



Design Education Introduces an AR Guide to Enhance the Brand Cultural Image of the Zhanghu Community

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Abstract. At present, the local government is paying more and more attention to the cultural development of various places, and actively promoting community values is the primary core. Although the Zhanghu Community in Yunlin County has common crises and problems in Taiwanese communities, such as inaccessible transportation, aging population, and youth migration, it still has rich products, unique customs, natural and cultural landscapes, and other advantages are worthy of in-depth exploration and discussion in multiple dimensions. Through community training in design education, we could solve many issues and difficulties in the Community. As generations advance, today's post-epidemic society has become inseparable from the technology industry. People pay more and more attention to relationships and the experience process, and most industries have begun to integrate with it. They look forward to using more diversified design thinking to lead community culture to create different sparks and to bring innovations to community development through more information and communication technologies. This research uses Case Study, Guide and Actual Measurement, literature collection, and analysis. Combine AR navigation and other steps to add the Community's characteristics and brand cultural image to design analysis and planning. Based on the collected and analyzed content, conduct in-depth discussions on design education planning and repeated discussions, select suitable works, and run community promotion.

Keywords: design education, AR tour guide, brand culture, place creation, community development.

1 Introduction

The location of Zhanghu Community is in Gukeng Township, Yunlin County. Although it faces problems such as inconvenient transportation, an aging population, and the migration of young people, it still has rich natural resources, history, and culture, and local industries include the tea industry, indigo dyeing, bamboo industry, etc. It also provides walking trails, shell fossils, indigo dyeing crafts, traditional paper making, tea and coffee, etc. In addition, the Zhanghu Community is also one of the southern migration routes of yellow-headed herons. From September to mid-to-late October every year, groups of yellow-headed herons fly over.

The gaps in Education amidst globalization's homogenization, preserving local culture becomes paramount for community development. Design education plays a pivotal role in this endeavor. By incorporating regional or local culture, it fosters local identity, celebrates regional languages, and honors minority cultures.

A study by the Design Society suggests that emphasizing culture-oriented education in design can enhance motivation and insight among design students and practitioners. For this reason, the Community has organized a series of activities to invite tourists to Zhanghu Community. The lake can watch the yellow-headed egret migration ecological landscape within a limited season and use the trend to promote Zhanghu culture. With the current social homogenization derived from globalization, attaching importance to local culture has become the core of community development. Design education is a crucial component of local culture marketing. Penn State Extension argues that incorporating regional or local culture into community development can promote local identity, regional languages, and minority cultures (Brennan, 2023). In addition, a study published by the Design Society found that increasing the profile of culture-oriented education in design could raise the motivation and insight of design students and later design practitioners. The above idea is particularly applicable to international students in higher education. These students have different cultural backgrounds and respond differently to design projects (Mortezaei, Katz, and Morris, 2004).

In the context of the Zhanghu Community, integrating design education into the profound cultivation of local culture and the marketing of local industries can further contribute to the sustainability and inheritance of the Community's cultural image. Through imagination and planning, we can create new communities and change social problems in Taiwan (Song et al., 2017). By conducting in-depth discussions on design education planning and repeated discussions, we can more deeply explore the characteristics and brand of the Zhanghu Community.

We look forward to more diversified design education thinking, leading community culture to create sparks that are different from the past and bringing a new look to community development through more information and communication technologies.

1. Design education research on local brand culture;
2. Assist Zhanghu in enhancing its brand image through planned AR tours of design education.

2 Literature Reviews

Modern branding practices began in the 20th century (Bicaku, 2023). As consumers valued quality of life, establishing and connecting brands were often related to social and cultural needs and desires (Than, 2021). People are willing to benefit from the advantages of scientific and technological progress and live a beautiful, happy, and prosperous life. Brands can leverage design attributes in product stratification to reproduce their concepts and values (Chen & Shih, 2011). From corporate brand positioning strategy, visual image expression, core spiritual values, participation in experience design, etc. Therefore, from design education, shaping brand image has become the most critical influence in commercial activities. Brands are alive - over time, they have the power to nourish or destroy, and their products also show various changing appearances (Lischer, 2023).

