Smart Ecomuseum App for Efficient Management of Local Resources¹

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Abstract

The study aims to develop a smart ecomuseum app for efficient application of local resources. An ecomuseum is a museum of time and space consisting of sites, landscapes, memories of elderly people, nature, traditions, heritage, and each local community within a limited territory, for these are organically connected. This principle is also applied to organic activities between each site in the territory. Developing an app that introduces the landscapes, stories, memories, nature, resources, heritage, and local community as designating certain sites in the territory, enables the realization of a smart ecomuseum, in which residents and visitors communicate.

Keywords: sites, local cultural resources, smart ecomuseum app, mutual communication, recommended route

1. Introduction

Ecomuseum is a compound word of ecology and museum. This includes humans, and a certain heritage territory encompassing culture and heritage, including nature, ecology and industry. It is designated as the range of museum, in which the whole territory is organically constituted, and the residents voluntarily participate in its operation. This museum concept was introduced by Georges Henri Rivière in 1973, as applied to fit the local situation of France, and combined local residents' lives and folklore, so that humans, nature, and local heritage were combined there. In other words, the museum came outside the building, and went into the life of local residents. The three elements to establish an ecomuseum are: the museum activity, residents' participation, and preservation of heritage. However, it is hard to define the establishment and operation of such an ecomuseum. Nevertheless, the biggest feature of an ecomuseum is to connect meaningful places in the territory, and network the local resources.

An ecomuseum means to connect landscape, sites, territories, memories, nature, traditions, heritage, and local community organically with each other, within a limited territory. This principle is also applied to the organic activity of each site in the territory through connections. Namely, the structure of connecting a core museum, satellite museums, or other

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meaningful sites itself becomes the elements that establish an ecomuseum. An ecomuseum is realized through resources dispersed in the territory. Namely, an ecomuseum is organized in the process of realizing a network, to contribute development and conservation of the local society in the local community, based on the thought that the heritage in a certain community should be preserved in the place.

2. Ecomuseum based on Sites

An ecomuseum has a software characteristic of networking sites in the territory.



Figure 1. Structural chart of an ecomuseum

As in Figure 1, which shows the structural chart of an ecomuseum, Choi Jae-hee suggested that a core museum is equipped with three elements of heritage, participation, and museum, and the deficiency of an element among the three is a satellite museum [1]. She interpreted this to mean that these form a network that connects the axis of time and space, and shows the local lives. Moreover, she saw that the roads connecting each site linked to the core and satellite are the discovery trails.

3. Elemental Analysis of Sites

Each satellite museum, including the core museum, possesses local cultural resources in diverse forms. An eco-museum is a form in which the local landscape, each site, territory, memories, nature, tradition, heritage, and local community are linked.

Peter Davis stressed networking on each satellite museum for the operational strategy of an ecomuseum, and Jane Brown expressed Peter Davis' idea as 'the necklace model' where jewels are connected [2]. This connection of jewels can be realized in a mobile app.

I would like to plan an app by analyzing the site, namely the satellite museum, and make a database of it, so it can show each site. The elements that comprise a site are the landscapes, memories, nature, architecture, heritage, traditions, etc., so we can create a database by adding the site's location information or docent information. Figure 2 shows how it works.



Figure 2. Making a database for a site

The organized database is classified by each site, and can be provided to local residents and visitors. Anyone who visits the territory may get information of the area, if this is realized into a mobile app.



Figure 3. Structure chart of local cultural resources app

Figure 3 is a structure chart of a smart ecomuseum that is realized with an app, by creating a database of the site's information in the territory.

4. Case Study

An experiential village called Buremi Village in Icheon Yulmyeon, Gyeonggi-do, Korea, has the elements of an ecomuseum. Eun Sok Bae researched creating an ecomuseum around Buremi Village up to Yulmyeon, where this village belongs to the territory [3]. The researcher categorized the proximity and the area as an experiential farmland village, rice planting experience village, rice mill, farming tool exhibition hall, ecology park, fish land, Udang pottery center, NamHaein Natural Dye, and a multi-purpose experience place. The Immanuel vineyard in Bonjukri was designated as an experiential farm. As the nature and living theme territory, Yulmyeon areas in Gondangri were designated where the Cheongmi stream is nearby, Yulmyeon Residents' Learning Center is incorporated, and the idyllic countryside Yulmyeon area is displayed along with national road no. 333, a hardware store, drugstore, and a butcher shop, to add to the atmosphere. As such, this area is a good landscape to show the look of a territory to visitors, by preserving it intact. The Sanseongri area was designated a historical and cultural area. The birth place of General Eo Jae-yeon and Chungjangsa, can show the historical figures and history of the Yulmyeon area. The Mai Hill

fort in Sanyangri is a very important place that shows the history of Yulmyeon from the period of the Three States to the Joseon era. Furthermore, Mt. Mai and Mt. Palseong meet here, so that it might be possible to open up the Yulmyeon mountain exploration road along the mountain trail. Farmhouse experience themes include the Gounkkot Botanical Garden in Sanyangri, and Samgol mushroom farm in Chong-gok-ri. Such sites in the district can be organized as shown in the following table:

Category	Name	Experiential elements	Other elements
Cooking Class	Green school	Cooking Classes	History of Buremi Village improved by the residents
Farming Experi- ence	Rice planting experience place	Rice farming experi- ence	History of farming
Farming Experi- ence	Diverse farming experience place	Experience farming diverse crops	Providing infor- mation about the special local products
Exhibition	Village mill	Pounding grain	The function of the village mill and changes of modern pounding technology
Exhibition	Farming equip- ment exhibition	Exhibition of farming culture and equipment	Seasons of farming and customs
Nature	Ecology park	Ecology observation and learning in the swamp	Understanding the local natural envi- ronment
Landscape	Fish land	Appreciating the land- scape in Seoksan Reservoir	Understanding the reservoir ecology
Arts & Crafts	Udang pottery center	Experience pottery making	Understanding spe- cial local dye and crafts
Arts & Crafts	NamHaein Natu- ral Dye	Experience natural dyeing	Understanding the special local dye and crafts
Cooking Class, Accommodation	Multi-purpose experience place	Accommodation, cafeteria, auditorium, cooking experience place	Introduction to expe- riential programs for teens
Farming Experi- ence	Immanuel vine- yard	Experience growing and harvesting grapes, and wine making	History of grape cultivation
Landscape	Cheongmi stream	Discover Yulmyeon starting from Cheongmi stream	History of Cheongmi stream and the area
Community Center	Yulmyeon Resi- dents' Learning Center	Library, education room, residents' learn- ing place	Information on the residents' programs and activities

Table 1. Sites in Yulmyeon Buraemi Ecomuseum

Landscape	Street in front of Yulmyeon Of- fice	Landscape of familiar Yulmyeon area	Information on the local commerce
Heritage	Birth house of General Eo Jae- yeon	Birth house of Chung- jang-gong Eo Jae- yeon	Information on Gen- eral Eo Jae-yeon
Heritage	Chungjangsa	Shrine of Chungjang- gong Eo Jae-yeon	Meaning of com- memoration service for Eo Jae-yeon
Heritage	Mai Hill fort	The hill fort with history since the Three Kingdom peri- od	History of Mai Hill fort and the area
Wild Flower Growing	Gounkkot Bo- tanical Garden	Planting wild flowers, straw crafts	Information on wild- flowers in Icheon and straw crafts
Specialties	Saemgol Farm	Watching the process of growing mush- rooms	Effects and cooking recipe of the mush- room

The dotted sites on Google map are indicated in Figure 4.



Figure 4. Sites in Icheon Yulmyeon Buremi Ecomuseum

The discovery roads that connect the sites are indicated in Figure 5.



Figure 5. Sites and discovery roads in Icheon Yulmyeon Buraemi Ecomuseum

Visitors who visit each site along the discovery roads may contact diverse cultural resources in the territory. The sites are networked through the discovery roads, and fulfill the structure of an ecomuseum. The connection ways, sites, and elements of each site, including the landscapes, memories, nature, architecture, heritage, and traditions, may form the database. Moreover, location information or docent information can be added in the database. A plan to organically connect the resources in the district and to enable the communication between residents and visitors can be devised through the development of an app that applies the principles of ecomuseum to this district.

This app can be made by applying the principle of 'Smart Museum Based on Regional Unified App.' Three modules increase the efficiency of the app: the search, communication, and production modules. Users of the app can find a site in the area in which they are interested to visit, using the search module. They can get news or new programs of the ecomuseum using the communication module, and provide feedback. The app supplier can register content and update new information, using the production module [4].



Figure 6. Module structure of Buremi Ecomuseum App

If the location basis service is added to this app, visitors can find the nearest experience site, and can also find diverse content of the area, such as the native restaurant, farmhouse with special goods, or the native crafts shop. Furthermore, the visitors can upload their review on the food, special goods or crafts they bought. Such reviews may make a real-time communication path with the residents.



Figure 7. 'By map' menu's recommended route function

Furthermore, a 'recommended route' function, which helps travelers make their journey easier, can be added in the searching module's 'by map' menu. Travelers can choose any route they like from several recommended routes in this function. For every route, they additionally provide many types of information, such as coffee shops, restaurants, hotels, souvenir shops, and beautiful scenery. These places have stories, and resident curators, they can find on the way to their next destination. After all, the 'recommended route' will match travelers taste to the specific type of area that they choose.

When the person visiting Buraemi Village selects one of the recommended routes, the nearest experiential learning site, craftwork shops, indigenous product shops, exhibition halls, natural scenery, buildings, cultural heritage, cafes, restaurants, accommodations, and resident learning centers are provided as shown in the figure below:



Figure 8. Recommended route menu

When an experiential site is selected from the above recommended route menu, the following experience program menu is provided. Being connected with the menu, experience programs such as rice farming, grape farming, corn farming, peach farming, apple farming, pottery, natural dyeing, straw craft, wine making, cooking class, and Samulnori are provided.

Additional information such as the time required, address, reservation status, and entry fee to the cooking experience, craftwork experience, and farming experience can be checked. Moreover, it provides information about the indigenous products sold in the experiential faming houses. This can be indispensible information for the visitors in experiencing and understanding the farming sites. These can be implemented again by the experience program as follows:



Figure 9. Experience program menu

This experience program menu shows the experience programs available by time slot. It can also present recommended experience programs for each season. Visitors can make reservations from this menu, get answers to their questions, and be guided to the nearest experiential space.

5. Conclusion

If an ecomuseum app that connects each site in the territory is established, it can function as a smart ecomuseum. The residents and visitors can communicate with each other in realtime through this app. The search module of the app allows visitors to approach local cultural resources in diverse methods. There are three search functions, map, site, and category. The communication module allows visitors to obtain information on the local cultural resources in advance, so they can actively communicate with the territory. They may check local news and announcements before visiting, listen to descriptions on the site during the visit, and leave a review or suggestion after the visit. The production module allows local residents to make local content easily, and upload new information quickly, so it increases utilization of the app.

Developing the ecomuseum apps as such, and communicating with visitors using the resources as a mediator, can promote the sites in the territory. Such an active promotion will

revitalize tourism of the area, and will increase income of the territory, while visitors will feel more satisfied from being there. Development of smart econuseum apps will eventually contribute to the efficient management of local resources.

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