

Cultural tourism and temples: Content construction and interactivity design

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ARTICLE INFO

Keywords:

Creative innovation design
Interface design
Virtual and real integration
Temples

ABSTRACT

Cultural and creative industries have a crucial role in the postindustrial knowledge economy. However, our understanding of the importance of temples in connecting people with society is limited. To fill this gap, this study explores points of interest for tourists in Taiwan to analyse the design of cultural interest operation modes in temples' interactive kiosk interfaces. We also examine three cultural levels related to the design of interactive kiosks in temples. Results reveal that participants' levels of interest vary depending on temple complexity. Most participants prefer animated presentations of content related to two- and three-dimensional murals and the history and origins of temples. We illustrate how to develop a process for designing cultural and creative digital products. We construct a flowchart for guided temple tours and present an effective and suitable design method and its prototype product. Implications for the revitalisation of historic sites to create new value are discussed.

1. Introduction

The role of cultural and creative industries (CCIs) in the post-industrial knowledge economy is increasingly crucial (De Propriis, 2013). Studies have asserted that CCIs demonstrate cultural identity and promote cultural diversity (Müller, Rammer, & Trüby, 2009). CCIs can further enhance already strong ties among cultures, territories, and institutions. This, in turn, enables CCIs to perform their role in a country's economy and become the core of local economic development (Boccella & Salerno, 2016).

CCIs have experienced continual growth and expansion in many parts of the world, particularly in developed countries. In some countries, the growth of CCIs has resulted in the development of connections among cities where these industries are located (Maryunani & Mirzanti, 2015). Traditionally, many Taiwanese cities, towns, and neighbourhoods have a shared memory of the temple as the centre of cultural growth. In the past, eateries and other meeting places for residents expanded outward from temples. Therefore, alliances were formed among local communities, and the value of a local cultural economy and the direction of cultural products were ultimately determined (Cawley & Gillmor, 2008). Although extant studies have focused on the economic significance of CCIs (Chang & Lee, 2015; Lee, 2015), we have a limited understanding of the importance of temples in connecting people with society. Our study fills this gap by considering how to make

the importance of historical temples and their values relevant and interesting to visitors.

This study focuses on Taiwan where, for decades, the government has promoted CCIs, thereby enabling these industries to grow rapidly. CCIs in Taiwan have contributed to the national economy under the impetus of governmental policies (Lu, Kweh, He, & Shih, 2017). However, policies related to CCIs should not focus solely on maximising employment and profit. The effects of these policies on quality of life, social cohesion, and community development must also be considered (Cunningham, 2002).

How to appropriately integrate physical aspects (e.g. traditional cultural buildings) and virtual aspects (e.g. modern digital technology) (Hand, 2016) must be considered as well. In early Taiwanese society, temples played a central role in connecting people with society, life activities, and religion. Temple culture has long been a jewel of Eastern culture. Religion, particularly its objectification, can be viewed as the basis for the formation of a new 21st century community (Lin, 2017). In this study, we attempt to increase public understanding of the importance of temples through digital integration and design. We expand on the value and meaning of temple culture through animations and interactive designs associated with temple art, such as carved dragon columns and murals that transmit the concepts of integrity and righteousness.

We largely focus on the combination of kiosk design and a historical

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site. Additionally, we examine whether we can effectively analyse the key problems of user interface (UI) and user experience (UX) design to enhance convenience and desire to use a kiosk. Therefore, taking the Baoan Temple as an example, this study develops a framework from the perspectives of the temple manager and tourists. This study makes the following empirical contributions: (1) the development of a comprehensive process for designing cultural and creative digital products; (2) the construction of an information service platform for kiosk design; and (3) the revitalisation of historical sites and their surroundings to create added value.

To address topics related to content construction and interactivity design for temples as cultural tourism destinations, we identify a comprehensive set of key considerations for kiosk design and perform a preference analysis. The results could spur future design innovations for kiosk use at historical sites.

Our information and service platform clearly define problems related to visual and operability designs and provides possible solutions. The platform includes the design and development of digital content, UI and UX design for an information kiosk, construction of a related information service platform, and development of content to present an interactive Baoan Temple narrative.