Milgram's reality-virtual continuum, proposed by Paul Milgram and Fumio Kishino in 1994, regards the natural environment and the virtual environment as two ends of the continuous system, with the object in the middle being called "mixed reality," the one that is close to the natural environment is augmented reality (Skarbez, Smith, & Whitton, 2021). The one close to the virtual environment is augmented reality (Figure 1). Augmented reality allows users to observe the natural world by super-positioning virtual objects. AR can create a unique user experience and become one of the practical tools for users to interact with the natural world (Gillis, 2022), so AR is also considered one of the most revolutionary inventions. If we combine these skills with design education, they will exert a multiplicative effect.

The purpose of the creative industry is to upgrade local industries (Figure 2), think about innovating and adding value to local traditional industries, develop local cultural and creative industries, assist transformation and improve structural problems and improve the quality of life, and combine initiative, culture, and creativity to create sustainable value for local industrial marketing and economic cycle (UNESCO, 2021). The premise of local industrial upgrading is to regard the natural environment as a social welfare and local asset. Environmental sustainability will affect the living patterns and economic behavior of future generations of humans. Sustainability refers to development that meets the needs of the present without compromising the ability and circumstances of future generations to obtain their own needs (Milford, 2014). Based on local humanities and the natural environment, the Community on local societies and natural environment sustainability. It upgrades industrial culture by designing and planning local brands to achieve the goal of active local economic circulation.

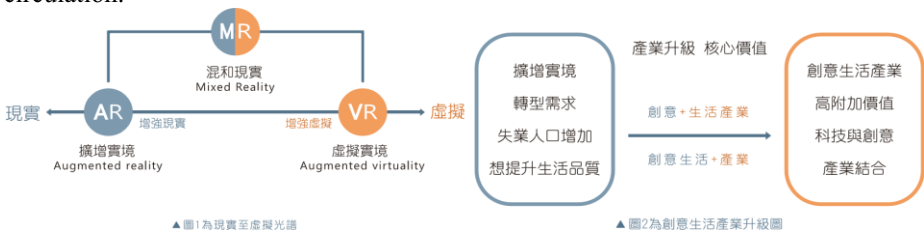


Fig. 1. Diagram of augmented reality and augmented virtuality

3 Method

3.1 Case Study Method

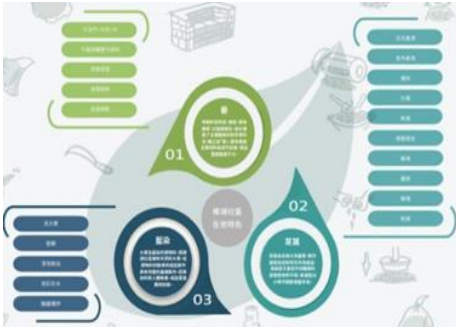
In recent years, many exhibitions have switched from current to online due to the pandemic at home and abroad. Conduct an AR (Augmented Reality) survey and analyze different interface designs, experiences, and interactive processes through relevant literature and actual use in navigation and other case studies. When designing a case study, consider the following aspects: Purpose: Clearly define the research objectives. Are you exploring a unique case, seeking patterns, or testing hypotheses? Type of Case: Choose between single-case or multiple-case designs. Single-case studies focus on a single entity, while multiple-case studies compare several cases. Data Collection: Determine the sources of data (interviews, observations, documents, etc.) and the timeline for data collection. Sampling: Select cases purposefully (based on relevance) or randomly (for broader generalization). Validity and Reliability: Address these aspects to ensure robust findings. Ethical Considerations: Obtain informed consent and maintain confidentiality.

3.2 Guide and Actual Measurement

A simple tour guide prototype was produced based on the conclusions and insights from literature and case studies. It tested the prototype through experimental methods combined with Zhanghu Community brand culture design. The differences in users' use of AR online tours were measured and analyzed through questionnaire surveys. The prototype puts forward relevant suggestions, and based on the design results of this research, the prototype is in line with user preferences and usage habits to promote the Zhanghu Community brand cultural design image.

