

Designing “Qualia” into Night Market for Taipei City

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Abstract. This research focuses on night market, emphasizing both the eating style and users eating emotion. It investigates the user’s need for Taiwan tradition food as a replacement place for regular restaurant. The study presents a process, based on user requirements, for developing guidelines for night market Qualia design targeted at community, and contributes to our understanding of community’s eating preferences and the effects of this new style on eating environment. Fore factors affecting night market qualia design are identified and discussed; these guidelines can be categorized into tree principles of design dimensions. Some ideas for night market qualia design are verification, and finally, a new design dimensions based on Taipei city style is proposed. Future research could apply the principles to other groups of night market users based on the concept of design dimensions.

Keywords: Qualia, Night market, Design dimensions, Taipei City.

1 Introduction the Night Market in Taipei

Taiwan is ranked 20 one of the world's most densely populated areas. U.S. Cable News Network (CNN) just enumerated ten better things in Taiwan than other places, where the first thing throughout is the night market in Taiwan [1]. Night Market is the main market for trading done at night; it may sell food, clothing, groceries and even amusement. Night Market is often important tourist attractions in tropical and subtropical countries; it is an important representative of the common people living culture in Taiwan, Hong Kong and Southeast Asia [2]. In this research, the **Chien-Cheng Circle** (Chinese: 建成圓環; pinyin: *Jiànchéng Yuánhuán*) or **Taipei Circle** will be the target of investigate sample, it was once a bustling food market and a city landmark in the Datong district of Taipei. It existed 96 years from its opening during the Japanese colonial era [6].

2 Purpose of Investigation

In recent years, the urban renewal plan makes people of each region in Taiwan sparked mixed reactions. This research want to know is it because of this design event

such will trigger different emotions and reactions that specific changes people in Taiwan have different night market consumer behavior. According to field investigation, Taipei Circle was a very flourish traditional night market before 2006, because it's meager firefighting equipment, after urban renewal such a crowd gustatory landmarks turned into popularity less glass ruin even it has the modernization glossy appearance. Thence, Taipei Circle is a clear sampling, but in this study, the research and analysis will focus on attributes of consumer behavior between urban renewal using questionnaire. Based on timeline recording approach, it described all images, evolution, and development related to Qualia and night market in Taiwan as shown in Fig. 1.



Fig. 1. Images, evolution, and development related to Qualia and night market in Taiwan

Table 1. Questionnaire Design and sample I

Part I No.	What is your level of understanding related to the environment of Taipei Cycle	Not very understand	Not understand	Common	Understand	Very understand
1.	I understand Taipei Cycle for overall overview					
2.	I understand Taipei Cycle for urban landscape					
3.	I understand Taipei Cycle for economic development					
4.	I understand Taipei Cycle for sales policy					
5.	I understand Taipei Cycle for historical background					
6.	I understand Taipei Cycle for environmental characteristics					
7.	I understand Taipei Cycle for specific practices (such as festivals)					
8.	I understand Taipei Cycle for food Culture					
9.	I understand Taipei Cycle for design style					
10.	I understand Taipei Cycle for an event					

Table 2. Basic information and sample2

Gender	○Male ○Female
Age	○Under 15 years old ○16~20 years old ○21~25 years old ○26~30 years old ○31~35 years old ○36~40 years old ○41~45 years old ○46~50 years old ○Above 51 years old
Education	○Under High school ○Colleges ○Above Graduate school
Monthly family income (NT dollar)	○Under 49,999 NT ○50,000~99,999 NT ○100,000~149,999 NT ○150,000~199,999 NT ○Above 200,000 NT
Personal monthly expend (NT dollar)	○Under 4,999 NT ○5,000~9,999 NT ○10,000~14,999 NT ○15,000~19,999 NT ○20,000以上
Profession	○Academia ○Industry ○Commerce ○Service Industries ○others