Coexistence of old and new designs is a problem for many historical sites both at home and abroad. Examples include the British Museum and the Louvre. Many developed countries avoid creating designs that could ruin the visual landscape of historical sites in response to new preferences. Therefore, integration into existing environments is a major design challenge and necessary consideration for the final product. The kiosk design developed in this study is the result of appropriate analysis and an extension of integrating culture, tourism, modern technology, and gaming. Accordingly, we create an information kiosk with an external style that is consistent with the historical site in question as well as an information platform with content that is suitable for practical use.

The rest of the paper is organised as follows. In Section 2, we discuss problems related to kiosk design and development, including UI and UX design. Section 3 provides demographic information of tourists. Section 4 describes the survey analysis. Empirical results are discussed in Section 5, and Section 6 concludes the paper with policy implications.

2. Literature review

The literature review focuses on two topics through which the importance and necessity of this study are examined: (1) definition of cultural, creative, and visual design and (2) exploration of problems related to kiosk design and development, including UI and UX design.

In the era of globalisation, transportation and information media have intertwined and have brought people closer together both temporally and spatially. Combining culture with creativity is a great challenge in cultural and creative development. As international tourism flourishes, tourists tend not to repeat purchases of similar or identical travel experiences. Therefore, urban regeneration policies have attempted to revitalise culture and creativity through the transformation of urban culture, remodelling of leisure and recreational facilities, development of consumer attractions, implementation of international arts and cultural activities and festivals, and marketing of new urban images (Pratt, 2011).

2.1. Definition of cultural, creative, and visual design

Contemporary cultural tourism primarily emphasises a combination of production and consumption that connects designers and consumers. Cultural tourism is based not on passive consumption but on the premise that active participation and experience during travel can satisfy tourists' preferences. Moreover, product designers focus on close interaction with consumers by using various design methods to create high-quality, experience-based products together with consumers

(Vasiliadis et al., 2016). Cultural products possess high symbolic value determined by their social and cultural connotations, enabling consumers to express their individual and social identities through the purchase and use of the products (Hornig, Chang, & Chen, 2016). During this process, the audience, purpose, local cultural background, and preferences of local people must be considered; a strategic design is created on the basis of style, colours, materials, techniques, and functions. Chattaraman, Rudd, and Lennon (2009) indicated that the interaction between cultural relevance and cultural environments affects how product characteristics are assessed. In terms of information design, information included on cultural artefacts and creative knowledge should be integrated with a contemporary art style that must consider the overall layout and visual aesthetics.

Many scholars have warned against this standardised and universal urban development model. The nurturing of urban cultural characteristics and creativity is in fact not rooted in a simplified description, such as 'creative city', or a top-down, culture-oriented urban regeneration policy but rather in a complex network of interactions and communications among cities, industries, creative workers, cultural spaces and facilities, and the public (Gong & Hassink, 2017).

2.2. Kiosk design and development

The experiences of other cities and countries have demonstrated that urban regeneration and development driven by CCIs is a model that should not be overlooked (Lu & Chang, 2016). In France, kiosks were uncommon until the 1870s when they became a street-side facility that primarily sold newspapers and magazines or advertised theatre shows. In the 1970s, many ticket booths were constructed on red brick roads in Taiwan. Even today, many retail booths remain on railroad platforms and constitute an early form of kiosks that was previously widespread. Kiosks that integrated interactive computers first appeared in the 1980s. In the past 20 years, kiosks have become a part of the information technology wave and have evolved to be interactive. They are integrated with computers and computer peripherals to provide users with self-service functions such as interactive searching and business transactions (Greene & Brunskill, 2016).

Liarokapis, Petridis, Andrews, and de Freitas (2017) created an immersive experience to improve the experiences of museum visitors, allowing participants to explore cultural artefacts through games, UIs, and mixed reality. Visitors from different countries may have distinct visual perceptions of UIs and UXs. Accommodation of international tourists poses the challenge of designing numerous variations of visual aesthetics, experiences, and modes of operability (Park, Kim, & Park, 2016). In-depth understanding of this may enable designers to create models to meet the challenge. Colour design varies among different groups of users. Design elements involve visibility (the ability to perceive that a colour exists), legibility (the ability to perceive differences in paired colours), identity (conferring distinct meanings to colours), attention (use of prominent colours to attract attention), and memory (colours can enhance memory encoding). Although many theories and principles of human-computer interaction design can be adopted in the development and design of kiosks (Hung et al., 2014), most studies have focused on examining the interactive relationship between computers and users (Irshad & Rambli, 2016; Litsey et al., 2015) or on conventional hardware and software development (Swamy, Seshachalam, & Shariff, 2016). Although digital design has become a crucial topic in recent years and its importance is escalating daily, the process remains insufficiently specific or systematic to be adopted by designers. Its primary challenges are threefold:

1. Digital design quality

Digital design involves numerous variable elements that are difficult to control and have considerable effects on product design quality. Many design challenges still exist in content integration, user

perceptions, and operability. For example, when multiple groups of users need to be considered, the interaction and feedback effects may need to be designed differently for each group. Therefore, the appropriate design method for feedback such as text, size, graphics, colours, and sounds and the difference in user operation between hardware platforms must be understood. Digital creative apps are now widely used as entertainment and interaction platforms. Accordingly, understanding culture and integrating creativity and design are keys to reinforcing CCIs with cultural and creative products in Taiwan (Su, Fan, & Su, 2016).

2. Preferences among groups of users

Although users can tolerate unsatisfactorily designed products to a certain extent, such as for indispensable products and equipment, effectively reducing negative user emotions and experiences and increasing positive ones are the core aspects of design. van der Bijl-Brouwer and van der Voort (2014) investigated the relationship between dynamic design and users as well as their environments and goals. The researchers concluded that dynamic design could be used during the design process to create superior designs. Winograd (2003) indicated that products featuring human–computer interaction should be designed based on the following five principles if they are to be preferred by users.

1. Do not make me think.
2. Do not make me wait.
3. Do not allow me to feel annoyed.
4. Do not take control away from me.
5. Do not take advantage of me (do not be evil).

These principles of human–computer interface design serve as critical concepts in kiosk design and are basic considerations in universal design, including height setting, tactile feedback, and text colour.

3. Assessment of digital designs

Because not all designers are expert researchers or analysts, design fundamentals and methods that are explicit, simple, and effective can assist them in performing efficient evaluation during the design process, thereby creating appropriate product designs and improving usability and uniqueness. Mace (1997) proposed the following seven principles of universal design.

1. Equitable use
2. Flexibility in use
3. Simple and intuitive in use
4. Perceptible information
5. Tolerance for error
6. Low physical effort
7. Size and space for approach and use

These seven principles of universal design motivated us to explore how designers implement them in the UI and UX design of kiosks. Taking into consideration the distinct habits and requirements of various user groups can facilitate the improvement of operational efficiency and user satisfaction. Regarding cultural style and characteristics, the principle of ‘renovating the old so that it looks old’ must characterise the artistic style and define the design direction. However, this makes designing difficult and restrictive. If this artistic style is chosen, it will reflect, to a certain extent, the original overall visual perception of the site. Even the images on the kiosk screen should be consistent with the visual appearance of the kiosk.

