The Small Program of "Qinling Ecological Cloud Corridor" Based on the Sample of Niubeiliang Beigou Base

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Abstract. Under the entrustment of the general secretary "remember the greatness of the country and be a good guard of Qinling Mountains", the teachers and students' team of the school of information will carry out practical research on the digital development and application of Qinling ecological environmental protection based on their professional knowledge and personal strengths, and conduct a new exploration of Niubeiliang Nature Reserve in the field of public display and participation. Taking Niubeiliang north ditch as the development sample, we tried to conduct interesting, systematic and controllable data processing, launch a small program called "Qinling ecological cloud corridor" and put it online. This small program is based on team members' field shooting and digital reconstruction to a certain extent in Niubeiliang nature reserve of Qinling Mountains. It allows people to be immersive and increase their knowledge of Qinling Mountains' ecological and environmental protection. At the same time, in the later stage, the donation function of the public welfare platform will be embedded to help the corresponding environmental protection projects, so that users' online participation can also become offline public welfare. After this offline survey, team members summarized the questionnaire and fully analyzed the survey data. They use the survey data for demand analysis, and further develop and improve the functions of the applet.

Keywords: Niubeiliang nature reserve · Qinling ecological cloud corridor · Ecological environment protection · Digital development and Application

1 Introduction

At present, China has entered the stage of high-quality development, and the supporting role of the ecological environment is becoming more and more obvious. The development model aiming at ecology, low-carbon, circular economy and green economy is becoming the direction of economic and social development in the future. [1] Green waters and green mountains are golden mountains and silver mountains - this is the wisdom of China's governance in the new era. The integrity of the Qinling ecosystem is the fundamental to the integrity of China's ecosystem, and "Qinling green" is the root of "China Green". The implementation of the "national green heart strategy" and the

protection and restoration of the Qinling ecosystem are the millennium plan for the sustainable development of the Chinese nation. [2] From September 5 to 7, 2021, the national development and Reform Commission conducted field research on the key proposals of Qinling ecological protection and high-quality development of Qinling economic circle. [3]In recent years, Shaanxi has innovated protection means, relying on Ecological big data, prepared to build the "digital Qinling Mountains", made full use of the Internet of things, big data, cloud computing and other advanced technical means, and established a "smart brain" with the integration of heaven, earth, air and human networks, upper and lower coordination, and cross departmental information sharing, which is responsible for three-dimensional monitoring of the ecological environment, command and analysis of fire and flood control emergency management, pest control Biodiversity protection and daily patrol management have played an important role [4]. The whole province of Shaanxi Province has thoroughly implemented the general secretary's thought of ecological civilization, conscientiously implemented the important speech of the general secretary's visit to Shaanxi and the important instructions and instructions on the ecological protection of the Qinling Mountains, profoundly learned the lessons from the illegal construction incident in the Qinling Mountains, solidly promoted the protection and restoration of the ecological environment, and became the ecological guard of the Qinling Mountains [1].

This design is part of the content of the "Qinling ecological cloud corridor" applet based on the sample of Niubeiliang Beigou protection station. The main functions are: managing user information, displaying the status of Qinling ecological environment, displaying Qinling ecological protection, etc.

2 Background Analysis

For the Qinling Mountains, protection and utilization are equally important, but we must adhere to the principle of giving priority to protection and utilization, and always put the protection of Qinling Mountains' ecology in the first place. On the basis of effective protection, it should be used scientifically and rationally.

In recent years, Shaanxi has innovated protection means, relying on Ecological big data, prepared to build the "digital Qinling Mountains", [4] made full use of the Internet of things, big data, cloud computing and other advanced technical means, and established a "smart brain" with the integration of heaven, earth, air and human networks, upper and lower coordination, and cross departmental information sharing, which is responsible for three-dimensional monitoring of the ecological environment, command and analysis of fire and flood control emergency management, pest control Biodiversity conservation and daily patrol management have played an important role.

