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A STUDY OF DEVELOPING A FORM ORIGINALITY SCALE

Chen-Cheng Lin
Nanhua University Assistant Professor
chencheng@mail.nhu.edu.tw

Abstract

This study is to develop a form originality scale which is appropriate for university design department students and to provide with some criteria for related studies and teaching realities. The development of the scale is based on creative thinking tests and product evaluation. Besides, the knowledge of form relationship concepts, thinking process and related results are integrated as well. Furthermore, the product-oriented concept is emphasized in the present study. The chief purpose of the scale is to use the five given basic figures to extend the designing of creative products and select creative forms. The first dimension is to apply non-structural design, while the second, structural design. The Form Originality Scale is proven to be feasible through empirical studies and the authentic application of teaching realities. It can also be used in further studies.

Key Words: form, form originality, form originality scale

Introduction

Background and Motivation

The introduction of White Paper on Creativity Education (Ministry of Education, 2002) points out that the twenty-first century is an age of dramatic change, the development and introduction of information technology and the diversification of the society will take place in a dramatic speed. Therefore, human being is facing the Third Industry Revolution. This revolution refers to an age of Knowledge Economy. In this age, originality thinking, critical thinking, or problem-solving will become the critical basic ability of the global citizens in the future. Originality can be considered as the process composed of knowledge production, knowledge application, and knowledge extension. As a result, originality is the origin of creativity. On the other hand, creativity and originality are related to each other. Originality is based on the application of the creative intelligence. The efficiency of originality is developed by the results of creativity.

Form designing is one of the required courses of students of design departments in universities. It is essential for building abilities of application of designing. The form designs of high originality are the professional ability as well as goal of the design departments' curriculum. In this age of Knowledge Economy, the development of form originality is of special importance.

Those who are teaching the courses of design curriculum all want to know what the form originality ability of the design department students is acquired only after learning certain parts of design. None of feasible tools for the related studies come into being up to now. This is the motivation of the researcher to conduct the present study.

Literature Review

Theoretic Base of Form

1. Definition of forms

In general, forms mean the message received by the visual organ of human beings and transferred as meaningful shapes. Specifically speaking, forms mean the interpretation of shapes through certain processes. Forms do not mean the conditions or stats of the existence of objects. The behavior of building forms means creating the outlook and the inner organization. Thus, the thinking process through those who create the forms and the behaviors which create the visible, touchable items are the creation of forms (Lin, 1995).

Forming behaviors include a variety of works. The activities related with forming flat forms, three-dimension forms, objective or abstract forms can be called forming. What people call forms has the connotation of cultural tradition, social manners, and human beings' behaviors. Namely, these are meaningful creations. The key factors of human being's creation include senses, concepts, ideas, philosophies, cultures, traditions. The Chinese in Shan and Chou dynasties had developed the activities and ideas of forming creation. It is said in the Book of Change that the spiritual things are Tao, while the earthly things are implements. And Tao refers to concepts, the core principles of creation of forms. Implements are objects. They are the tools or things made in specific shape. They are designed for certain purposes (Lin, 2001).

2. Classifying of Forms

The basic classifying principles of forms are listed on Table 1.

3. Formative Fields

The fields of forms are rather wide. Their content is changing with the progress of civilization and social development. Generally speaking, all the things and activities related to

human beings' daily lives belong to the field. Formative fields can be divided into three basic categories according to functions and spatial features: visual-transmission design, industrial product design, and spatial environment design.

a. Visual-transmission forms: it is used to express the information, deepen the impression, and achieve commercial purposes. The main forms include word styles, designs, signals, CIS, advertisement, posters, covers, pictures, trademarks and POP. As the technology progresses, there are more and more varieties of the conveying forms and tools. The ancient hand-made products are replaced by printing methods, televisions, broadcasting, computers, and LACER technology. Thus, the range of the spreading of information includes all the places in the whole world. People of the world can get information with ease.

Table 1. The Basic Classification of Forms

Classifying principle	Examples of forms
From the perspective of syntax	Formative works (products and engravings) and formative creation (molding and structuring)
Form the principles of formation	Natural forms (peddles, eggs, and banks) and artificial forms (architectures, engravings, and products)
Form the principles of usage	Artistic forms (painting, engravings, and flower arrangements) and practical forms (architecture and products)
Form the principles of volume	Flat forms (paintings, photographing, and printing), three-dimension forms (engravings and products) and environment forms (gardens and city planning)
Form the principles of material	Paper forms, wooden forms, china forms, metal forms and plastic forms
Form the principles of senses	Visual forms, spatial forms, visual and audio forms
Form geographical principles	Chinese forms, Egyptian forms, French forms, and American forms
Form the principles of forming elements	Organic, genetic, spatial forms and the forms of the beams of light
Form the principles of style	Balanced, proportional, comparative, and harmonic forms