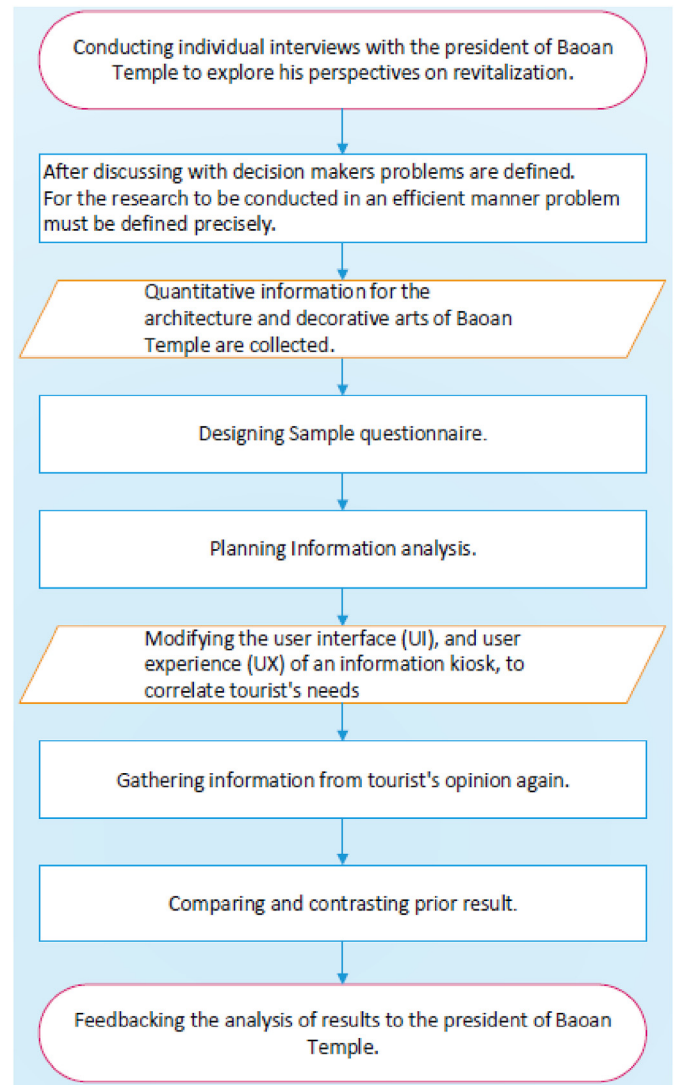


Fig. 1. Flowchart of the method for guided temple tours.

3. Research design

This section details the research methods used in this study. To promote the temple as a tourist attraction and kindle people's interest in regional art, the Baoan Temple offers a guided tour of the historic site. Thus, the framework of this study is developed based on inputs from the temple's manager and tourists. A flowchart that summarises the method is shown in Fig. 1 to clarify the link between the framework and the fact that guided tours are available. We asked the operator of the Baoan Temple and experienced temple tour guides to provide suggestions for each dimension of the questionnaire, including participants' locations of interest in the temple, types of digital presentation, and external design of the kiosk. The phrasing of items was adjusted on the basis of these suggestions. This procedure ensured that the final questionnaire closely matched the preferences of visitors to Dalongdong Cultural Park.

To emphasise how data could be useful for UX and helpful in understanding the importance of the Baoan Temple, we explored participants' areas of interest and their preferences for the content of guided tours to allow us to create a design that effectively fulfils user needs. Quantitative data were primarily adopted and supplemented with qualitative data to maintain objectivity. A total of 100 tourists visiting the Baoan Temple were recruited through random sampling. Participants' opinions were recorded accurately and in detail. The external appearance was explored to integrate new and old to

Table 1
Demographic breakdown of tourists.

Profile	Sample composition	Frequency
Gender	Male	61
	Female	39
Age	Under 20	20
	20–40	57
	Over 40	23
Educational background	High school	12
	Bachelor	55
	Master	31
	Doctor	2

appropriately suit the temple's surroundings. Our findings on the preferred presentation styles for the Baoan Temple and the proportion of participants interested in various components of the temple are particularly of note. Finally, through the use of a prototype platform as the testing target, we explore key design concerns by examining users' UI perceptions and operation modes for UX design to enhance the platform's usability. Table 1 illustrates the demographic breakdown of the tourists. The collected data were statistically analysed using SPSS.

4. Results

4.1. Survey analyses

Test results were examined through questionnaire analysis. The first stage was to understand tourist preferences regarding the presentation

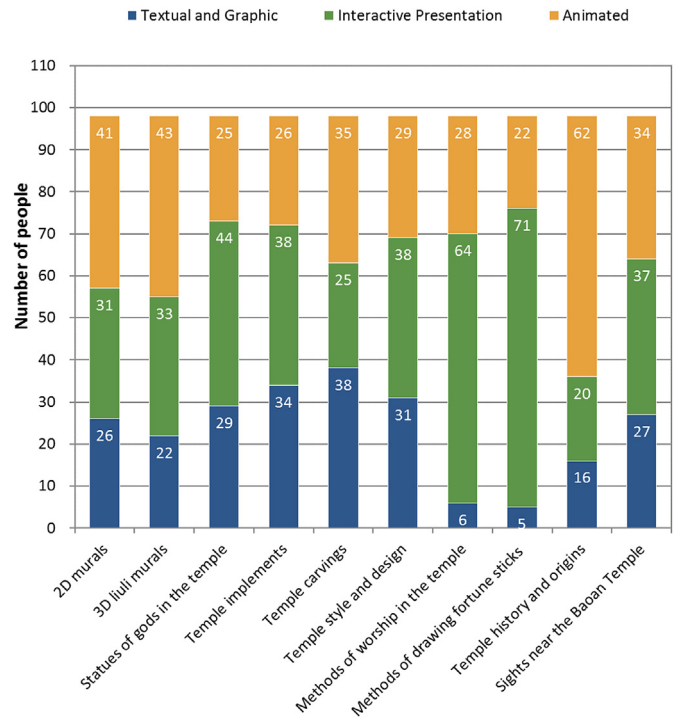


Fig. 3. Tourists' preferences in types of digital presentation (by percentage).



