

*The Investigation Research of the Group of Active Aging with Experiencing the High-Tech Eco- Travel Interactive Situation*

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**Abstract**

With the rapid aging of the world population trends and technology, Eco-tourism has become one of the elderly's relaxing and travel patterns. This research first begins with scenario approach "i-Travel" Ecotourism interactive scenarios, and continues with the original design method to conduct the interactive model and simulation. We invited the active aging group for experience, and at last we interviewed to survey the evaluation by backtracking.

From the research result, we found that most of the active aging group think it should increase the amount of knowledge, and during the progress, the auditory sense is the most popular one for them. At the last, the modifications this research suggest to the interactive scenario are: (1) Service consultation assist: providing on site servers and interactive experience workstations. (2) Experience process management: within the process we must pay attention to the Active Aging Groups' physical burden and reduce the tightness of experience time. (3) Theme annotation amount: we would ass some more information about animals, plants and historic stories. (4) Scenario content design: strengthen the aural guide and reduce reading burden.

For the active aging group, the tourism industry would hope to supply what they require in the interactive scenarios Eco-travel to meet their expectations, and in order to improve service quality and travel experience.

Keywords: Active aging group, Eco-travel, Scenario approach, Interactive scenarios, Experience Evaluation

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## Introduction

### 1.1 Background and motivation

According to the National Development Council's prediction, to the 2025 year, the aged 65 will reach 20.9% of total population, Taiwan officially entered the "super-aged society." The "population policy white paper" mentioned that after the elderly's retirement, Leisure activities will become an important part of life. By participating in tourism activities, it brings relaxation and positive influence to the seniors. Within the content of the natural ecology, the culture and contacts learnings are popular to the seniors.

### 1.2 Needs after the elderly retired

Elderly people involving in tourism activities brings them physical and mental relaxation, makes them feel happy and healthy (鍾政偉等人, 2011). In the content of the natural ecology, Culture and contact learning are welcomed by the seniors (余嬪、蕭佳琳, 2012). Participating leisure activities that brings influences to the elderly are mostly health, friendship, joy, enjoying life, and peacefulness (陳燕禎、賴澤涵, 2009). The elderly seniors emotions are affected by the process of mental and physical aging, and the change of cognitive personality. These form the unique psychological characteristics (邱莉婷、邱榆婕, 2012). One of the scholars pointed the following four points:

( 1 ) Strong self-esteem, low confidence in learning

( 2 ) the change of attention and memory

( 3 ) the burdens of the attention to social roles

( 4 ) emphasizing the experience of life integration

### 1.3 Situational perceptive technology

With the progress of the times, travel patterns has changed from the traditional leisure tourism into a deep experience and learning one. A lot of experience travel start emphasizing the 3T to assist travel, which are travel, tourism, and technology (Antonio, 2011). Properly Applying the situational perceptive technology can increase experience and learning effects of eco-travel. And a scholar indicates that the active aging should reduce static activities, instead of interacting with others (蔡正育等人, 2012). And we design the service by the point of view of the seniors, not only to reach the purpose of forgetting age by happy learning, but also gain knowledge and joy from the process, and it fits the concept of service design as well. This study investigated the current situation awareness technology (AR, QR code, iBeacon, NFC,

GPS ... etc) application cases, to provide a reference design of the future of interactive scenarios.

The cases of using the situational perceptive technology:

