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RESEARCH ON AESTHETIC COGNITION, FLOW EXPERIENCE AND TECHNOLOGY ACCEPTANCE IN VIRTUAL CULTURAL ACTIVITIES

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Abstract

This research explores the integration of aesthetic experience and technology acceptance in virtual cultural activities. Aimed at enhancing user engagement, the study utilizes a structured questionnaire to evaluate participants' aesthetic cognition, flow experiences, and technology acceptance. Methods include data collection from virtual cultural activities and subsequent analytical comparisons. Results indicate a preference for immersive and user-friendly technological interfaces, highlighting the significance of aesthetic cognition in cultural activities' success. The study suggests that improving interactive features could significantly enhance participation in virtual cultural settings.

Keywords

Aesthetic Cognition, Flow Experiences, Technology Acceptance, Virtual Cultural Activities

INTRODUCTION

From the perspective of experience, in recent years, the enthusiasm of the general public for design, aesthetics, tactility, and experiential activities has formed a new lifestyle. This has led many related industries to start focusing on experiential design and the aesthetics economy. Traditional marketing, which only focused on product functionality, can no longer satisfy consumer needs. Consumers have realized that fulfillment at the spiritual level is also very important, and thus, "experiential marketing," which values the context of consumption, is thriving [1]. However, while offline physical experiential activities are becoming increasingly prosperous, with the trend of new technologies in the digital age, online experiential activities have also become popular. Online immersive experiences refer to when individuals are completely absorbed in an activity, fully relaxing due to their interest, concentrating their attention on a particular thing, and experiencing a psychological phenomenon of "immersion." Immersive experiences have four characteristics: control over personal experience, focused attention, curiosity, and intrinsic interest. Once users enter a state of immersion, it can enhance communication effects and quality, and reduce communication barriers [2]. Therefore, virtual cultural activities can be one of the best venues for creating new experiences. How to adapt to the times while maintaining the essence of cultural activities is the question this research seeks to explore. The virtual cultural activities referred to in this study are virtual activities derived from physical activities. They can either enhance the original physical activities or allow people to participate virtually online when they cannot attend the physical activities, satisfying their spiritual needs.

LITERATURE REVIEW

A. Aesthetic Cognition

Aesthetic is used for "cognition by the senses" or "sensory cognition," signifying the recognition through the senses, that is, the sensory experiences. Sensory aesthetics refers to the pleasurable sensations that people experience in an environment through sight, hearing, smell, touch, and taste. After the most basic sensory aesthetics, people's pursuit of beauty has evolved accordingly. For instance, formal aesthetics focuses on how people appreciate the beauty of forms and shapes. It emphasizes the appreciation of the form or structure of things, and the resulting sense of beauty and pleasure is one of the important reference indicators for designers during the design phase. Symbolic aesthetics focuses on the meanings associated with appreciation, emphasizing the associative meanings given by the influence of the environment and the process of deriving pleasure from it. For example, the color red

symbolizes good fortune, which is why Taiwanese people like to use red in their New Year and other festive decorations [3] [4] [5].

B. Flow Experience

Csikszentmihalyi[6] proposed the concept of flow experience, suggesting that when individuals engage in activities, they concentrate their attention and become fully immersed in the situation, filtering out all irrelevant perceptions. This state of complete immersion is referred to as "flow" and is considered an optimal state of enjoyment and experience. "Flow" is closely associated with the creation of meaning, ultimately leading to a unified flow experience. Immersive experiences are related to positive emotions and result from the interaction between an individual's mindset and activities. They can profoundly influence people's subjective sense of well-being [7] [8].

The process of human experience encompasses the overall experience, sensory perceptions, emotions, and the broader social and cultural context, as well as the immediate usage scenario. These processes enable consumers to understand their own feelings, and emotions add attractiveness to products or services. They can evoke positive emotions in people, making products or services feel more enjoyable to use. Therefore, discussing the "aesthetics" from a design perspective has become the most critical factor for these design professionals. Representing aesthetically pleasing products or services is the most direct and effective way to captivate consumers [9] [10] [11] [12] [13] [14] [15].

