

# Constructing a Servicescape Scale for Higher Education Institutions

Mei-The Goi and Vigneswari Kalidas

**Abstract**—Dealing with inconsistent results in the past literature, this study aims to validate the multidimensional of servicescape and construct a scale of measurement for servicescape of HEIs. Based on intensive reviews of past literature and quantitative sample of 439 students, Confirmatory Factor Analysis (CFA) reveals eight dimensions of servicescape. The multidimensional of servicescape consists of interior, wellbeing, location, exterior, layout and facility, human value, employee, and value and product assortment. This study provides an empirical perspective to design servicescape as a strategy in creating outstanding educational service.

**Index Terms**—Servicescape, higher education institutions.

## I. INTRODUCTION

The 1990s, public universities were corporatized and private higher education has been established to assist government in creating Malaysia as an education hub [1]. In a competitive environment, Higher Educational Institutes (HEIs) have put a lot of effort to create a differential advantage to attract more enrollments of students to their institutes. Millions of dollars are spent to build an attractive institutional environment. For example, a nursing university in Malaysia has invested RM200 million on campus and facilities [2]. Despite these large investments, a study to examine the physical environment that designed by a firm is needed. The tangible stimuli identify as servicescape[3]. Since, the servicescape have short- and long-term effects of customers' cognitions, affect, and behavioral intentions [4]. The amount of sufficient and desirable servicescape is needed to be explored.

A lot of research had highlighted the strategies to design a servicescape in retail and service industry [5]-[7] but little is known about how to design a stimulus to enhance the consumer experience [4], [8]. Past study claimed that a lot of findings related to servicescape are insufficient to provide a detailed understanding of which are the atmospheres' cue effects on shopping behaviour [9]. Ref. [10] recommended that additional conceptual work is needed on the nature and dynamics of servicescape using multiple servicescape elements. Research to date does not provide an adequate knowledge on how to design a servicescape in the higher education industry. Ref. [11] advises that a marketing orientation that well applied could help universities gaining competitive advantages in the global arena. There have been numerous research on servicescape at various industries, for

example, retailing industry [7], [12], [13] and hospitality industry [3], [14]. Even though the dimensions of servicescape were developed well, the dimensions of servicescape are disordered and mixed up. Ref. [15] explained that there is divergence of how to conceptualize the servicescape among marketing literature. Therefore, to fill the gap this study aims to validate the multidimensional of servicescape and construct a scale of measurement for servicescape of HEIs.

## II. LITERATURE REVIEW

Servicescape defined as physical surroundings so as to provide a superior service experience [8]. Servicescape refers as the design of physical environments that outlines by a firm to enhance the action of their employee and customer [3], [16], [17]. Servicescape is manmade environment and it is tangible [3]. Past literature agreed that servicescape play as an important factor in influence customer's behavior, either positive or negative [14]. In service industry, servicescape become more important because of the intangible nature of the service [17]. Although servicescape plays a significant role in marketing literature, past literature had never agreed on the operationalization of servicescape in any industry.

The past literature in Table I had been arranged based on the publication year, from the earliest to the latest. Astudy had reviewed intensively past literature on retailing and grouped the servicescape into five categories, exterior, general interior, store layout, interior displays, and human variables [5]. Ref. [7] had introduced seven multidimensional of the servicescape. The two studies shared some similarities but vary in term of the dimensions introduced. Ref. [7] had covered all the dimensions in [5] but added three additional dimensions that includes product assortment, value, and after sale service. Ref. [16] had introduced three dimensions that being covered by study in [5], but study in [5] grouped the dimensions in one variable name as general interior. Ref. [5], [7], and [16] have provided a holistic view of the multidimensional of servicescape. However, the study has not empirically examine the proposition. Ref. [10] had introduced four dimensions that similar with study in [5] in restaurant setting. But, the study had divided human variables into two separate dimensions, namely staff behavior and staff image [10]. Ref. [18] study are almost similar with study in [10], but the dimensions have not been tested yet.Past study concluded that the store environment introduced in past literature can be grouped into two categories: external environment and internal environment [9], but no agreement toward this suggestion in past literature.