Fig. 2. Statistical results on areas of interest in the temple presented on the kiosk.

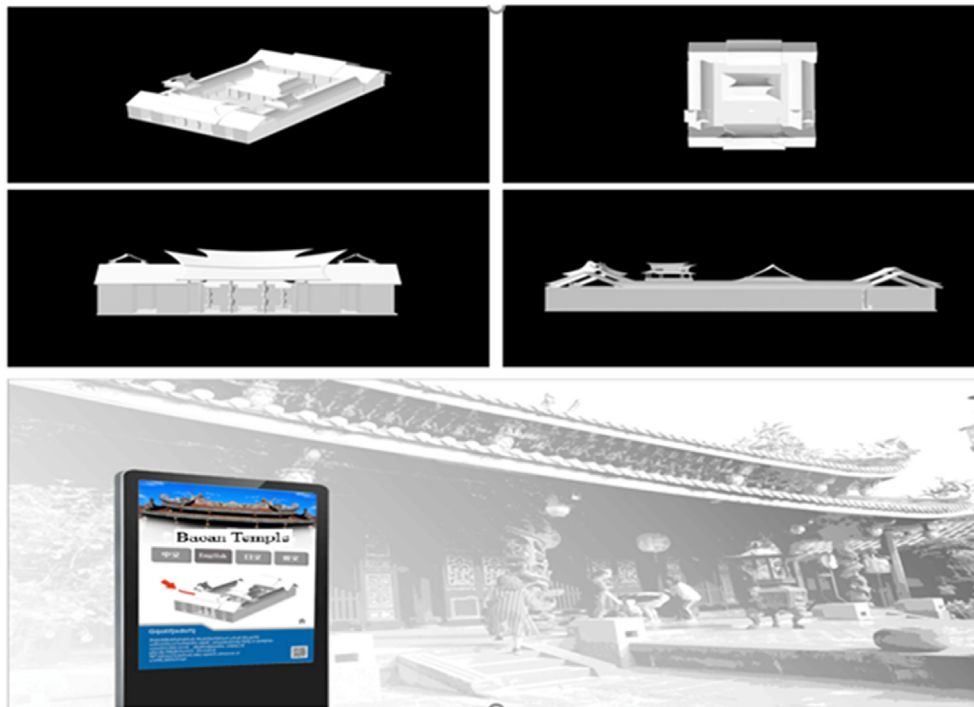


Fig. 4. 3D models of the Baoan Temple, the external design of the kiosk, and the UI and UX designs of the kiosk.

Table 2
ANOVA of locations of interest among tourist age groups.

Location of Interest	F	P-value ^b
Front Hall (1) ^a	.883	.511
Main Hall (2)	.980	.443
Rear Hall (3)	1.138	.347
East Wing and Bell Tower (4)	1.017	.419
West Wing and Drum Tower (5)	1.683	.134

^b****p* < .01, ***p* < .05, **p* < .1.

^a The brackets are t values.

Table 3
ANOVA results of locations of interest among tourists by gender.

Location of Interest	F	P-value
Front Hall (1)	.051	.821
Main Hall (2)	.159	.691
Rear Hall (3)	.024	.876
East Wing and Bell Tower (4)	.611	.436
West Wing and Drum Tower (5)	.486	.487

Note: 1. The brackets are t values. 2. ****p* < .01, ***p* < .05, **p* < .1.

of digital content, allowing us to design the kiosk interface accordingly. The second stage was to analyse the appearance of the kiosk, behaviours of users, and psychology of users to examine the appropriateness of the design. Fig. 2 presents participants' locations of interest in the temple: the Main Hall (39.8%), Rear Hall (21.9%), Front Hall (also called Sanchuan Dian) (14.3%), East Wing and Bell Tower (12.2%), and West Wing and Drum Tower (11.7%). In general, participants' levels of interest varied with the complexity of halls. The Main Hall is more complex than the Rear Hall, which in turn is considerably more complex than the Front Hall. In addition, the results show interest in the East Wing and Bell Tower is higher than that in the West Wing and Drum Tower because most participants followed the design convention that the right side is more visually attractive and prominent than the left side.