C. Technology Acceptance

Davis [16] proposed the Technology Acceptance Model (TAM), which was developed based on the Theory of Reasoned Action (TRA), to explore the relationship between rational and emotional factors and the use of technology. The Technology Acceptance Model is used to explain or predict the impact of external factors on users' internal feelings, attitudes, and intentions when using digital technology tools. The TAM model includes five main dimensions: Perceived Usefulness (PU), Perceived Ease of Use (PEU), Attitude Toward Computer Use (ATCU), Intention to Use (ITU), and Usage [17]. The model has two main belief variables: Perceived Usefulness, which refers to the helpfulness for job performance and future performance; and Perceived Ease of Use, which is the degree of ease of use [18] [19]. Based on the above discussion, Barnett (1990) [20] found that the degree of pleasure one feels when participating in an activity or adopting a system is cognitive enjoyment. Later, Barua and Whinston [21] also pointed out that cognitive enjoyment can improve the efficiency of people's activities, meaning that the higher the fun felt during an activity, the easier it is to increase an individual's perceived usefulness. Moon and Kim [22] noted that perceived enjoyment is an intrinsic

belief or motivation shaped by the environment and the individual's subjective experience of using the Internet. They also pointed out that when people use a new system, if they have higher interest, they will be willing to spend more time using that system, and such positive perception is also a boost to perceived usefulness.

RESEARCH METHODS

The rise of the age of sensibility has made the study of aesthetics a pressing need for the general public during this era. The momentum has been set for the development of an innovative industry that merges cultural uniqueness with design; the market for cultural industries fostering the aesthetic economy, experiential economy, and emotional consumption has matured. This market is worth investing in resources and is in transition to an industry with high added value [23]. Emotional design can spark the emotions of consumers, leading to a variety of emotional responses such as happiness, annoyance, excitement, or depression. Emotions are part of the experiential process of products and services, which includes the overall experience, senses, emotions, and the broad social and cultural context, as well as the immediate usage scenario [13] [24]. Through related theoretical research, it is evident that the journey from aesthetic cognition to flow experience and then to technology acceptance is an inside-out process. It begins with the senses, feeling the external environment and the intervention of digital technology, and then integrating oneself into the process of experience. This study merges relevant theories, starting from aesthetic cognition and blending it with the audience's decoding process of information. It encompasses the uptake of sensory aesthetics, the recognition of formal aesthetics, and the emotional impact of symbolic aesthetics. This is also where human-centered design patterns meet immersive experiences, moving from 'people' to 'objects (technology, services)' to 'work behavior (immersion)'. Using human senses to experience technology and services through to immersive behavior, one can appreciate the process of adding cultural, technological, and emotional value to activities. Due to the mixed reality feature, there is also an in-depth exploration and analysis from perceived usefulness, perceived ease of use, to perceived enjoyment within the technology acceptance model.

D. Research Case Introduction

This research consists of four case studies, all originating from Taiwan. These include two apps, "Lotung Treasure Hunt Adventure" and "Jinsha Township Expedition: In Search of the Wind Lion Gods," as well as two websites, "Tachia Matsu Pilgrimage Procession" and "DAXIDAXI Pray for Blessings."

⑩ *Case 1: "Lotung Treasure Hunt Adventure"* is a location-based puzzle-solving game app that allows users to explore Luodong with a lazy-themed itinerary. The content primarily focuses on Luodong temples, historical culture, tourist attractions, and local cuisine. Participants can enjoy solving puzzles while wandering through the hidden corners and alleys of Luodong town. Groups of friends or families can team up to tackle challenges together, and upon successful completion, they can even receive limited edition souvenirs!

⑩ *Case 2: "Jinsha Township Expedition: In Search of the Wind Lion Gods"* utilizes the latest mobile AR (Augmented Reality) technology, guiding visitors to explore each Wind Lion God statue in Jinsha Town and sparking the Lion-Searching craze. The app game not only includes text, images, and sound but also enables real-world and image interaction. It even features hidden Q-version Wind Lion Gods, allowing visitors to join in, strike creative poses, and share their experiences on social media platforms such as Facebook, Instagram, and more!

⑩ *Case 3: "Dajia Mazu Pilgrimage Procession"* is the official website for the Dajia Mazu Pilgrimage, providing information and services related to the event. The site features updates, event notices, pilgrimage schedules, and registration for activities, among other practical resources. Additionally, contact information is available for participants or those interested in the event to obtain more details. The website aims to serve as a comprehensive information platform for the Dajia Mazu faith and cultural activities.