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TABLE I: LITERATURE REVIEW OF SERVICESCAPE

Citation	Industry	Servicescape's dimensions
[7]	Retailing	1. Product Assortment 2. Value of Merchandise 3. Salesperson Service 4. After Sale Service 5. Facilities 6. Atmosphere 7. Store Location
[5]	Review Past Literature	1. Exterior 2. General Interior 3. Store Layout 4. Interior Displays 5. Human Variables
[16]	Review	1. Visual cues 2. Auditory cues 3. Olfactory Cues
[10]	Restaurant	1. Ambient conditions 2. Design factors 3. Staff behavior 4. Staff image
[18]	Literature	5. Ambient cues 6. Design cues 7. Social cues
[3]	Hospitality	1. Facility Aesthetics 2. Layout 3. Electric Equipment 4. Seating Comfort 5. Ambient conditions
[15]	Review	1. Ambient 2. Social 3. Design
[6]	Casino	4. Ambience 5. Navigation 6. Seating Comfort 7. Interior décor 8. Cleanliness
[12]	Coffee Shops	1. In-store music 2. In-store aroma 3. Merchandise quality 4. Service quality 5. Price
[14]	Hospitality	1. Physical Servicescape 2. Social Servicescape
[13]	Shopping mall	1. Mall/store quality 2. Quality of merchandise 3. Convenience 4. Enhancements 5. Price orientation
[19]	Theme park visitors	1. Substantive staging (background, functional) 2. Communicative Staging (Employee behavior, employee image, cultural, atmospherics)

Ref. [3], [6], [10], [12], [14], and [19] had examined a difference sample frame compared to other studies above, which focused on servicescape of service industry. Both studies in [6] and [3] had introduced five dimensions of servicescape that been covered by [5]. However, the studies of [6] and [3] have not included the human variables in their studies as suggested by literature. Literature claimed that the human variables are the most important factors in differentiating the manufacturing and service industry [19]. Thus, a study had focused on the employee behavior, employee image, and cultural element in measuring servicescape [19]. Ref. [15] had suggested three factors of servicescape from past literature, namely, ambient, social, and design. But the study in [15] also neglected the human element. Past study in [3] explained that the dimensions of servicescape may vary because the physical surrounding depend on the type or service. Past study also explained that the dimensions of servicescape vary across the nation, and

marketer needs to alter the dimensions of servicescape that fit into their industry [15]. In order to validate the servicescape dimensions of higher educational institutions, the research question (RQ) needs to be investigated further.

*RQ: What are the dimensions of HEIs' servicescape?*

### III. METHODOLOGY

The method of this study was conducted in four stages. First, a list of all servicescape items was collected based on a review of past studies. Second, market research was conducted. Third, exploratory factor analysis (EFA) was performed to determine the factors of servicescape. Finally, confirmation factor analysis (CFA) was performed to confirm the dimensions and items suggested in EFA.

### IV. RESULTS

#### A. First Stage

The servicescape factors were collected and showed in Table II, 42 factors had been identified from the literature [3], [5]-[7], [12]-[14], [16], [19].

TABLE II: ITEMS OF SERVICESCAPE

No.	Factors	Citation
1.	Auditory/Sounds/Music	[5]; [7];[12]; [16]
2.	Availability of new information	[7]
3.	Availability of parking	[5]; [7]; [13]
4.	Building architecture	[5]
5.	Cleanliness	[6]; [5]; [13]
6.	Color	[16]
7.	Crowding/Customers	[5]; [14]
8.	Cultural	[19]
9.	Customer characteristics/ Fellow customers	[5]; [7]; [14]
10.	Décor	[6]; [13]
11.	Electric Equipment	[3]
12.	Employee Behavior	[7]; [19]
13.	Employee characteristics/ Friendliness of employees	[5]; [13]
14.	Employee Image	[7]; [19]
15.	Employee uniforms	[5]
16.	Entrances	[5]
18.	Fixtures	[5]
19.	Flooring/Carpeting	[5]
20.	General facilities	[7]
21.	Layout	[3];[14]
22.	Lighting	[5]; [7]; [16]
23.	Locations	[5]; [7]
24.	Marquee	[5]
25.	Navigation	[6]
26.	Operating hours	[13]
27.	Other service providers such as a bank	[13]
28.	Price	[7]; [12]
29.	Product	[7]; [13]
30.	Quality of products	[7]; [12]; [13]
31.	Quality of Service	[6]; [7]; [13]
32.	Refund policy	[7]
33.	Register Placement	[5]
34.	Restaurants	[13]
35.	Safety and Security	[13]
36.	Scent	[5]; [12]; [16]
37.	Space for rest and leisure	[7]; [16]
38.	Surrounding area	[5]
39.	Temperature	[5]
40.	Transportation	[5]; [7]
41.	Variety	[13]
42.	Wall Coverings	[5]