The survey examined three types of presentation: textual and

graphic, interactive, and animated. Textual and graphic presentations display images of an object and its written descriptions. Interactive presentations comprise transition, dynamic, and feedback effects. Animated presentations display content in the form of animation, including two-dimensional (2D) and three-dimensional (3D) animations. Tourist preferences regarding the types of digital presentation are shown as percentages in Fig. 3.

Results show that participants prefer textual and graphic presentations only for content related to temple carvings. Most of the participants preferred interactive presentations of content related to statues of gods, artefacts, temple style and design, methods of worship, methods of drawing fortune sticks, and sights near the Baoan Temple. They preferred animated presentations of content related to 2D murals, 3D Liuli murals, and temple history and origins. Based on the survey results, the optimal digital design of the temple kiosk involved presenting content related to carvings as text and graphics; content related to statues of gods, temple implements, temple style, design, methods of worship, methods of drawing fortune sticks, and sights near the Baoan Temple as interactive; and content related to 2D murals, 3D Liuli murals, and temple history and origins as animations. Fig. 4 shows 3D models of the Baoan Temple, the external design of the kiosk, and the UI and UX designs of the kiosk.

4.2. Analysis of variance

Table 2 lists the analysis of variance (ANOVA) results for interest in various locations among tourist age groups. They are as follows: Front Hall, *p* = .511 (> 0.05); Main Hall, *p* = .443 (> 0.05); Rear Hall, *p* = .347 (> 0.05); East Wing and Bell Tower, *p* = .419 (> 0.05); and West Wing and Drum Tower, *p* = .134 (> 0.05). These results indicate that there are no statistically significant differences among age groups in terms of interest in locations within the Baoan Temple.

Table 3 lists ANOVA results for interest in various locations among tourists by gender. They are as follows: Front Hall, *p* = .821 (> 0.05); Main Hall, *p* = .691 (> 0.05); Rear Hall, *p* = .876 (> 0.05); East Wing and Bell Tower, *p* = .436 (> 0.05); and West Wing and Drum Tower, *p* = .487 (> 0.05). Given that no statistically significant differences

Table 4
ANOVA results of preferred presentation styles for digital content among visitors to the Baoan Temple.

Items	Age	Presentation styles			F	P-value
		Text & images	Interactive effects	Animations		
		How would you like information about the following topics to be presented (using text and images, interactive effects, or animations)?				
1. 2D murals	Under 20	4	9	7	1.655	.141
	20–40	17	17	23		
	Over 40	5	6	12		
2. 3D Liuli murals	Under 20	5	8	7	1.543	.173
	20–40	13	18	26		
	Over 40	6	6	11		
3. Statues of gods	Under 20	3	11	6	2.294	.041**
	20–40	22	24	11		
	Over 40	3	10	10		
4. Temple implements	Under 20	5	10	5	1.805	.106
	20–40	23	21	13		
	Over 40	7	7	9		
5. Temple carvings	Under 20	7	8	5	.752	.609
	20–40	23	12	22		
	Over 40	8	5	10		
6. Temple style and design	Under 20	4	11	5	.850	.535
	20–40	16	24	17		
	Over 40	11	3	9		
7. Methods of worship	Under 20	2	9	9	3.868	.002***
	20–40	2	42	13		
	Over 40	3	13	7		
8. Methods of drawing fortune sticks	Under 20	0	12	8	4.053	.001***
	20–40	5	43	9		
	Over 40	0	15	8		
9. Temple history and origins	Under 20	3	5	12	.610	.722
	20–40	8	12	37		
	Over 40	4	3	16		
10. Sights near the Baoan Temple	Under 20	4	7	9	.936	.473
	20–40	17	22	18		
	Over 40	6	8	9		

Note:1. The brackets are t values. 2. ***P < .01, **P < .05, *P < .1.



Fig. 5. Interactive visual effects designed for murals.

exist for locations of interest among demographic groups, this study focuses instead on tourists' preferred modes of interactive design as well as possible approaches to integrate interface designs for temple kiosks with a historical temple.

