

# Factor Analysis of Interior Design Skills in Higher Education According to the 20-Year National Strategy

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**Abstract** - Thailand has announced the 20-Year National Strategy according to the Government Gazette, 2561 B.E.; whereas interior design skill is essential in creative design as well as cultural heritage preservation and public consciousness. At present, there has been no factor analysis research shown the variable relationship between the interior design skills and the particular policies. The researcher therefore synthesizes relevant documents to reveal information for developing the instrument which use as a 5 level rating questionnaire. The data was collected from 614 senior students from the professional program in higher education. The Exploratory and Confirmatory Factor Analysis were conducted on the random split-half sample by using simple random sampling. The research result shows 3 factors and indicates the statistically significant as: 1) Application of Thai Art Design Skills = .92, 2) Public Consciousness = .75, and 3) Entrepreneur Skill = .69. The analysis results can be used for further development in educational system.

**Keywords** - Factor Analysis; Thailand Strategy; Interior Architecture; Interior Design

## I. INTRODUCTION

The 20-Year National Strategy 2561-2580 B.E. was announced on the date of 8<sup>th</sup> October 2561 B.E. according to the Government Gazette, which is essential for interior design field in Thailand as the interior design was classified as Creative & Culture - High Value Services in industry development according to national strategy [1-2]. While such professional education does not have any requirements from the professional council for developing the education in order to meet the 20-Year National Strategy, although such professions are regulated which the opening courses must be approved by the professional council [3-4]. In the meantime, the education must be developed in accordance with the national development policy or the changing social context [5]. This research has constructed statistical validity by analyzing the principal factor and determine the related variables which enable to develop as a model in practice [6]. Since, from the past, there has been no clear view of factor analysis research which makes the present educational system inconsistent with the particular policy. Therefore, this factor analysis of interior design skills in higher education is the key for program development and instructional plan in accordance with national policy.

## II. OBJECTIVE

The research objective was to analyze the interior design skill factor in the higher education level according to the 20-Year National Strategy.

## III. LITERATURE REVIEWS

The 20-Year National Strategy has mentioned the important issues related to the function of interior design profession which besides from educational framework that sets from the professional council like the Architect Council and educational requirements from the Office of the Higher Education Commission [7]. It has been found out that from the National Strategy and related documents can create 4 professional skill components as follows:

**Component 1:** Public consciousness consists of self-reliance and responsibility, self-discipline, thrifty, and generosity.

**Component 2:** Designing skills for cultural tourism development, restaurant designing skills, architectural designing skills related to cultural tourism, and interior environment designing skills related to health-concern.

**Component 3:** Cultural heritage design skills, arts and crafts designing development skills, heritage conservation skills in vernacular architecture.

**Component 4:** Entrepreneur skills, Planning and management skills, communication & negotiation skills among ASEAN countries, and social adjustment skills ASEAN countries.

## IV. RESEARCH PROCESS

### A. Research Tools

From the documentary study, it shows the key factors of professional skills according to the 20-Year National Strategic framework to create research tools which are 5 levels rating scale questionnaire are as follows [8];

- 5 = take action the most
- 4 = take action most
- 3 = take action moderate
- 2 = take action less
- 1 = take action the less

The tools using in this research are scale questionnaires by creating questions and surveys conducted by 5 experts in order to check the content accuracy by Index of Item – Objective Congruence: IOC at criteria between 0.60 – 1.00. After passing through and revising the tools, they are taken directly to evaluate for Reliability by calculating Alpha Coefficient by testing with 30 samples in 30 questions, Alpha Coefficient = .913

### B. Population and Sample

The number of population in this research is 701 people which are senior students in the field of interior architecture and interior design or decorative arts, information from the Office of the Higher Education Commission as of 30<sup>th</sup> June 2560 B.E. [9]. The population determination in this research uses the concept that students participate in curriculum development which the students are mainly involved according to the Model of Saylor (1981) and Taba (1962) [10]. It was also corresponds to the concept of 21<sup>st</sup> century skills which is student involved approach [11]. The size of the sample group in this research is 614 people using the theory of Comrey & Lee (1992) and Hair, et al., (2010) [12-13], divided the sample into 307 students in the exploratory factor analysis and 307 students in the confirmatory factor analysis by simple random sampling.

## V. DATA ANALYSIS

### A. Exploratory Factor Analysis: EFA

The interior design skill factors in higher education according to the 20-Year National Strategy was shown from documentary study. They were brought to consider in Bartlett's test of sphericity and KMO (Kaiser-Meyer-Olkin) > 0.5, Eigen value > 1 and Factor loading > 0.30 [14]. This test helps to indicate variables for confirmatory factor analysis.

