonly known as Alishan tea. Alishan is place for production also the Wasabi japonica Matsum (わさび) because of the low temperature and high mountain terrain. It is a type of plant with high economic value, and for can be used medical purposes. Wasabi japonica Matsum has spicy, sweet, sticky, and anti-bacterial characteristics so it is widely used as a side of seafood.
- (5). Aboriginal (Indigene/ げんじゅうみん):
  Aboriginal culture (Fig.4) is the most invaluable asset of Alishan, it includes Tsou tribal culture, traditional ballad, ritual ceremonies, traditional costumes, and mythical legend. These make Alishan a more attractive tourism place. Traditional costume, dance and culture (Fig. 5).



Fig4. Tsou (the north of Tsou) Distributing area



Fig5. Zou's Indigene Dance

The tour guide website cooperates with the promotion of ecological sightseeing, and develops themes of tourist activities and forest trials which will increase the attractiveness of Alishan. The ecological tours, such as bird watch, firefly watch, frog watch, and butterfly watch would be the materials for education. Furthermore, it provides those ecology-lovers to have a close look of the ecology of Alishan.

This website showed every major station of the Alishan forest railway with 3D virtual tour, as compared to other websites that display only photo. Alishan Mountain forest railroad (Fig.6). The rail lines are introduced in Chinese, Japanese, and English (Fig. 7). Browsers can view the railway from all angles and even for sunrise and sunset view (Fig. 8), the first rays of the morning sun (Fig. 9) and the railway stations (Fig. 10). The interactive ebook provides educational tour on ecology, including birds species (Fig. 11), fish species, crops, economy crops (wasabi) (Fig. 12), and aboriginal culture. Users of all age can access the information on the natural ecology of Alishan easily. At the same time, the website is available in Chinese, English, and Japanese, so that visitors from around the world can use the website.



Fig6. Alishan Mountain forest railroad



Fig7. The rail lines introductions are available in Chinese, English, and Japanese.



Fig8. The globe revolves to present the view of dawn



Fig9. 3D view of the first ray of the morning sun



Fig10. 3D view of the stations



Fig11. The Ecological e-book can be flipped



Fig12. The e-book of economy crops (wasabi)

This 2D/3D interactive website on tourism of Alishan can attract more worldwide tourists. The e-book is available in 3 languages, and provides information on the history, culture, and ecology of Alishan. It is convenient to digital life, and provides educational values, promotes local industries, and flourishs the development of the society.

## 7 Future Studies and Applications

Human beings usually neglect the balance of ecology and importance of heritage, so natural life is seriously sacrificed and cultural resources are deteriorated. Two of the best ways to reduce these phenomenon is to encourage people understand the environment and to allow them to personally contact with these natural and cultural resources [21]. Thus we have urged to create digital media through Internet, the most powerful global communication tool. The future studies will provide 3D aerial introductions of ecology and cultures alone the Alishan railway. The user can indicate any specific area on the aerial view guide and obtain comprehensive ecological and cultural information of the area. In the future we expect to combine internet, guide system, e-book, e-commerce, and mobile business platform to produce the unique benefits.

#### 8 Annotations

Annotations 1: This research searched Yahoo and Google to obtain 20 relevant websites based on the keyword of "Alishan". The results are shown in the Reference.

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