We surveyed tourists to the Baoan Temple based on their preferences for the presentation of digital content (i.e. textual and graphic, interactive, or animated). Table 4 lists the results among age groups. They are as follows: 2D murals, $p = .141 (> 0.05)$; 3D Liuli murals,

$p = .173 (> 0.05)$; statues of gods, $p = .041 (< 0.05)$; temple implements, $p = .106 (< 0.05)$; temple carvings, $p = .609 (> 0.05)$; temple style and design, $p = .535 (> 0.05)$; methods of worship, $p = .002 (< 0.05)$; methods of drawing fortune sticks, $p = .001 (< 0.05)$; temple history and origins, $p = .722 (> 0.05)$; and sights near the Baoan Temple, $p = .473 (> 0.05)$.

To summarise, different age groups revealed significantly different preferences for presentation methods for statues of gods, methods of worship, and methods of drawing fortune sticks. These results could serve as a reference for future content construction and interactivity design of temples as cultural tourism destinations, particularly for the design and development of digital content and UIs and UXs of information kiosks.

Fig. 5 is an extension of the present study. Graphic layers are used to achieve a visual effect of overlapping light and shadows. The desirability and outcomes of interactive effects are examined according to the content testing of interactive design in a related study. We surveyed participants regarding their satisfaction with the UI design of the prototype kiosk (Table 5). The survey employed a Likert scale and was divided into three design levels: appearance of the kiosk (external level), behaviours of users (intermediary level), and psychology of users (internal level). Survey results show that the mean value (MV) of the external level is greater than 3; the highest MVs are 3.92 for layout and composition (A7), 3.82 for style (A3), and 3.80 for colour (A1).

At the intermediary level, ease of use (B3) has the highest MV with 4.07, which is also the highest value among all dimensions. The MV for operability is 4.04, indicating that participants believe that if the prototype kiosk is installed in the temple, operation of the UI would bring convenience. At the internal level, the UI reflects the temple's cultural characteristics; the MV of this item is 4.05. A comparison of standard deviations shows that most fall within the range of 0.8–0.9. Participants

Table 5
User satisfaction with interface design and external design of the prototype kiosk.

Design Levels	Design Element	Mean	Standard Deviation	Average Mean Value
External Level (Appearance) (A)	Colour (A1)	3.80	0.853	3.824
	Quality (A2)	3.73	0.908	
	Style (A3)	3.82	0.947	
	Surface texture (A4)	3.55	0.957	
	Line and other properties (A5)	3.57	0.917	
	Details (A6)	3.58	0.987	
	Layout and composition (A7)	3.92	0.918	
Intermediary Level (Behaviour) (B)	Overall functions (B1)	3.91	0.874	3.956
	Operations (B2)	4.04	0.903	
	Ease of use (B3)	4.07	0.872	
	Safety (B4)	3.88	0.877	
	Combinations (B5)	3.88	0.795	
Internal Level (Psychological Aspects) (C)	Special significance (C1)	3.73	0.886	3.870
	Storytelling (C2)	3.92	1.041	
	Emotion provoking (C3)	3.78	1.001	
	Cultural characteristics (C4)	4.05	0.914	

have more diverse opinions regarding ‘tells a story’ and ‘elicits emotions’, which have standard deviations of 1.041 and 1.001, respectively.

5. Discussion

Previous studies have shown that temples have had an impact on tourism. *Szymanska-Matusiewicz and Bossak-Herbst (2018)* reported that temples enabled local social and spatial conditions to become integrated with communities. *Jiang, Ryan, and Zhang (2018)* explored what motivates tourists to experience Zen meditation and how these experiences were shaped. In contrast to such studies, this study focuses on temple-centred culture and examines the preferences of tourists visiting historical temples with respect to interactive design. Our prototype includes the design and development of digital content, UI and UX design for an information kiosk, construction of a related information service platform, and development of content to present an interactive Baoan Temple narrative. An interface design for kiosks in temples is discussed according to the design levels of kiosk appearance, user behaviours, and user psychology. Possible means of integrating the kiosk design with a historical temple are also explored.

In terms of tourists' locations of interest in the temple, results reveal that tourists' levels of interest vary depending on the complexity of halls. In terms of preferred presentation styles, most of the tourists prefer interactive presentations for content related to the statues of gods, temple objects, temple style and design, methods of worship, methods of drawing fortune sticks, and other sights near the Baoan Temple. Finally, they prefer animated presentations for content related to 2D murals, 3D Liuli murals, and the temple's history.