## **B. Confirmation Element Analysis**

The result of exploratory factor analysis was analyzed in computer program and parameter estimation by using a method of estimating the parameters of a statistical model so the observed date is most probable (Maximum Likelihood : ML), then examine by considering the consistency of the measurement model and empirical data with the probability level statistics of Chi-square Probability Level  $p > 0.05$ , Relative Chi-square  $CMIN/df < 3$ , Goodness of fit Index  $GFI > 0.90$ , Root Mean Square Error of Approximation  $RMSEA < 0.08$  [15].

## **VI. SUMMARY**

### **A. Summary of Exploratory Factor Analysis**

The common factors of interior design skill according to the 20-Year National Strategy were revealed from data synthesis. Then, they were taken to extract in statistical method by using exploratory factor analysis. The result of analysis reduces from 4 factors with 30 questions, from data synthesis, to 3 factors with 27 questions.  $KMO = 0.938$  Bartlett's Test of Sphericity  $df 351$  and  $p = .000$  by considering the weight value and variables from Table I.

### **B. Summary of Confirmatory Factor Analysis**

The result of confirmatory factor analysis shown Chi-square = .131  $df = 1$   $p = .717$   $CMIN/DF = .131$   $GFI = 1$   $RMSEA = 0.00$ , passed the criteria. The data represents that the model is consistent with the empirical derived data. After considering the Factor Loading and sorted variable weight value from descending, the results are as follows: (see figure 1) Application of Thai Art Design Skills (PF2) = .92, Public Consciousness (PF1) = .75, and Entrepreneurial skill (PF3) = .69.

## **VII. DISCUSSION**

This research has synthesized the data related to interior design skills according to the 20-Year National Strategy [16]. The 4 common factors were found and analyzed by using exploratory factor analysis. The result decrease the factors to 3, then they were taken into statistical process of confirmatory factor

analysis in order to reveal the consistency between the hypothesis model and the empirical derived data. The results of weight value were suitable to implement in the curriculum which consistent with the 20-Year National Strategy appropriately. The research resulted the weight values in descending order as follows:

### 1) *Applying Thai Art to Design Skill* = .92

The designing skill which is concerning about cultural heritage preservation in order to develop tourism industry.

### 2) *Public Consciousness* = .75

The individual activities that concerned in the sufficiency economy principles.

### 3) *Entrepreneurial Skill* = .69

The entrepreneurial skill is focus on the practice of interior design in the ASEAN region in increasing income to the country at least 10%-20% of GDP.

These 3 factors are related to the particular documents. Moreover, the professional skills management in foreign countries such as Council for Interior Design Accreditation of United States of America: CIDA [17], emphasize on professional skills that are consistent with the results of professional skills factor analysis research according to the 20-year national strategic policy framework. Therefore, it indicates that the results of this research is suitable for further development in the educational system.

## **VIII. SUGGESTIONS**

From the result of the research of factor analysis of interior design skills in higher education according to the 20-Year National Strategy, it can lead to the following suggestions:

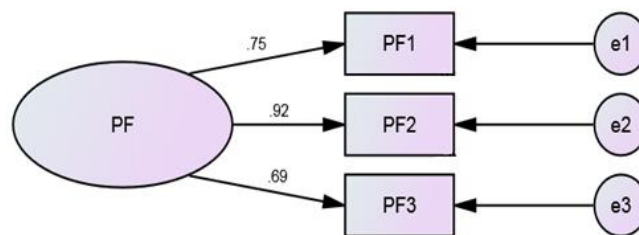
1) The result can be able to use into the educational process in professional skills to be appropriate national development policy according to the 20-year national strategic framework.

2) The result of this research can use for further development of educational models according to the 20-year national strategic framework.

**TABLE I**  
**SHOWS FACTORS, VARIABLE, QUESTIONS**  
**AND WEIGHT VALUE IN THE RESEARCH**

Factors	Variable	Eigen Value	Question (Observation variable)	Weight Value
Professional skill according to the 20-Year National Strategy (PF)	Public Consciousness = PF1	11.312	pf11	.605
			pf12	.563
			pf13	.737
			pf14	.705
			pf15	.781
			pf16	.795
			pf17	.801
			pf18	.773
			pf19	.773
			pf110	.606
			pf111	.658
			pf112	.626
Application of Thai Art Design Skills=PF2	3.804	pf21	.717	
		pf22	.769	
		pf23	.770	
		pf24	.794	
		pf25	.816	
		pf31	.704	
		pf32	.680	
Entrepreneur Skills = PF3	1.934	pf35	.645	
		pf36	.616	
		pf37	.616	
		pf41	.818	
		pr42	.796	
		pf43	.812	
		pf44	.811	
		pf45	.795	

MSA=.938 Bartlett's Test of Sphericity, Significant with value  $X^2 = 5849.505$   $p = .000$



Chi-square=.131,df=1,p=.717,  
CMIN/DF=.131, GFI=1.000, RMSEA=.000

**Figure 1.** Shows the Model for Analyzing the Composition of Variables that Affect Professional Skills According to the 20-Year National Strategy

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**(Arranged in the order of citation in the same fashion as the case of Footnotes.)**

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