Table 3. Population and sample

B1		I understand Taipei Cycle for overall overview																										
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y			
1	時間點記	101	102	103	104	105	106	107	108	109	110	110	201	202	203	204	205	206	207	208	209	210	301	302	303	304		
2																												
3	12/24/2013 5:18:08	3	2	2	3	4	3	3	4	3	4	3	4	3	2	4	4	3	4	4	4	3	1	2	3	4		
4	12/24/2013 5:40:51	3	3	2	3	4	3	4	3	4	3	4	4	3	3	4	4	3	4	4	4	4	3	2	3	4		
5	12/24/2013 5:40:53	2	3	2	2	3	3	4	4	3	4	3	3	3	4	4	3	4	4	4	4	4	3	2	3	3		
6	12/24/2013 5:44:05	4	3	3	3	3	4	3	4	4	3	4	3	4	4	4	3	4	4	3	4	3	4	4	3	5		
7	12/24/2013 5:49:20	1	3	3	2	2	4	3	3	4	1	5	4	3	5	2	4	3	4	4	1	1	5	5	5			
8	12/24/2013 5:54:49	4	4	4	3	4	4	4	3	4	5	4	3	4	4	4	4	4	5	4	4	4	2	2	3			
9	12/24/2013 21:59:14	5	4	5	5	5	5	5	5	5	3	3	3	4	3	3	3	3	4	3	2	4	4	5	5			
10	12/25/2013 9:54:04	3	2	3	2	3	4	3	4	3	4	3	4	3	4	2	4	4	4	4	4	4	3	3	4			
11	12/25/2013 9:57:37	2	2	2	3	3	2	3	3	2	3	3	3	3	3	3	3	3	3	3	2	2	3	3	3			
12	12/25/2013 9:59:02	3	4	3	4	4	4	4	4	2	4	4	4	4	4	3	5	5	5	5	4	2	4	4	4			
13	12/25/2013 10:59:35	3	2	3	2	4	4	3	4	4	2	4	4	3	4	2	4	4	3	3	3	2	4	4	4			
14	12/25/2013 11:35:40	3	3	4	2	3	4	3	4	4	4	4	4	3	4	3	3	4	4	4	4	2	3	3	4			
15	12/25/2013 11:49:39	4	3	3	2	4	2	3	4	4	4	4	3	4	4	4	3	3	4	4	3	3	1	3	3			
16	12/25/2013 13:21:25	4	4	4	4	3	4	4	4	4	3	4	4	4	4	4	4	4	4	4	3	2	3	4	5			
17	12/25/2013 13:29:34	3	3	2	2	3	3	2	3	3	2	4	4	4	4	3	1	4	4	3	3	2	3	3	4			
18	12/25/2013 13:46:50	3	3	3	3	3	3	3	3	3	3	4	4	4	4	4	3	4	4	4	3	3	3	3	4			
19	12/25/2013 14:19:19	2	2	3	2	2	3	2	3	2	3	2	2	3	3	3	3	3	3	3	3	1	5	5	5			
20	12/25/2013 14:21:16	3	3	3	2	2	4	4	4	4	1	5	4	5	4	3	2	4	5	4	4	2	4	4	4			
21	12/25/2013 14:54:42	3	3	3	3	3	3	3	4	3	3	4	3	4	4	3	3	3	4	4	3	2	4	3	4			
22	12/25/2013 16:06:17	3	4	4	3	3	4	4	5	5	4	5	4	4	5	3	3	5	5	5	5	2	3	3	3			
23	12/25/2013 20:55:59	3	4	3	3	4	4	3	4	4	3	3	3	3	3	3	3	3	3	3	3	2	4	4	5			
24	12/26/2013 10:40:06	3	4	4	3	3	4	3	4	4	2	4	4	3	4	3	3	3	4	4	4	3	2	3	4			
25	12/30/2013 16:32:20	3	3	3	2	3	3	3	3	3	2	5	3	4	5	4	2	4	4	4	4	3	2	4	5			
26	1/1/2014 17:20:18	3	3	3	2	4	4	3	4	4	1	4	4	4	4	4	1	3	4	4	3	2	4	4	4			
27	1/5/2014 23:54:19	4	4	3	3	3	4	4	4	4	3	4	4	4	5	4	3	3	4	4	3	3	2	2	3			
28	1/5/2014 23:59:26	3	3	2	1	2	3	2	3	4	2	2	2	2	4	1	1	3	4	3	2	3	2	2	4			
29	1/8/2014 0:05:01	3	3	3	3	3	3	3	4	4	3	5	4	4	4	3	3	4	4	4	4	4	3	3	3			
30	1/12/2014 13:22:29	4	4	4	4	4	4	5	5	3	5	5	5	5	5	3	4	5	4	5	2	4	5	5	5			
31	1/12/2014 13:29:59	3	3	3	2	2	2	3	4	2	4	4	3	3	3	2	2	2	3	2	2	1	5	5	5			
32	1/12/2014 13:30:41	3	3	2	2	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			
33	1/12/2014 13:31:39	3	4	3	2	3	3	3	3	3	2	2	2	2	3	2	2	2	3	2	3	2	2	2	2			
34	1/12/2014 13:31:57	3	3	2	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3			
35	1/12/2014 13:32:02	3	3	3	2	4	3	3	3	2	2	5	2	3	5	3	3	4	4	3	3	2	3	3	3			
36	1/12/2014 13:32:35	3	3	3	3	3	3	3	3	3	3	4	3	3	3	3	3	3	3	3	3	3	5	5	5			
37	1/12/2014 13:33:06	3	3	4	3	3	3	4	4	2	3	3	3	3	3	4	2	3	3	4	3	2	3	3	4			
38	1/12/2014 13:33:10	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	4	5	3	3	3			
39	1/12/2014 13:33:12	3	3	3	2	3	4	3	3	4	3	4	3	4	4	2	3	3	3	4	3	2	4	4	5			
40	1/12/2014 13:33:45	1	3	3	3	2	4	5	5	2	3	3	3	4	3	3	5	4	4	4	1	1	1	1	5			
41	1/12/2014 13:34:12	4	4	3	2	3	3	4	4	4	3	3	4	4	3	3	4	4	4	4	3	3	4	3	4			
42	1/12/2014 13:34:29	3	3	3	3	4	2	4	4	4	4	4	4	4	5	4	4	4	4	4	3	4	3	3	4			
43	1/12/2014 13:36:09	3	4	3	4	4	4	4	4	3	4	5	4	5	5	3	4	4	5	4	3	1	1	3	3			
44	1/12/2014 13:36:36	3	2	4	3	3	3	5	4	4	3	4	4	5	3	5	3	5	4	2	3	1	1	3	5			
45	1/12/2014 13:36:41	3	3	2	2	4	4	4	4	4	3	5	5	3	4	5	4	4	5	4	5	2	3	2	4			
46	1/12/2014 13:36:51	3	3	3	3	4	4	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	2	5			
47	1/12/2014 13:39:30	1	1	3	3	3	3	3	3	3	3	1	1	3	4	5	3	2	1	1	2	2	1	1	5			
48	1/12/2014 13:40:23	4	4	4	3	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4			
49	1/12/2014 13:41:30	3	4	4	3	3	3	3	4	4	3	3	3	3	3	3	2	3	3	3	3	1	3	3	4			