⑩ *Case 4: "DAXIDAXI Pray for Blessings"* serves as the official website, dedicated to celebrating Daxi's culture and festivities. It emphasizes integrating contemporary design with traditional folk beliefs through urban festivals. The site spotlights the annual homage to Guan Sheng Di Jun, unveiling a sequence of activities culminating in the traditional festivity. Highlighting aspects like community, temples, and design, it aspires to forge a modern carnival that promotes cultural exchange, understanding, and inclusivity.

E. Questionnaire Design

This study conducted an initial investigation to explore potential consumers' perceptions of virtual cultural activities, focusing on aesthetic cognition, flow experience, technology acceptance, and willingness to participate.

This study developed research tools through literature review and incorporated an informed consent button in the online questionnaire. It identified three dimensions of aesthetic cognition: sensory, formal, and symbolic aesthetics, with three questions for each dimension. Flow experience was analyzed

through two dimensions: Senses and technology, with nine questions for Senses and six for technology. Technology acceptance was examined through perceived usefulness, perceived ease of use, and perceived enjoyment, with four, four, and three questions respectively, in addition to three questions on the willingness to participate

RESEARCH RESULTS AND DISCUSSION

After excluding invalid questionnaires, this study collected a total of 87 questionnaires.

F. Reliability and Validity of The Questionnaire

4.1 Measurement Model: Scale Reliability and Validity

Table 1 summarizes the results of the reliability and validity analyses. Tests were conducted across various dimensions, including aesthetic cognition, flow experience, technology acceptance, and the overall scale. The findings indicated significant inter-rater reliability (0.8; $p < 0.001$), which meets the standard criteria. After the removal of items E1 and E2 from the scale, the overall factor increased to meet the standard value. These overall results demonstrate the research tool's feasibility. In the final questionnaire, only question E3 and question E4 were retained.

TABLE 1. THE QUESTIONNAIRE RELIABILITY AND VALIDITY (N=87)

Dimension	code	Cronbach α	Factor	
Aesthetic Cognition	Sensory Sa1	0.659	0.908	
	Aesthetics Sa2		0.888	
	Aesthetics Sa3		0.567	
	Formal Aesthetics	F1	0.809	0.864
		F2		0.829
		F3		0.865
	Symbolic Aesthetics	Sy1	0.785	0.815
		Sy2		0.785
		Sy3		0.905
Flow Experience	S1	0.826	0.522	
	S2		0.729	
	S3		0.527	
	S4		0.720	
	S5		0.679	
	S6		0.533	
	S7		0.693	
	S8		0.795	
	S9		0.702	
Science And	T1	0.868	0.756	
	T2		0.817	

Techno logy	T3		0.824	
	T4		0.777	
	T5		0.754	
	T6		0.725	
perceiv ed usefuln ess	U1	0.853	0.809	
	U2		0.876	
	U3		0.835	
	U4		0.813	
Techno logy Accept ance	E1	0.34~0.6 90	-0.600	
	E2		-0.657	
	E3		0.742~0. 874	
	E4		0.589~0. 874	
	perceiv ed enjoym ent		En1	0.863
	En2		0.851	
	En3		0.790	
	Willingness to Participate		P1	0.841
	P2	0.890		
	P3	0.833		

G. The Average of The Dimensions of The Questionnaire

Average Comparison of Each Questionnaire Dimension

Comparing the averages across all dimensions of the survey, it can be noted that most scores are above 5. However, the technological aspect of flow experience and the ease of use in technology acceptance score relatively lower on average, suggesting that the technological component of these four virtual activities could be enhanced. It implies a need for a more seamless integration into the event interfaces, particularly for first-time users. Aesthetic cognition has the highest average score among all dimensions, with symbolic aesthetics scoring the highest within this category, indicating that cultural activities, especially in terms of cultural significance, have their advantages. In the technology acceptance model, ease of use scores the lowest across the entire survey, but enjoyment scores are high, indicating that the design of the activities has successfully attracted users.