**B. Second Stage**

A set of questionnaire was designed to collect data which consists of servicescape items and demographic information. A total of 50 items had been identified from past literature [3], [5]-[7], [12]-[14], [16], [18]. Since the factors of servicescape are collected from different sources, items that have been identified to be redundant and unrelated to the service of higher education was eliminated. Bilingual questionnaire was prepared, all items were translated backward in order to verify the equivalence. All items employed a 5-points Likert scale, where 1 refers to strongly disagree and 5 as strongly agree. Total number of students' enrollment to the public and private HEIs in Malaysia are 1045,322 [20]. In total, 500 students were approached from five private HEIs and five public HEIs. A total of 445 questionnaires were returned and the total amount are exceeded the minimum suggested sample size by past literature. Exploratory data analysis (EDA) was performed, 6 cases were dropped based on two major criteria: the missing data more than 5% or the outliers. Consequently, 439 questionnaires were analysed. The assumption of normality meets perfectly, all the value of skewness and kurtosis were between +1.00 and -1.00. A descriptive summary of respondents is shown in Table III.

TABLE III: DESCRIPTIVE SUMMARY OF SAMPLE

	Variables	N	Percentage (%)
Age	19 or younger	61	13.90
	20 - 23	321	73.12
	24-29	46	10.48
	30 or older	11	2.51
Gender	Male	191	43.81
	Female	245	56.19
Classification	First-year	149	34.02
	Second-year	173	39.49
	Third-year	73	16.67
	More	43	9.82
Type of HEIs	Private	202	46.01
	Public	237	53.99

**C. Third Stage**

Exploratory Factor Analysis (EFA) with varimax rotation was conducted to examine the underlying structure for the 50 items of the servicescape. The results of EFA indicated that all the items were correlated at a moderate level, all p-values were lower than 0.01, and the coefficient (r) value range between 0.75 to 0.13. None of the coefficient values were above 0.80. The Kaiser-Meyer-Olkin (KMO) measure is equal to 0.96,  $p < 0.01$ . Eight (8) factors were suggested, Table IV displays the items and factor loadings for the rotated factors. Literature suggested that items with loading less than 0.40 should be omitted to improve the clarity, then, question 18 is excluded from the analysis in the fourth stage.

**D. Fourth Stage**

Further analysis was performed to validate the dimension of servicescape for the HEIs. Confirmatory factor analysis (CFA) was used to validate the dimensions, and Table V illustrates the results. The overall initial model fit is significant, but the CFI suggests that the initial model is not well fit. The value of CFI below the 0.90 suggested as the acceptable fitness value. A final model was estimated after dropping eight items (Q2, Q13, Q15, Q33, Q34, Q35, Q36, and Q43). The overall final model fit appears quite good,

the RMR and RMSEA are below the 0.08 suggested by Ref. [21]. The items were compared with past literature and all the factors named based on the suggestion of past literature. In summary, there are eight dimensions which measure the servicescape of HEIs: interior, wellbeing, location, exterior, layout and facility, human value, employee, and value and product assortment. In total 42 items have been developed. The result of this study supports the five dimensions of servicescape introduced by past study [5], and additional four dimensions were newly introduced. Three of the new additional dimensions are location [6], wellbeing [13], and value and product assortment [14]. The eight dimensional model fits the data best based on the fit indices and the results are aligned with the finding of past literature [5], [6], [13], [14].