Case Name	Remarks	Experience	Application and Function
<p>隨手掃立刻學，離線QR code行動導覽</p> 	<p>Invented by Hamaxing Tech corp.. Besides the traditional QR CODE scan, it can be used even offline.</p>	<p>Scan the plant' s QR CODE in the campus and gain the related knowledge immediately.</p>	<p><b>QR code</b></p> <ol style="list-style-type: none"> <li>1、Related Information Links</li> <li>2、This case can also be used offline</li> </ol>
<p>【宇萌數位】2013 臺北典藏植物園新一代未來館AR擴增實境導覽APP「植栽達人AR導覽」</p> 	<p>Active and passive mode make users feel losing part of controls, but users can get a smoother way of using it by the lost.</p>	<p>Scan to get specific information by cameras or 3D animation on the screen to interact with the reality directly.</p>	<p><b>AR ( Augmented Reality )</b></p> <ol style="list-style-type: none"> <li>1、Provide knowledge and experience</li> <li>2、Record the process</li> <li>3、Share senses of achievement</li> </ol>
<p>Estimote Bluetooth Smart Beacon - iBeacon-compatible</p> 	<p>Through environment with micro-positioning systems, retailers can take the initiative to push the goods to introduced to the users' mobile phones.</p>	<p>Simply switching on the Bluetooth, and reaching a certain distance (5cm ~ 20m), it will be able to take the initiative to obtain information.</p>	<p><b>iBeacon (Micro-positioning)</b></p> <ol style="list-style-type: none"> <li>1、Initiative to provide information</li> <li>2、Miniature Positioning</li> </ol>
<p>韓國NFC趨勢</p> 	<p>Describing the NFC in mobile payment, mode changes, and situational videos on phone.</p>	<p>Simply switching on the NFC-enabled the mobile payment with phones closing to each, or to obtain information, and adjust your phone model.</p>	<p><b>NFC ( Near Field Communication )</b></p> <ol style="list-style-type: none"> <li>1、Close transmission</li> <li>2、Mobile payment</li> <li>3、Switch Mode</li> <li>4、Obtain Information</li> </ol>
<p>日月潭1分鐘版行動導覽app</p> 	<p>Your phone GPS positioning, combined with AR technology, shop around to understand information.</p>	<p>Turn on the GPS function, providing information through the location, but also to learn from the other locations</p>	<p><b>GPS (Global Positioning System)</b></p> <ol style="list-style-type: none"> <li>1、Get phone location</li> <li>2、Destination Distance</li> <li>3、Supplying information to a specific location</li> </ol>

## 1.4 Scenario approach

A scenario approach in accordance with the order of time series method to design personnel feature events such as fragments (唐玄輝、林穎謙, 2011; Campbell, 1992). Describing life, how to assist future users of the product design methods to help designers visualize product usage scenarios (黃麗芬, 2001; Moggridge, 1993; Kelley, 2001; Myerson, 2000; McIlroy, 2003). Guides the users step by step through the story into the situation, according to the boot experience, which allows the user to meet individual needs (李怡蓉, 2015).

Verplank et al. (1993) proposed scenario approach is divided into four stages of the design process:

- 1、**The observation** : observe the status of the user to use the product, allows designers to collect data in order to improve his information.
- 2、**The role of design** : the design into human behavior and other requirements and design content.
- 3、**Situational story** : the story of the development of simulation scenarios interactive details.
- 4、**To create** : the development of structural and guide the users to operate

Brown (2009) believe that the scenario approach has the following three advantages:

- 1、"Empathy" put ourselves in, empathy, the development of user-centered design.
- 2、Found that users do not do and do not say, toward a different way of living, thinking and consumer behavior thinking.
- 3、Early detection of possible service gaps and reduce development costs.

## 1.5 Purpose

Finally, the study's purposes of column as follows:

- 1、Propose the ecotourism interactive situation prototype that fits the active aging group.
- 2、The amendment of the ecotourism interactive situation prototype and propose amendments.