TABLE 2. AVERAGE COMPARISON OF DIMENSIONS (N=87)

Dimension	AVG	Dimension	AVG
Aesthetic Cognition	5.40	Flow Experience	5.01

Sensory Aesthetics	5.19	Senses	5.12
Formal Aesthetics	5.29	Science And Technology	4.89
Symbolic Aesthetics	5.71		
Dimension	AVG	Dimension	AVG
Technology Acceptance	5.17	Willingness to Participate	5.21
perceived usefulness	5.28		
perceived ease of use	4.45		
perceived enjoyment	5.43		

Comparative Analysis of Survey Responses Across Four Cases

In this study, a total of 87 questionnaires were collected: 25 from Case 1, 21 from Case 2, 23 from Case 3, and 18 from Case 4. These figures are utilized to perform comparative analysis across the questionnaires' dimensions for the four distinct activities.

The average comparisons were conducted for four activities across various dimensions. Case 3 scored the highest average in aesthetic cognition, flow experience, and technology acceptance compared to the other three activities. the willingness to participate showed no significant difference from Case 4. Despite this, the average scores across all dimensions did not vary significantly between the four activities. Case 3 generally performed better, which could suggest that this event is more renowned both domestically and internationally among the four cultural activities.

TABLE 3. RESEARCH CASES

Dimension	Case1	Case2	Case3	Case4
Aesthetic Cognition	5.44	5.32	5.57	5.21
Sensory Aesthetics	5.29	5.08	5.42	4.89
Formal Aesthetics	5.28	5.21	5.57	5.04
Symbolic Aesthetics	5.75	5.67	5.71	5.70

Flow Experience	5.06	5.03	5.13	4.75
Senses	5.21	5.15	5.21	4.83
Science And Technology	4.91	4.90	5.05	4.67
Technology Acceptance	5.16	5.09	5.3	5.1
perceived usefulness	5.30	5.17	5.38	5.25
perceived ease of use	4.30	4.36	4.54	4.67
perceived enjoyment	5.48	5.38	5.57	5.22
Willingness to Participate	5.07	5.21	5.29	5.30

Ⓢ Aesthetic Cognition

Figure 1 displays data from four different cases across three dimensions of aesthetic cognition (sensory aesthetics, formal aesthetics, and symbolic aesthetics). The chart reveals that the ratings for each dimension vary under different scenarios, with "symbolic aesthetics" consistently receiving higher scores across various situations.

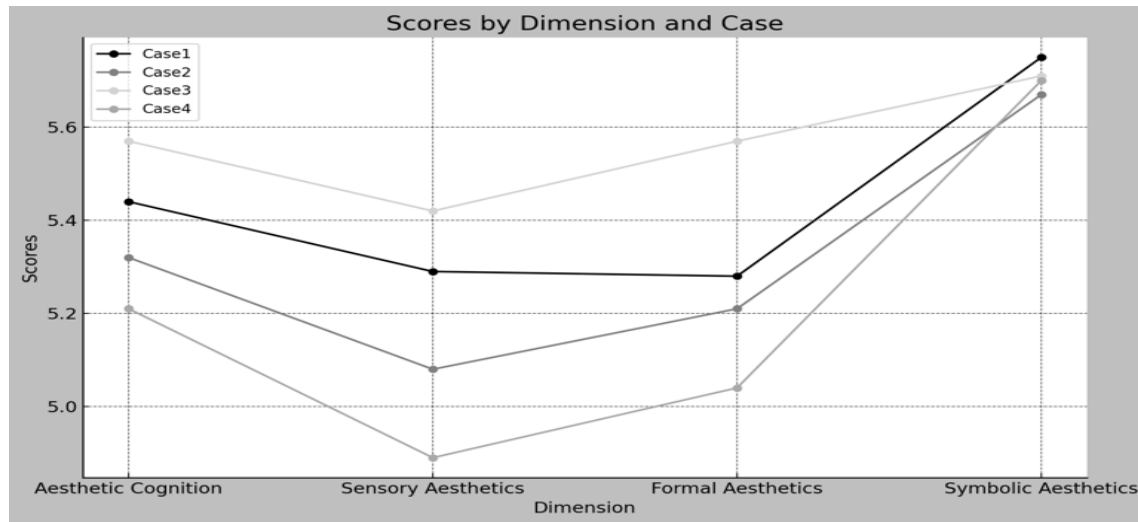


Fig. 1. Dimensional score comparison across cases of aesthetic cognition

Ⓢ Flow Experience

Figure 2 presents the ratings for four different cases across two dimensions of flow experience (senses, science and technology). it can be observed from the chart that the scores for each dimension differ under different circumstances, with "senses" generally receiving higher ratings in all scenarios.◦