The protection of Qinling Mountains' ecological environment can not be separated from the common participation and support of the whole people. To improve the quality of citizens' participation in environmental protection, it is necessary to enhance citizens' awareness and improve their awareness of the ecological environment. Environmental protection publicity is very important. The "Qin ling ecological cloud corridor" applet not only publicizes the ecological and environmental protection of Qin ling Mountains, but also enables more people to understand the natural beauty of Qin ling Mountains,

so as to enable more people to participate in the environmental protection of Qin ling Mountains.

In today's network era, smart phones are basically popular. Information can be widely spread 24 h a day through the Internet. Anyone can read as long as they have access to the Internet [5], and online publicity can perfectly combine text, sound and pictures [6]. Compared with the traditional way of environmental protection publicity and participation, wechat applet is very fast and convenient.[7] Wechat applet is a flexible application organization form in wechat. The concept of "open and use" and "run after use" of the applet makes it unnecessary for users to download app separately for a low-frequency application. Embedded in wechat makes the applet highly accessible, which is conducive to reducing users' resistance and attracting more users to be willing to start using the applet.

3   Survey Results and Analysis

We have come to Niubeiliang Beigou Ecological Reserve for on-the-spot ecological research and visit. In Niubeiliang Nature Reserve, staff led us to watch and learn the propaganda film of Niubeiliang, we have a more intuitive understanding of the rare and endangered protected species in the reserve. After that, we have reviewed the valuable information about the biodiversity research in Niuzhiling Reserve and introduced the field video monitoring system of Beigou Forest Experience Base to us.

In Yingpan Town, Zhashui County, we took the local people as the research object, questionnaire survey and semi-structured interview as the research method, and "questionnaire before interview" as the research strategy. Within 8 days, we carried out a large-scale questionnaire survey, and took the opportunity to disseminate Qinling ecological and environmental protection knowledge to the local people (Figs. 1 and 2).

In this survey, we distributed 300 questionnaires and recovered 220 valid questionnaires. Through preliminary sorting, we have a general understanding of the local people's cognition and protection of "Qinling ecological environmental protection", and sort out the key data results in the questionnaire, and then select some representative respondents for in-depth interviews to obtain the specific situation of local ecological environmental protection.

Fig. 1. Sending out questionnaires to local people part 1 (credit: original)

Fig. 2. Sending out questionnaires to local people part 2 (credit: original)

Our questionnaire is divided into two parts: online and offline. There are 56 online questionnaires and 164 offline questionnaires. We summarize the online and offline questionnaires, and the results are as follows (Table 1):

1. In your impression, what changes have taken place in the environment of Niubeiliang in recent years? [single choice].

It can be seen that with the development of economy, the environment of Niubeiliang Nature Reserve has improved, but it still needs to be maintained, and people's awareness of environmental protection should be enhanced to improve the efficiency of environmental protection (Table 2).
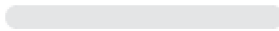
2. What do you think the ecological changes in Qinling Mountains have to do with your life? [single choice].

It can be seen that people's awareness of environmental protection has improved, but there are still a small number of people who believe that environmental protection has nothing to do with their lives and need to continue to maintain publicity to make people aware of the importance and necessity of ecological environmental protection in Qinling Mountains (Table 3).

3. Do you usually participate in the ecological protection of Qinling mountains? [single choice].

It can be seen that a small number of residents really participate in the ecological protection of Qinling Mountains, and the awareness of local residents' ecological protection needs to be improved (Table 4).