3 Designing “Qualia” into Night Market

3.1 Designing “Qualia”

Emotional feeling when stimulated by stimulus in the environment. Qualia the meaning of life; It is a kind of emotional satisfaction; It is a moving experience; It is felt with the heart of a romantic touches and the deepest emotions of consumers heart [7]. Thus, with the building and displays change in the way, snacks in Taipei Circle also transformed into two levels, first into commodities from food (livelihood sense) (consumer sense), and then into the atmosphere from the commodity (the symbolic meaning), so Taipei Circle has been completely reborn, food court replace the original meaning. Food converted from making sense of practical value to mean "display the atmosphere". The room quality is increase, but the traditional social connect is far away lose.



Fig. 2. Before urban renewal
From <http://47go.org.tw/article/845>

After urban renewal

3.2 Subjects within the Factor

Table 4. T test Single sample statistics

	Number	Mean	Standard deviation	Standard error of the mean
I understand Taipei Cycle for overall overview	75	2.9733	.73472	.08484

Table 5. One-sample test

I understand Taipei Cycle for overall overview	Test value = 3					
	T	DOF	Significant (two-tailed)	Mean difference	95% confidence interval of the difference Lower bound	Upper bound
	-.314	74	.754	-.02667	-.1957	.1424

3.3 Frequency Distribution Table

Table 6. Frequency distribution table

	Number	Percentage	Valid Percent	Cumulative Percentage
Valid 2.00	5	18.5	18.5	18.5
3.00	17	63.0	63.0	81.5
4.00	5	18.5	18.5	100.0
Total	27	100.0	100.0	

I understand Taipei Cycle for overall overview:

4 Case Study Analysis

In early 2014, after the questionnaire is completed, there will be the subjects of each data processing and statistics; in this case using SPSS17.0 statistical software for data processing and analysis. The statistical methods used include:

1. (Descriptive Statistics) statistics measure the number of testing persons, ages and education level, in order to understand around the ring urban renewal period’s consumers behavior to the night market perception of both qualia sense of the best combination sequence, the mean (M) and standard deviation (SD).
2. Quantity dependent samples repetition two-factor analysis of variance (Two-way ANOVA): To distinguish the degree preferences of night market, in order to understand before and after the Taipei cycle urban renewal period, consumers whether are significant differences on image qualia of night market.
3. post-mortem analysis: A simple main effect test and LSD method dependent samples post hoc comparisons, in order to understand before and after Taipei cycle urban renewal period, consumers whether are differences on quality exists of night market, was it significant?
4. The average number of paired samples tests (T-test): Questionnaire results are compared to each other for whether are differences and locate the way to present the night market qualia is significantly different before and after Taipei cycle urban renewal period.