TABLE IV: ROTATED COMPONENT MATRIX

	Factors								Communality
	1	2	3	4	5	6	7	8	
Q1					0.72				0.70
Q2					0.73				0.73
Q3					0.70				0.65
Q4					0.49				0.48
Q5					0.56				0.55
Q6					0.43			0.47	0.63
Q7					0.45			0.52	0.64
Q8	0.40							0.54	0.59
Q9							0.74		0.70
Q10							0.69		0.64
Q11		0.52					0.51		0.64
Q12							0.50		0.56
Q13		0.41							0.58
Q14		0.78							0.74
Q15		0.76							0.66
Q16		0.74							0.70
Q17		0.56							0.55
Q18	0.37				0.37				0.48
Q19		0.62							0.65
Q20	0.51								0.56
Q21	0.50	0.41							0.59
Q22		0.56							0.51
Q23		0.64							0.54
Q24		0.56							0.56
Q25		0.57							0.61
Q26		0.51							0.47
Q27		0.57							0.61
Q28		0.66							0.62
Q29		0.55							0.50
Q30		0.46							0.59
Q31		0.41							0.60
Q32		0.49							0.52
Q33	0.40	0.55							0.67
Q34	0.43	0.56							0.61
Q35	0.58								0.57
Q36			0.45						0.46
Q37			0.72						0.72
Q38			0.77						0.70
Q39			0.68						0.63
Q40			0.74						0.72
Q41			0.72						0.69
Q42						0.75			0.76
Q43						0.73			0.76
Q44						0.76			0.80
Q45						0.69			0.75
Q46				0.56					0.58
Q47				0.65					0.62
Q48				0.69					0.71
Q49				0.72					0.71
Q50				0.68					0.62
Eigen	6.28	5.21	4.14	4.09	3.85	3.23	2.85	1.54	
values									
% of	12.55	22.96	31.25	39.43	47.12	53.59	59.3	62.37	
variance									

TABLE V: CONFIRMATORY FACTOR ANALYSIS OF SERVICESCAPE

Fit indices	Initial model	Final model	Recommended
Chi-square/df	2.53	2.19	<5.00
RMR	0.05	0.05	<0.08
CFI	0.87	0.91	>0.90
RMSEA	0.06	0.05	<0.08
<i>Interior (Factor 1)</i>			
Q1 Environment clean	0.82	0.73	>0.40
Q2 Flooring clean	0.84	Deleted	>0.40
Q3 Air quality	0.75	0.76	>0.40
Q4 Temperature	0.58	0.64	>0.40
Q5 Lighting	0.53	0.59	>0.40
<i>Wellbeing (Factor 2)</i>			
Q6 Safety and security	0.73	0.73	>0.40
Q7 Environment calm	0.76	0.75	>0.40
Q8 Parking	0.47	0.47	>0.40
<i>Location (Factor 3)</i>			
Q9 Location convenient	0.60	0.61	>0.40
Q10 Transportation	0.69	0.70	>0.40
Q12 Road direction signage	0.73	0.72	>0.40
<i>Exterior (Factor 4)</i>			
Q11 Entrance gate	0.68	0.68	>0.40
Q13 Surrounding area	0.69	Deleted	>0.40
Q14 Building architecture	0.77	0.74	>0.40
Q15 Building color	0.67	Deleted	>0.40
Q16 Gardens and landscape	0.80	0.80	>0.40
Q17 Building size	0.71	0.83	>0.40
Q19 Decoration	0.76	0.78	>0.40
<i>Layout and Facilities (Factor 5)</i>			
Q20 Facilities well maintained	0.69	0.68	>0.40
Q21 Up-to-date facilities	0.73	0.72	>0.40
Q22 Café	0.60	0.60	>0.40
Q23 Electric equipment	0.64	0.65	>0.40
Q24 Other service	0.66	0.68	>0.40
Q25 Rest and leisure	0.68	0.69	>0.40
Q26 Registration counter	0.64	0.65	>0.40
Q27 New information	0.72	0.74	>0.40
Q28 Fixtures	0.76	0.72	>0.40
Q29 Department location	0.65	0.66	>0.40
Q30 Library	0.72	0.72	>0.40
Q31 Computer	0.58	0.59	>0.40
Q32 Navigation	0.67	0.59	>0.40
Q33 Interior design	0.69	Deleted	>0.40
Q34 Wall decorations	0.67	Deleted	>0.40
Q35 Chair and table	0.67	Deleted	>0.40
<i>Human Value (Factor 6)</i>			
Q36 Students' crowd	0.56	Deleted	>0.40
Q37 Students behaviour pleasant	0.81	0.80	>0.40
Q38 Expectation of students behaviour	0.76	0.76	>0.40
Q39 Enjoyed with students	0.70	0.71	>0.40
Q40 Students manner	0.82	0.83	>0.40
Q41 Students behaviour agreement	0.78	0.78	>0.40
<i>Employee (Factor 7)</i>			
Q42 Helpfulness employee	0.82	0.81	>0.40
Q43 Attractive employee	0.80	Deleted	>0.40
Q44 Employee behaviour	0.88	0.89	>0.40
Q45 Employee dressing	0.84	0.85	>0.40
<i>Value and Product (Factor 8)</i>			
Q46 Fees charged	0.72	0.72	>0.40
Q47 Programs	0.75	0.75	>0.40
Q48 Quality of service	0.84	0.84	>0.40
Q49 Quality of program	0.83	0.83	>0.40
Q50 Popularity of program	0.71	0.71	>0.40
Reliability	0.98	0.98	>0.70
Variance extracted	0.52	0.52	>0.50