Table 1. Question 1

option	proportion
It's getting better	80%
No change, just like in childhood	20%
The environment has become worse	0%

Table 2. Question 2

option	proportion	
We must protect the ecology of Qinling Mountains		55.36%
It has something to do with the professional stuff		16.07%
It doesn't matter much, but the ecology of Qinling Mountains should be protected		25%
It's a little bit of a relationship. There is no need for human protection		0%
It doesn't matter. Protecting Qinling's environment is a waste of money		3.57%

Table 3. Question 3

option	proportion	
With a large degree of participation		14.29%
Occasionally participate		21.43%
Not involved, but involved in other ecological and environmental protection projects		33.93%
No participation at all		30.36%

4. How do you usually learn about Qinling Mountains' ecological protection and environmental information? [multiple choice].

Therefore, from the perspective of communication mode, we should use Internet tools to access the social communication function, and realize the publicity of Qinling ecological protection through relevant apps or applets.

According to the questionnaire analysis, we can draw the following conclusions:

We can learn that due to the promotion of ecological environment protection publicity in recent years, people's environmental awareness has been improved, and the environment of Niubeiliang Nature Reserve has become better. More and more people have realized that changes in the ecological environment are closely related to their lives. At present, most people obtain environmental protection related information from short video apps, WeChat official account and applets, and the way to participate in ecological

Table 4. Question 4

option	proportion
Environmental protection applet	51.79%
Public service advertising and poster publicity in the media	64.29%
Community publicity around	46.43%
Short video app	66.07%
Notification from people around	51.79%
Information of newspapers and books	30.36%
other	3.57%

environmental protection is relatively simple. We should increase the relevant publicity and protection platforms, so that the publicity efforts can be further improved and people's sense of participation in environmental protection can be increased.

Sort out the information about the ecological situation of Niubeiliang nature reserve and the specific situation of ecological and environmental protection, and reach the intention of digital ecological and environmental protection cooperation with Beigou forest experience base of Niubeiliang National Nature Reserve Administration. For small programs currently in use, such as digital Dunhuang. The virtual display space is different from the static and silent physical museum display environment. Its focus is based on the self-control, intelligent operation and continuous change with the demand that can be realized in the interface. It has a virtual display space that can present the content dynamically. Therefore, virtual exhibition began to pay attention to the emotional design and service experience of users in the process of use, which is also a stage of virtual exhibition space maturing in interactive design [8].

Then we took Niubeiliang north ditch as the development sample, carried out interesting, systematic and controllable data processing, launched a small program called "Qinling ecological cloud corridor" and put it online for operation.

The content of the applet includes three parts: the basic situation of Niubeiliang nature reserve, the donation of public welfare platform, and the sharing of ecological beauty map.

First of all, we provide the basic information of Niubeiliang nature reserve, including the basic information of animals, plants and ecological protection measures. Through 3D live map combined with the distribution of organisms, we also provide biological pictures, so that users can clearly and intuitively understand the ecological diversity of Niubeiliang.

Secondly, we also cooperate with some public welfare organizations or platforms to provide public welfare activities for Niubeiliang nature reserve. If users want to help Niubeiliang, they can contact the public welfare organizations or platforms through the applet.

Finally, we also provide two-way sharing of ecological beauty maps. Users can view the ecological photos uploaded by the applet, and can also send their own photos to the applet, which will be uploaded to the applet after review, so that users can share their own beauty maps.

The "Qin ling ecological cloud corridor" applet adheres to the purpose of "creating benefits through scientific management and seeking development through high-quality services", ensures the privacy of users' information, takes users' needs as the guide, formulates plans to adapt to social changes to meet the needs of different groups, and is committed to jointly creating green waters and mountains in China.

We hope to publicize the concept of "there is no substitute for the ecological environment, and it is hard to use it, but it is hard to lose it" through the applet. We should not only have green waters and mountains, but also have golden mountains and silver mountains. We shoulder the mission of promoting ecological and environmental protection. We should treat the ecological environment like life [3], live up to our mission and forge ahead.

4 Applet Development Process

According to the previous field research and questionnaire survey, we imagine the whole system, and hope to design two different subsystems: user login and management pre login. Next, we will describe the two different subsystems respectively.