In previous studies, *Son and Xu (2013)* explored the roles of temple food in Western tourists' experiences. *Song, Lee, Park, Hwang, and Reisinger (2015)* examined the influence of entertainment, aesthetic, and educational experiences on the perceptions of the functional and emotional value of temple visits as well as on tourist satisfaction. *Jiang et al. (2018)* examined what motivates tourists to experience Zen meditation at Chinese temples and how tourists shape their own experiences. Therefore, this study explores the points of interest among temple tourists in Taiwan to determine the optimal interface design of an interactive kiosk and to provide an effective and suitable design method and prototype product.

The interface design for the kiosk prototype is divided into three design levels. For the external level indicating kiosk appearance, layout and composition are the key considerations. For the intermediary level indicating user behaviours, operability and ease of use are the key considerations. For the internal level indicating user psychology, a design that reflects cultural characteristics is the key consideration. To improve customer satisfaction, designers should concentrate on colour, texture, detail functionality, convenience, and cultural characteristics

when considering the kiosk interface and content design.

6. Summary and implications

Through the process of designing cultural and creative digital products described in this study, the Baoan Temple can seek to revitalise its historical sites and create new value for tourists. Moreover, the establishment of innovative forms of production and commercialisation in cultural industries can contribute to promoting culture. Testing was conducted with regard to temple visitors' preferences for tour content, kiosk design, and kiosk operating mode. The results serve as a reference to promote the widespread use and efficient development of kiosks and may support the long-term development of digital design.

In terms of this study's practical value, we explore the patterns of consumption, creation, and sharing and consider how these patterns reside in the creative economy through four processes: (1) the design and development of digital content for an information kiosk, (2) UI and UX design for an information kiosk, (3) construction of a related information service platform, and (4) development of content to present an interactive Baoan Temple narrative. We design content suitable for a finished product and address difficulties in integrating physical aspects and virtual aspects.

Moreover, the fact that kiosks can immediately deliver information can alleviate inconvenience for tour guides. The design of the kiosk interface in this study is examined from the perspective of UX. Thus, the design attempts to cater to tourists' cultural interests and to present digital content accordingly. The findings can be applied to other temples that exhibit the characteristics of Taiwan's cultural monuments and to general sightseeing in Taiwan.

Through the use of a variety of research methods, we examine not only the external appearance but also the issues that may arise from designs with diverse themes. We also examine whether designing a cultural product involves the same focus and considerations as designing other types of products.

Concrete theoretical and practical implications for related professions and the overall industry are as follows.

The prototype designed in this study can be offered to the Dalongdong Baoan Temple for practical use by visitors and tour guides.

This research can serve as a reference for designs that incorporate cultural differences or integrate physical and virtual components. Since the content development and interactive design at temples as cultural tourism destinations can be beneficial to the overall design and interactive design literature, this study can facilitate the research and development of human–computer design and universal design and broaden the scope of research in this field.

Integrating culture, tourism, modern technology, and gaming in kiosk design can serve as a reference for the development of tourism

design as well as for related industries.

This study has some limitations. The sample comprises only 100 participants and thus may have been insufficient in terms of size. Therefore, we recommend that future research examine its authenticity to validate its outcomes (e.g. MacCannell (1989) and Jamal and Hill (2002)) and its effect on participant preferences. Moreover, future research should explore the impact of nationality on presentation preference. Additionally, this study focuses on Taiwanese tourists. Therefore, researchers could include foreign tourists to identify more direct methods to integrate traditional culture with modern technology and employ other statistical analysis methods, including regression analysis and correlation analysis. We intend to further explore these avenues.

Author contribution

Yueh-Cheng Wu and Yi-Han Wang conceived of the presented idea. Sheng-Wei Lin verified the analytical methods. Sheng-Wei Lin and Yi-Han Wang processed the experimental data, performed the analysis, drafted the manuscript and designed the figures Yueh-Cheng Wu supervised the findings of this work. All authors discussed the results and contributed to the final manuscript.

Acknowledgements

This research is supported by the Ministry of Science and Technology, Taiwan, R.O.C. under Grant No. MOST 106-2410-H-006-027-010. The author wishes to acknowledge the help of Taipei Dalogdong Baoan Temple Chairman Wu-Zhi Liao in data collection.

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