## V. CONCLUSION

Past literature have introduced a contradictmultidimensional of servicescape in various industries. This study took the initiative steps to go beyond the initial multidimensional of servicescape. With the empirical research on servicescape in the educational industry, this study has filled the gap and contributed to the marketing education literature in a number of ways. Firstly, the results provide theoretical support in suggesting that servicescape is multidimensional. The dimensions of servicescape were considered relevant and appropriate for HEIs. The results show that the multidimensions of servicescape consists of interior, wellbeing, location, exterior, layout and facility, human value, employee, and value and product assortment. This study has contributed to the literature by identifying and empirically examining the dimensions of servicescape for HEIs. This study supports the study in [5] and introduces additional three dimensions of servicescape that fit with higher education industry. Secondly, this study proposed a scale for measuring servicescape of HEIs by adopting the dimensions and item of servicescape in retailing theory. Based on the finding, 42 items are suggested to measure the servicescape of HEIs. This measurement is an initial step in adding knowledge within the marketing literature on the operationalization of HEIs' servicescape.

This study also contributed to the practitioners in various ways. Customer with different background react difference toward the same environment and understand customer behaviour is a complex issue. For that reason, the management need to strategize and organize all the factors of servicescape. A single factor is not sufficient to create environments that is capable to influence customer loyalty. In order to have good response from customer, the finding of this study suggested that the management team of an HEIs need to consider all the eight dimensions of servicescape. Since service industry is intangible, controlling limited dimensions of servicescape and create shortcut strategies may harm desire results. Additional dimensions of service can enhance customer expectation toward the university, and it creates a unique characteristic for a university. Additionally, with the operationalization of servicescape, practitioners can understand how the students would value their university. The practitioner can help their university to develop insights into student needs and create the environment that enhance their learning process. In understanding servicescape, the university will know how to deliver an outstanding service.

There are few limitations and suggestion of future researches related to this study. It is hard to generalize the dimension of servicescape, because the HEIs selected differ in size and type. Until the measurement is tested across all the HEIs, it's hard to confirm as a validated instrument for higher education. In order to validate the dimensions further, continuous research can be conducted to cover all types of higher education, such as a university-college, college, and polytechnic. Secondly, some dimensions may not be tested in this study, due to availability of literature. The dimensions should be expanded to include other sources of literature that had not been covered by this study. Thirdly, in order to limit the total number of items, personal judgement

had been used to identify the redundancy of items for servicescape in the higher educational industry. To validate the items further, the measurement should be expanded to include interview expert in higher education industry. Further research might determine the relationship of servicescape toward other dependent variables.

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