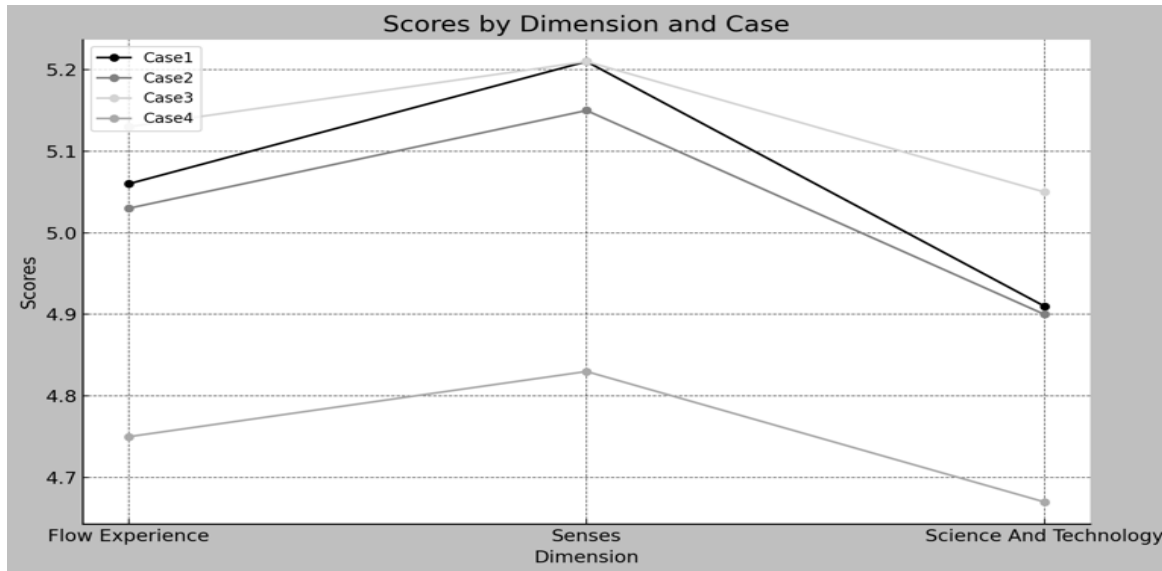


Fig. 2. Dimensional score comparison across cases of flow experience

Ⓢ Technology Acceptance

Figure 3 lists the ratings from four different cases across three dimensions of technology acceptance (perceived usefulness, perceived ease of use, and perceived enjoyment). the chart indicates that the scores for each dimension vary with the scenario, with "perceived enjoyment" consistently scoring higher across different situations.