## Research Methods

The first stage: interactive design and build prototype Situation. Use scenario approach to develop eco-travel interactive situation. It contains questionnaire design, typical tasks design, and simulation scenarios interactive videos. The second stage: context-aware interactive measurement and evaluation. Through viewing participant observation the seniors interacting experience situations we immediately took retrospective interviews, This is the flow chart of the this study:

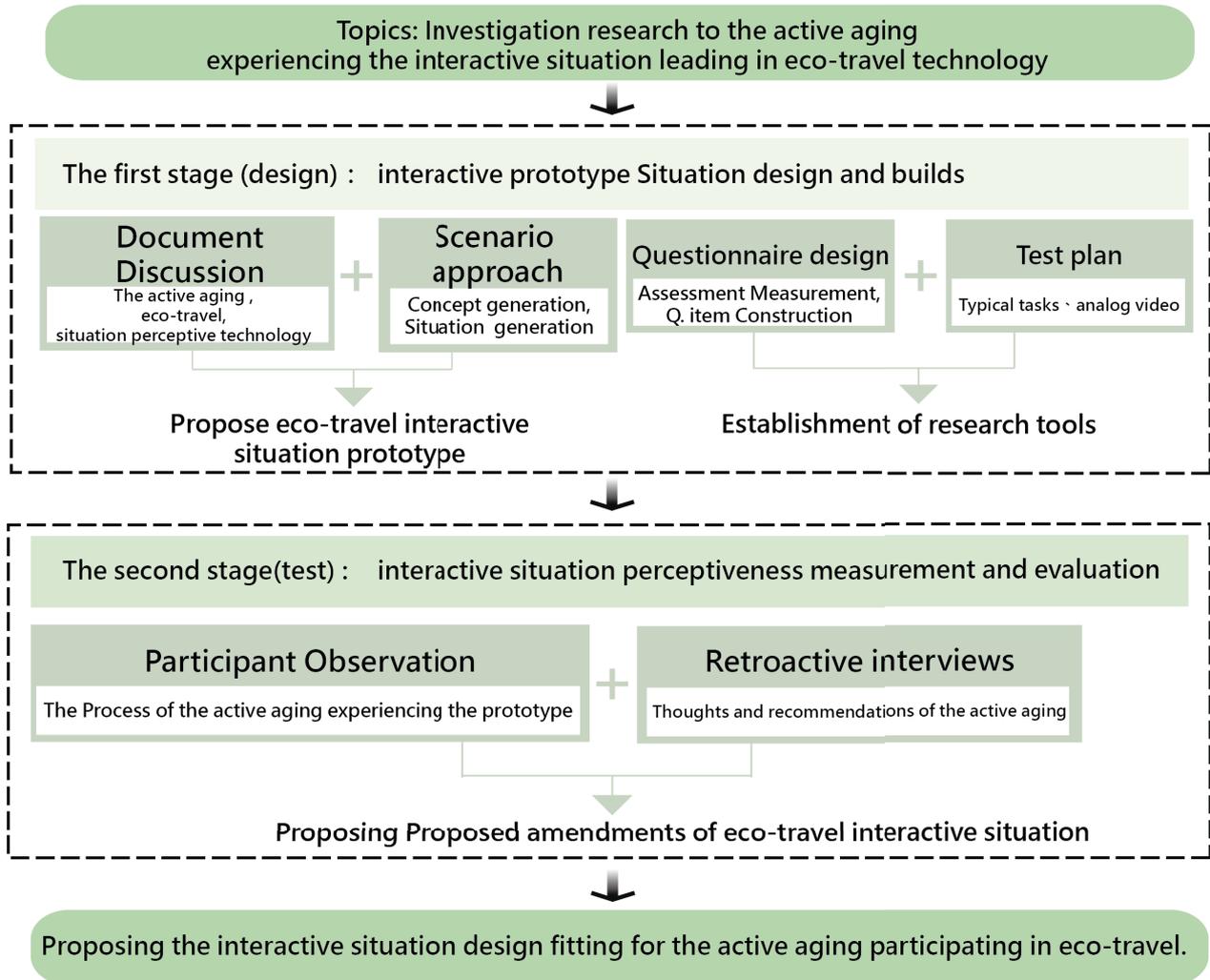


Figure 1: Research methods

## 2.1 The first stage: interactive scenario prototype design and builds

### 2.1.1 Interactive scenarios prototype design

#### 1. Interactive scenario concept generation

Rabiger (2006) proposed definitions for generating storyline facets table. To coordinate the subject-oriented research, adjusted table is as below:

Surface	Definition
Characters	The active aging in participation
Location	Locations of Service Encounters
Object	Objects of Service Encounters
Act	characters behavior
Theme	Scenario content

#### 2. Interactive scenario experience content

According to the concept generation proposed on the previous stage, in this case we describe the situation as a form of physical description, developing into a complete environment by the concept, that is, to describe it by telling story. We describe the elements of people, events, time, places, and objects in the interactive scenario, and we also have the scenario of cause and effect and demands shown by images, and we materialize the concept content.

### 2.1.2 Establishment of research tools

#### 1. Questionnaire design

In the three facets situational content, casual attitude and value system based on literature review of the design of the Likert seven-foot scale with semi-open questionnaire.

#### 2. Test plan

##### 1) Typical tasks

A typical design tasks based on the content of interactive scenarios, so that the subject's step by step to complete the task at the same time the successful completion of the entire experience process.

##### 2) Analog video

When the content of interactive scenarios to develop, will work through the actual shooting script into points, the main purpose is to allow seniors tested before first family watch analog video to lead the user to experience the entire interactive prototype situations.

## 2.2 The second stage : measurement and evaluation

According to the plan of the previous stage, we investigate and research the active aging experiencing the ecological Field. Samples are those who are willing to gain knowledge at the time of leisure experience-based on purposive sampling. The research field of Sun Link Sea Forest Holiday Park - Chuanlin Trail(at down)



Figure 2: The map of Sun Link Sea Forest Holiday Park - Chuanlin Trail

Surveying follows:

1. According to the results of the previous stage, set up interactive scenarios and prototype ask entry Construction.
2. Through videos and simulation scenarios to inform the subject's assessment of the operational objectives and related instructions and precautions.
3. predict 15-20 of the active aging must complete entire prototype situations.
4. Invite them watching the analog video connecting to the actual experience of interactive scenarios and operation of typical tasks set in this study
5. After seniors completing experience, retrospective interviews.

Expected the date between February 14 to February 28 in 105<sup>th</sup>, place in Sun Link Sea Eco Holiday Park - Passing plank. Use tool contains, camcorders, interview question outline, pen and paper, interactive videos, and situational prototype simulation. Confirming the tested targets, providing the film with instructions for use, inviting seniors to experience interactive situation prototype. Researchers collect the materials, and last, interview them and aggregate the information.

Surveying flowchart as below are:

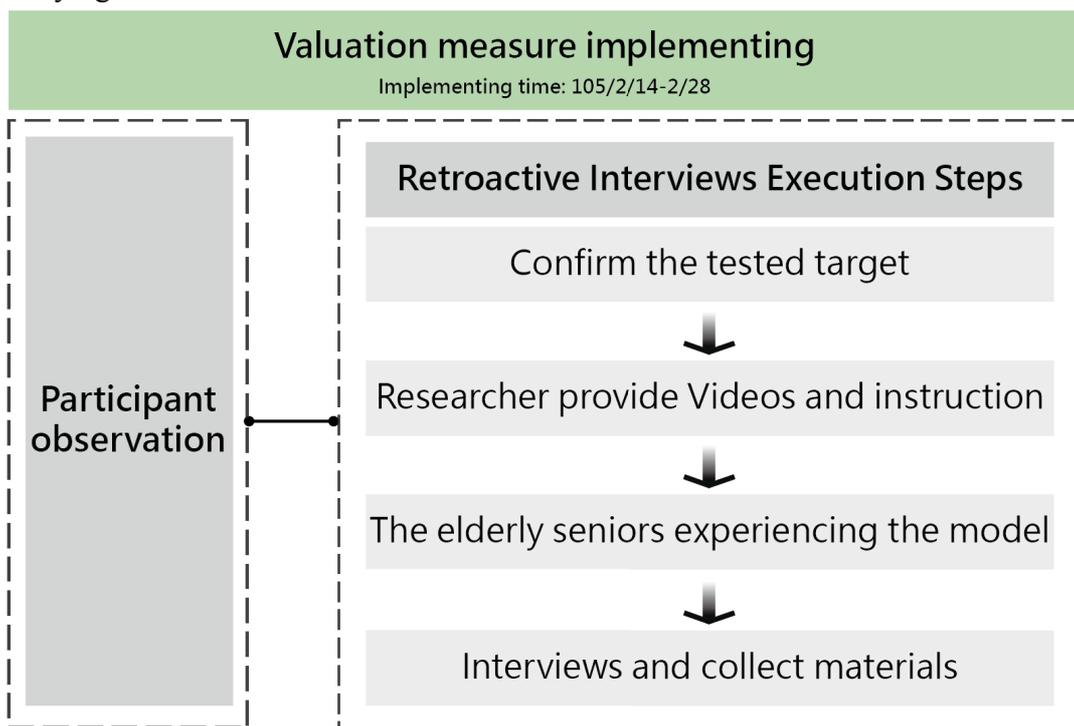


Figure 3: Experiment Process

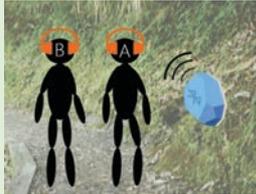
## Findings

### 3.1 、 Research projects and results

Findings of this study, contains

- 1 、 Interactive situations concept generation
- 2 、 Interactive situational experience content
- 3 、 Planning and testing - typical tasks, analog video

#### 3.1.1 、 Interactive situations concept generation

Concept A. [information] Introduce navigation APP, with the APP to guide the seniors to experience the Ecology A		
Characters	the active aging	
Location	Chuanlin Trail' s entrance	
Object	Billboard	
Act	Entering the Chuanlin Trail	
Theme	introduce the content of APP	
Concept B. [voice guide] to guide with voice, instead of reading.		
Characters	the active aging	
Location	everywhere in Chuanlin Trail	
Object	APP Phone APP	
Act	During experience	
Theme	design based on the object' s content	
Concept C. [increase joy] introduce the ecology with an avatar to increase joy and fun.		
Characters	Eco virtual tour guide - Shanshan	
Location	Passing around the cliff	
Object	App	
Act	in Vivid tone	
Theme	introduce content of Interactive scenarios	
Concept D. [situation] with iBeacon micro-positioning as a trigger media to take the initiative to provide information		
Characters	the active aging	
Location	everywhere in Chuanlin Trail	
Object	Phone app 、 iBeacon	
Act	Close Beacon setting position	
Theme	Providing knowledge based on the setting contents	
Concept E. [more knowledge] connect knowledge and life to enhance feelings		
Characters	Animated animals and plants	
Location	everywhere in Sun Link Sea	
Object	App 、 Explanatory signs	
Act	Follow experience 、 scanned image	
Theme	Providing knowledge based on the setting contents	
Concept F. [basic knowledge] when it' s lack of introduction, there are more enriched introductions.		
Characters	the active aging	
Location	everywhere in Chuanlin trail	
Object	Phone app	
Act	Check the mobile	
Theme	abundant introductions to animals and plants	

Concept G. [Sense experience] adding with five senses to deepen the experience.

Characters	Eco virtual tour member – Shanshan	
Location	Suiyi arbor, Xianrentai, Yaohuayuan	
Object	Phone APP、interpretative signs	
Act	in Experience	
Theme	Experience with senses	

Concept H. [Share and memory] complete the experience and get gifts to share the joy with friends

Character	the active aging	
place	everywhere in ChuanlinTrail	
object	Phone app, Beacon	
action	Close Beacon setting position	
theme	Providing knowledge based on the setting contents	

Taking these eight concepts proposed in line with the active aging eco-travel interactive situational concept - “愛旅遊 (i-Travel)” eco-experience situation. Just download download the APP”Chuanlin Trail i-Travel”and open it, they can experience the entire Chuanlin Trail with guides.