4.1 User Subsystem

According to the demand analysis of the information obtained by the practice team in the early stage of the practice research, we assume that the user's process when using the system is as follows:

First, the user logs in at the applet interface. At the same time, the system compares the information entered by the user with the information in the database. If the information exists, the login success will be displayed and the home page will be entered; If it does not exist, you need to prompt the user to authorize registration and login. After successful registration, you can log in and enter the home page. After entering the applet, users can enjoy the beautiful pictures collected by the practice team in Niubeiliang scenic spot and Niubeiliang north ditch protection station through the homepage.

In the exploration part, you can experience the beauty of Qinling mountains through anthology, audio, video and audio-visual combination; At present, the protection module is equipped with the legend of Niubeiliang and the contact information of the protection organization. Users can feel cordial to Qinling Mountains by understanding the legend of Niubeiliang, and contact the protection organization through this platform to make their own contributions.

4.2 Keywords: Administrator Subsystem

The administrator is a member of the practice team. Through research and wind collection, the administrator provides users with more text media and other materials, constantly enriches and improves, and makes the "Qinling ecological cloud corridor" applet a real "digital Qinling cloud corridor", so that more people can see it and begin to make efforts for Qinling ecological protection.

The administrator enters the page through authentication to add, delete, modify and query the information in the applet.3.

4.3 Function Description

The manager, that is, the practice team system, can grasp the registration of users in real time, and understand the current usage of small programs and the frequency of users. At the same time, I hope that some image upload failures or image format restrictions can be set more relaxed, and the applet needs to attract more users to use, so as to make it reach the goal of the practice team. For this reason, in addition to the basic functions, some publicity functions will also be added.

Users hope that they can make contributions to the ecological protection of Qinling Mountains remotely through the applet, and also hope that they can understand the current situation of Qinling Mountains' ecological environment and the efforts they can make to protect Qinling Mountains' ecology within their capabilities through the applet remotely. Users hope to experience the beauty of Qinling Mountains better through digital Qinling Mountains and audio-visual combination.

For this reason, the system is divided into three modules system management.

Developers maintain and manage small programs through wechat developer tools, and timely detect and handle improper and illegal operations.

4.4 User Information Management

Manage user information and maintain user information security information management.

Including all kinds of pictures collected by the practice team on the spot, information of protection stations and organizations, etc.

5 Summary

The "Qin ling Mountain protection plan" team of the school of information, Xi'an University of Finance and economics carried out "practical research on the digital development and application of Qin ling Mountain Ecological Environmental Protection - Taking Nibelung north ditch as a sample." After leading the teacher and the practice team to Shashi County, Shang Luo City for practice research, the "Qin ling ecological cloud corridor" applet was developed by sorting out the data in the practice research.

At the beginning, the idea of the practice team for the small program came from another small program - "digital Dunhuang" [9]. Compared with other programs, the

practice team believes that this small program is more in line with the needs of this practice. While promoting local environmental protection, it uses a more artistic interface and expression to make it more acceptable to the public. Therefore, before the practice activities officially started, the practice team has roughly conceived the relevant materials they need through conception. After the practice activities are officially started, this allows the practice team to avoid blindly and purposefully collect and sort out the materials needed, and initially process the materials locally for subsequent work.

In addition, during the development process, the practice team realized the importance of logic. Good logic can not only effectively improve the efficiency of writing code, but more importantly, it can also improve the efficiency of the program. Although this improvement is not worth mentioning in such small cases, when we face more complex and huge projects in the future, this logic rich idea will be more conducive to the operation of our programs and improve the user experience.

At the same time, we also believe that our practical achievements will make our own contribution to the ecological protection of the Qin ling Mountains. Our practical works record the beautiful natural scenery and the profound human environment behind Nibelung. Through the "Qin ling ecological cloud corridor", we will spread the charm of Nibelung to more people and let more people join the team of protecting Nibelung and protecting the ecology of the Qin ling Mountains.

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