4.1 Research Method and Discussion

In this experiment, 76 tester both acceptance testing by four groups (10 questions, 10 questions, 7 questions, 11 questions) questionnaire experimental treatment, therefore, every subjects were repeated observations under 38 experimental conditions, resulting 4 groups have relevant between significant differences under different conditions; Thus, the sense of the different samples tested qualia assessment mused from the same group of people, this called Repeated Measure Design; And because those two independent variables are all dependent repetition number samples, so execute a two-factor of variance dependent samples analysis (Two-way ANOVA), to test

"Taipei cycle around the urban renewal" and "consumer behavior" these two independent variables whether are the existence of interaction. If there is an interaction that means the main effect of a variable depends on the level of other independent variables, there must be execute simple main effects test and post multiple comparisons to determine which groups of consumer behavior tested samples are significantly different.

4.2 Two-Way ANOVA Analysis

Factorial Analysis of variance is researcher while using two or more independent variables X_a , X_b For a certain impact on dependent variable is involved in mean differences test [4]. Multi-factor analysis of variance usual divided into Two-Way analysis of variance and Three-Way analysis of variance, More than three-factor analysis of variance test rarely appear on the general research. At the same time, it based on design consider, the independent variables may be an independent sample design or dependent sample design. It has led to multiple factors design completely independent, totally dependent, mix design, such as different forms: information simplifying and abstract.

Three independent variables are understand, normal and not understand of Taipei Cycle night market that are degree of common horizontal axis, make one of them individual line, after swap is still considered. In this investigate design, the dependent variable is qualia rating around the urban renewal period of Taipei Cycle and consumer behavior is fixed factor.

In additional options, it is better select the narrative analysis of the statistics, homogeneity test, the effect size of the appraised value and the ability to observe the test, after comparing the three levels of self-selected variables into the list then select the appropriate method such as LSD post hoc comparisons, Turkey and Scheffe method. Through above discussion, Factor loading values for each subject after the shaft must be up to 0.5 above as selection criteria.

5 Result and Discussion

5.1 Fuzzy Logic Describes Night Market

Fuzzy theory is developed on the basis of mathematics professor L.A.Zadeh in the University of California at Berkeley's Department of Electrical Engineering was founded in 1965 on the theory of fuzzy sets, including fuzzy set theory, fuzzy logic, fuzzy reasoning and fuzzy control content and other aspects of contents [10]. Therefore, it called fuzzy concept refers to the extension of the concept of uncertainty such is it not clear extension, it is ambiguous. For example, "night market is fun" of this concept, it is clear that we connotation, but its extension, that is what market within fun, it is difficult to say clearly, because "fun" and "not fun" between does not have a defined boundary, which is a vague concept. Thus, Taipei Circle should within feeling; it is not easy distinguish right from wrong, because "feeling" and "no feeling" between does not have a clear demarcation line. And this is the reason which made Taipei Circle decay. The design dimension is not clear at once.