### 3.1.2 Interactive situations concept generation

The main points that connect all the entire interactive scenarios are "wisdom Eco Escape," "ecological wisdom interesting experience," "wisdom ecological knowledge cool." the respective introductions are blow:

1. “Ecological Wisdom Getaway”: through iBeacon initiatively to give, after iBeacon which triggers the phone APP, to provide relevant information.
2. "Experience": through iBeacon and AR trigger, primarily guide the seniors to experience sensory experience at Suiyi Arbor, will be asked to perform some one action
3. "Ecological Wisdom Knowledge": Passive use of AR scan provides little knowledge of history and movies.

If you want to know when more knowledge, your phone itself also provides a wealth of expertise available to read query.

### 3.1.3 Test Plan

#### 1) Typical tasks

The design of typical tasks and execution make testees and researchers understand the if the interactive scenario is complete. There are respectively ten steps:

**Step 1.** According to the digital explanatory signs, scan QR code to download interactive scenario system of "Chuanlin Trail -Travel" phone APP

**Step 2.** Walk into the entrance of Chuanlin Trail. Listen to and watch histories and knowledge provided by the APP

**Step 3.** The first resting area, cell phone voice reminds seniors should pay more attention to themselves, pay attention to their own safety, and inform the air temperature, humidity, and how much distance to reach the terminal.

**Step 4.** Into the first resting platform – Suiyi Arbor and choose "I want to experience" with voice guidance and sensory experience, such as: lichen plant tactile, peony floral Smell, Cryptomeria visual, auditory of other birds

**Step 5.** The second midway lounge, cell phone voice remind seniors should pay more attention to themselves, pay attention to their own safety, and inform the air temperature, humidity, and how much distance to reach the terminal.

**Step 6.** The second seating platform – Xianrentai. through the guide voice to experience the environment, such as: Xianrentai scenery, historical knowledge and so on.

**Step 7.** The third midway lounge, cell phone voice remind seniors should pay more attention to themselves, pay attention to their own safety, and inform the air temperature, humidity, and how much distance to reach the terminal

**Step 8.** Arrange three plants digital signs, provide AR commentary services with the cellphone camera

**Step 9.** At ninety-eight Hongqiao's end, it informs the seniors by voice, with the App you can exchange with the staff for the five-sense gift in the medicine herbs garden.

**Step 10.** with the APP, you can exchange with the staff for a five-sense gift and a special food.

## 2) Analog video

the purpose is to provide the seniors to watch it before real participation in order to make them join the scenario quickly.

### Video screenshot

Screenshot 1: Download APP



Screenshot 2: Ask the service personnel



Screenshot 3: Tactile experience



Screenshot 4: Olfactory Experience



Screenshot 5: Photograph



Screenshot 6: AR scan



Screenshot 7: Service inspection APP



Screenshot 8: Offers specialty food



## Conclusion and Suggestion

The study found:

- 1) Most seniors generally think there can be more species and various knowledge.
- 2) In the process of Experience, the auditory experience is most welcome by the seniors.

Research proposed amendments to the interactive scenarios:

- 1) **Assist to consulting services:** on-site service personnel and interactive experience workstations, provide the operating experience and instructions.
- 2) **Arrangement of experience process:** during the experience, have to pay attention to the seniors' physical burden, and properly reduce the tightness.
- 3) **Number of commentary topics:** increase the number of animals, plants, historical stories.
- 4) **Design of scenario content:** strengthening auditory guide, reduce the pressure reading.

We hope this research fits the needs of the active aging by leading in the interactive scenario eco-travel, not only with the high quality of service and travel experience, but also a broader development by providing related study reference for the future eco-travel and the applications to scenario perceptive technology.

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