4 Analysis

4.1 Brand Culture Design Image



(a)



(b)

Fig. 2. (a) and (b) Illustrate the cultural positioning analysis of Zhanghu Community's local culture and landscape.

Therefore, local creation integrates into design teaching, local culture based on community characteristics, local natural resources and environment are studied, and local cultural brands are shaped and designed through resource-source integration. The implementation of design teaching must consider activities centered on community residents. Aesthetics, functionality, symbolism, publicity, and sustainability are the five significant purposes of design. The expression through design, the purpose in things, and designs are to make people happy. Zhanghu Community integrates local culture and history, enhances industrial culture, integrates intellectual tourism, and protects the ecological environment so that the humanity and resources of Zhanghu Community coexist (Liao et al., 2002). It is combined with the design education of the National Yunlin University of Science and Technology to create good environmental quality in the Community and shape a happy community brand. Image, enhance leisure tourism and natural ecological protection, deepen local culture, and sustainably operate.

(a)

(b)



Fig. 3. (a) and (b) Multiple versions of the visual system planning and design proposed by the Community Development Society (designed by our laboratory)

4.2 AR Guide Enhances Brand Cultural Design Image

According to the respondent data from Table 1, the AR online tour results analysis question 1 has the highest average, with an average of 4.4, which means that the respondents are satisfied with whether the AR tour makes it easier to understand the Zhanghu Community (Chen, 2022). The lowest average is question 4, with an average of 4.2, which means that the subjects have a lower experience in understanding the local customs during the AR guided tour of Zhanghu cultural brand image, but the overall average The number still shows 4.3, which means that the respondents also highly approve of the AR online tour of Zhanghu Community.

Table 1. AR guide enhances brand cultural design image.

Questions	Average value	Result	Overall Average
1. Does the AR tour make it easier for people to understand The Zhanghu Community?	4.4	Very much agree	4.3
2. Will the Zhanghu culture deepen people's impression of the brand image?	4.3	Very much agree	
3. The cultural brand aligns with the impression of Zhanghu.	4.3	Very much agree	
4. It could help people to understand the local customs and customs.	4.3	Very much agree	

5 Conclusion

The limitation of this AR guide and project is collaborating with the Zhanghu Community in Taiwan, which aims to promote local culture, ecology, and tourism. The project also involves designing and creating cultural products that reflect local characteristics and values. Another limitation of the contents is the challenges and barriers that may hinder the implementation and adoption of the project and the potential risks and conflicts that may occur from introducing new technologies and products to a traditional and ecological setting.

Using AR guides and design education from Yunnan University of Science and Technology, we work with the Zhanghu Community to promote local cultural brands, integrate local humanities, enhance industries' intellectual tourism, protect the ecology, and promote them with augmented reality. It enables the coexistence of humanity and resources in Zhanghu Community, positively improves the quality of the Community's living environment, analyzes and integrates the overall advantages and disadvantages of the Community, and plans and designs based on local data analysis and environment, which is very consistent with low-carbon environmental education and experience design. The intellectual journey continues to achieve the vision of a happy community in Zhanghu.

When integrating local brand culture into design education, we first consider local cultural elements and characteristics, local customs, natural resources, geographical environment, local industries, local characteristics, and other multiple aspects to conduct design thinking and integrate them into the curriculum. Local cultural product design includes multi-faceted implications such as promoting local culture, enhancing industrial value-added, inheritance of economic skills, and local intellectual tourism (Fang, 2021). The design of cultural products includes product functions, cultural elements, symbolic forms, technologies, and materials, and then creates creative guide prototypes suitable for promoting local culture.

This study aims to promote the local brand cultural design image of Zhanghu, integrate local culture and natural industrial resources, use the design education of the National Yunlin University of Science and Technology, and jointly cultivate the Zhanghu Community to establish a cultural brand identification system and integrate visual culture to cultivate participatory design (Zheng, 2019). Establishing an ideal local brand cultural design model is expected to actively create and sustain the inheritance of the local Community, promote cultural cultivation and industrial upgrading, enhance the quality of the Zhanghu Community's industrial culture, promote local community industrial benefits, and create community economic sustainability.

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