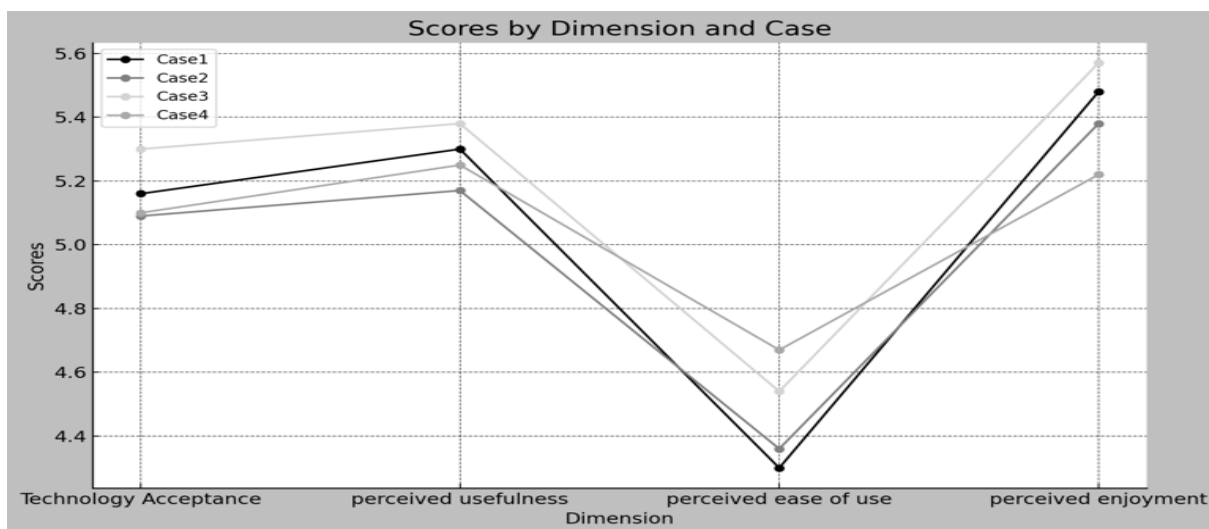


Fig. 3. Dimensional score comparison across cases of technology acceptance

ⓐ Willingness to Participate

The 'willingness to participate' dimension across four scenarios (case 1 to case 4) shows variation in scores. The chart reveals an upward trend in scores as the scenarios change. Compared to local town activities (case 1 and case 2), people seem to prefer religious activities (case 3 and case 4). In terms of platforms, compared to apps, people appear to have a stronger preference for web presentations.

H. Regression Analysis

A regression analysis was conducted to determine Willingness to Participate for aesthetic cognition, flow experience and technology acceptance. The dependent variable of Willingness to Participate reported an absolute value of -0.005 and a p-value of 0.995 , which is greater than $\alpha = 0.05$. Thus, the null hypothesis was not rejected. The constant term was omitted from the regression equation given its potential to be valued at zero.

Among the three independent variables, the p-values for Flow Experience and Technology Acceptance were significant at 0.000 and 0.017 , which is less than $\alpha = 0.001$ and $\alpha = 0.005$, thus rejecting the null hypothesis. This means that Willingness to Participate was positively related with Flow Experience and Technology Acceptance.

Aesthetic cognition reported p-values greater than $\alpha = 0.05$; thus, the null hypothesis was not rejected. this means that there was no significant linear relationship between aesthetic cognition and willingness to participate. Therefore, the coefficients for aesthetic cognition was excluded from the regression equation. Table 4 shows the results of the multiple regression analysis. The regression equation is as follows:

$$\text{Willingness to Participate} = 0.569 \times (\text{Flow Experience}) + 0.347 \times (\text{Technology Acceptance})$$

The results also indicate that, regarding the willingness to participate, the two significant independent variables show that flow experience is more important than technology acceptance.

TABLE 4. REGRESSION ANALYSIS (N=87)

dependent variable	independent variable	B	SE	β	t
Willingness to Participate	Aesthetic Cognition	.112	.131	.099	.859
	Flow Experience	.569	.131	.485	4.354***

Technology Acceptance	.347	.142	.225	2.483*
	R=.694	Rsq=.482	F=25.765***	

*p <.05 **P<.01 ***P<.001

CONCLUSION

This study synthesized insights from previous studies, broadened existing viewpoints, and derived findings through deploying questionnaires informed by historical research. The primary conclusions drawn from this investigation are summarized below.

1. Following the refinement of the questionnaire through item deletion and ensuring all dimensions are fully addressed, the reliability and validity of the analysis results conform to established standards. Furthermore, this questionnaire is positioned to offer valuable design insights or serve as a benchmark for design practices within relevant industries.
2. Upon comparing averages across various dimensions, it was found that symbolic aesthetics scored the highest among all dimensions, signifying that cultural activities, especially in terms of cultural meaning, have their advantages. The high level of perceived enjoyment in the technology acceptance model indicates that people are interested in the design of the activities.
3. A comparison of differences among the four activities revealed that case 3 generally performed better, suggesting that this activity may be the most renowned both domestically and internationally among the four cultural activities.
4. Regression analysis reveals a significant impact of flow experience and technology acceptance on individuals' willingness to engage. Therefore, it's advantageous to embed interactive experiences within virtual cultural activities, emphasizing sensory perceptions, emotional responses, and a wider array of socio-cultural meanings. Ensuring that interactive interfaces are user-friendly, straightforward, and entertaining is essential, as this can elevate enjoyment and encourage more frequent and prolonged use.

In summary, this study aims to provide some helpful perspectives on enhancing the engagement and meaning of cultural experiences. It suggests the potential benefits of incorporating sensory and emotional components alongside technological aspects to possibly deepen user engagement and participation.