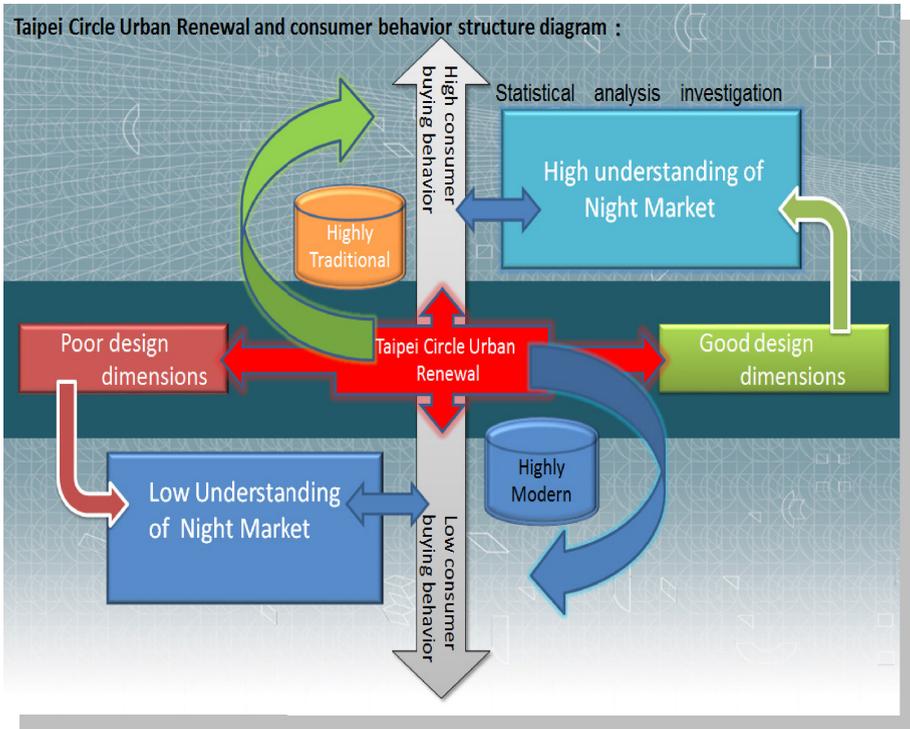
Table 7. Achievements of designing “Qualia” into night market for Taipei City

Comparison differences of Taipei Circle after urban renewal plan		
Items of comparison	Traditional scene	New virtual scene
Space Demands	<i>Space separate</i>	<i>Space connected together, Not easy to find position, entrance and surround</i>
Space visual effects	<i>Real photo panorama presented, but only 2D plane effect</i>	<i>meticulous 3-dimensional detail, but inevitably the actual gap</i>
Range of presents	<i>From any angle of any object or any object in any corner of the scene can easy move</i>	<i>360-degree glasses from the inside and out, and scene is bright and have air condition</i>
Scenes interaction	<i>Easy sneak into the space, walk and interact with objects and around</i>	<i>first-person orbital rotation on Left and right or up and down, the designated space narrow</i>
Production costs	<i>Production process is easy and fast</i>	<i>Production process is difficult and time-consuming long</i>
Use threshold	<i>Lower requirements of hardware and less fire equipment</i>	<i>Requirements of hardware and full of fire equipment</i>
Extending the application	<i>Unlimited</i>	<i>limited</i>

These are all attributes which can be further improved in the future. It is clearly, architecture is the main point, only architect’s design concept of the building. After the completion built of hardware then placed "Software Elements" into it, What a pity, these software elements are food with emotion come from people who use their hands made, but even more tragic is the original link to social relationships between people, as the social context are excluded, only Architecture is the subject, the rest are not thing. That’s the reason why Taipei Circle waned.

5.2 The Relevance between Taipei Circle Urban Renewal and Consumer Behavior

Table 8.



6 Conclusion

From the above analysis can be learned: This ANCOVA analysis three standards average of each 1-2,3,4-5, three standards average after adjusting are 1.6667,3,4.0769, those are approach significantly standards. It showed whether understanding of night market or not, their consumer behavior has a significant difference ($F(2,538) = 14.907, p < 0.122$), because interaction effect level not significant, which means that linear relationship between common variables and dependent variables of each group are consistent, The main effect of the test should be carried out simply to discuss under what circumstances, the degree of understanding will increase or decrease, it also shows the degree of understanding has to reach large certain extent which will affect consumer buying behavior. Analysis can be learned by another: This independent samples two-way ANOVA whether two main effects or interaction effects all reached significant standards. It Shows whether the impact of Taipei Circle urban renewal, the degree of understanding of night market was no significant difference ($F(3,61) = 13.182, p = 0.05$), Taipei Circle Urban renewal also has an impact as expected in

consumer buying behavior differences ($F(0,544)=4.773$, $p=0.000$). Furthermore, the understanding of night market and the urban renewal plan of Taipei Circle will all interaction and affect consumer behavior ($F(2,538)=7.04$, $p=1.000$). Since the interaction effect was significant, the main effect will lost analysis value, but it should be run simple main effects test to discuss under what circumstances, the consumer buying behavior will increase or decrease.

In addition, recommended this design dimensions as project templates to the county and city Department of Cultural Affairs, apply for build the local famous night market and also for cultural digital archives extension, monuments promotion, digital archives, protection of its tangible benefits. It can be a reference for the government to develop a new urban renewal category and development more positive educational urban renewal plans.

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