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REFERENCES

- [1] A. C. Barua, & A. B. Whinston, "Creating a collaboratory in cyberspace: theoretical foundation and an implementation," *Journal of Organizational Computing*, 1996, vol.5(4), pp. 417-442.
- [2] A. G. Ho, & K. W. M. G. Siu, "Emotion design, emotional design, emotionalize design: A review on their relationships from a new perspective," *The Design Journal*, 2012, vol.15(1), pp.9-32.
- [3] B. Schmitt, "Experiential marketing," *Journal of marketing management*, 1999, vol.15(1-3), pp.53-67.
- [4] C. C. Liu, & C. T. Huang, "The Relationship between Web Aesthetics Cognition and E-loyalty: The Moderating Effect of Users'," *Motivation. Marketing Review*, 2014, vol.11(3), pp.255-284.
- [5] C. Yu, C. C. Yu, & T. F. Yu, "The Effects of Perceived to the E-learning and E-learning Continuance Intention," *Electronic Commerce Studies*, 2011, vol.9(3), pp.323-351.
- [6] Council for Cultural Affairs, "Creative Taiwan-Cultural and Creative Industry Development Plan," Taipei City: Council for Cultural Affairs, 2009.
- [7] D. A. Norman, "Measuring emotion," *The Design Journal*, 2003, vol6(2), pp.1-4.
- [8] E.Diener, & R. A. Emmons, "The independence of positive and negative affect," *Journal of personality and social psychology*, 1984, vol 47(5), pp.1105.
- [9] F.D. Davis, "Perceived usefulness, perceived ease of use, and user acceptance of information technology," *MIS Quarterly*, 1989. vol.13(3), pp.319-340.
- [10] J. L. Nasar," *Environmental aesthetics: Theory, research, and applications*," New York: Cambridge University Press, 1988.
- [11] J. McCarthy, & P. Wright, "Technology as experience," *Interactions*, 2004, vol.11(5), pp.42-43.

- [12] J. W. Hsia, "The Impact of Perceived Ease of Use, Perceived Usefulness, and Perceived Playfulness on the Intention to Use e-learning Systems in Universities Setting: A Chung-Hua University Case," *Journal of Performance and Strategy Research*, 2010, vol.7(2), pp.35-47.
- [13] J. W. Moon, & Y. G. Kim, "Extending the TAM for world-wide-web context," *Information and Management*, 2001, vol.38(4), pp. 217-230.
- [14] K. P. Gwinner, D. D. Gremler, & M. J. Bitner, "Relational benefits in services industries: the customer's perspective," *Journal of the academy of marketing science*, 1998, vol.26(2), pp.101-114.
- [15] L. A. Barnett, "Developmental benefits of play for children," *Journal of leisure Research*, 1990, vol.22(2), pp.138-153.
- [16] L. K. Trevino, & J. Webster, "Flow in computer-mediated communication: Electronic mail and voice mail evaluation and impacts," *Communication research*, 1992, vol.19(5), pp.39-573.
- [17] L. Tiger, "The Pursuit of Pleasure," Boston: Little, Brown, 1992.
- [18] M. Hassenzahl, "The interplay of beauty, goodness, and usability in interactive products," *Human-Computer Interaction*, 2004, vol.19(4), pp.319-349.
- [19] M. Csikszentmihalyi, *Beyond boredom and anxiety*. Jossey-Bass, 2000.
- [20] R. T. Lin, & M. S. Wang, "A Study of Development and Prospect of Taiwan's Design Industry," *Journal of National Taiwan College of Arts*, 2008, vol. 82, pp.49-70.
- [21] S. Y. Chen, & C. C. Liu, "Types of cognition of temple aesthetics through Q method," *Journal of Sport and Recreation Research*, 2016, vol.11(1), pp.42-57.
- [22] S. Y., Hung, T. P. Liang, & C. M. Chang, "A Meta-Analysis of Empirical Research Using TAM," *Journal of Information Management*, 2005, vol.12(4), pp.211-234.
- [23] W. Green, & P. Jordan, "Pleasure with products: Beyond usability," London: Taylor & Francis, 2002.
- [24] Y. Y. Kang, R. T. , Lin, M. S. Wang, & J. W. Lin, "A Study of Design Evaluation Questionnaire," *Industrial Design*, 2007, vol.36(2), pp.164-169.