(Lü, 1984:18)

b. Industrial product forms: the functions of products are based on the engineering, aesthetics, biological, and mental factors. Their purpose is to meet the users' needs through the operations of products. The forms of products are the interfaces between human beings and products. Namely, they are the means of the communication between human beings and products. The combination of attractive appearance and complete functions of products will make the users feel comfortable and satisfied. Besides, the operation environments factors of products are important for the design. Therefore, only the ideal products with attractive appearance and complete functions can perform best in operations.

c. Craft forms: Crafts refer to the hand-made works. The focus is on the personal expression of the one who create it. It is rather different from the formulated industrial products which are produced massively. Crafts can also reveal personal styles. Sometimes, they reflect the living taste of present lives. As for the craft of folk customs, they express the local special characteristics. Crafts are the contrast of the formative art of nowadays, they still evoke the people's emphasis of traditional art (Li, 1990) .

d. Environmental landscape forms: environmental landscape forms do not represent the existence of environment. The symbolization represented by them and their surroundings are more important. The surroundings include the passengers, moving vehicles, all things near them (Lin, 1995). The purpose of environment landscape forms is to provide with ideal living space, such as the community planning, the arrangement of flowers, grass, and engravings in the park, the spatial planning of outdoor rest places.

e. Exhibition spatial forms: the place of exhibition must show the sense of beauty itself. Therefore, among the components of the formative structures of exhibition places require the elements of beauty. The people who see these places should generate the cognition and images

through the mental phenomenon of formative elements and have the feeling of relax and ease to the space of the exhibition places. The types of exhibition places include museums, shopping malls and so on.

f. Indoor spatial forms: indoor space is different form exhibition space. Inner space is to provide with appropriate living environment. The core spirit of indoor space design is to plan space according to the habits of human beings, while the exhibition places is to meet the need of numerous audiences who complete the visit in a short time. Besides, indoor spatial design has to cooperate with inner function and the comprehensive planning of the buildings. The designers of the architectures of nowadays tend to use multiple-function spatial planning. They also make the forms of the inner spatial arrangement meet the needs of the users. It is rather important for modern people who emphasize personal tastes.

g. Building forms: building forms refer to the comprehensive design of the functions, structures, and forms of the buildings. They are mainly residences, schools, companies, factories, and stores. The form of the building has to be consistent with the surroundings and the nearby scenes to keep the harmony of the whole view. As Focillon says that building art's uniqueness is inner comprehensiveness, building art fits the space of the building and forms a unique cosmos. Indeed, the outer space will make the shape integrated with the nature. By this, sense of harmony and consistence are generated and eliminate the artificial elements (Chang, 1994).

Theoretic Base of Form Originality Evaluation Index

1. The Concept of the Relationship among Forms

The relationships among forms can be realized in the formative works in our daily lives. From the perspective of forms, the reasonability of works is conveyed through the explanation of their connotation. The diversity is the key to explain the relationships between human beings and

works. Therefore, in the course of the creations of the works, there is continual and close relationship between human being and works (Lin, 1984).

2. The Kinds of Mutual Relationships among Works of Creation

The mutual relationships between human beings and works can be viewed as the elements of the creation of works. These elements are also classified according to the need of human beings, such as sizes, ordering of sequence, materials, and functions. The mutual relationships are taken into consideration of the harmony between human beings' characteristics and the functions of the elements. Take one of the elements, color, as one example. Human beings' sense of vision and touch used to evaluate things through the reflection of perceptions and feelings. The ease of operation and functions are the main factors of meeting human beings' perception. The following table shows the perception factors and formative elements.

Table 2. Element Factors and Human Beings' Perception Elements
(Lin, 1984)

Element factors	Human beings' perception elements
Color, material	Feeling elements
Size, ordering	Action elements
Functions	Purpose elements

3. The Conceptual Framework of the Relationship between Human Beings and Works

The relationship between human beings and works is based on the conceptualization of senses, values, evaluations, methods, and functions. The rationales are elaborated as the following shows.

The objective performance of products of specific design is their out-looking. However, those are claimed to be the products with the form of originality should not be limited within the framework of outer shape. The design should be done from the dimensions of producers, users,

collector, and those who would appreciate them. Nevertheless, the types of products with specific forms are highly related to the existence of human beings. To be more specific, the difference between animals and human beings is that creativity belongs to the latter. Therefore, the creativity accompanies human beings. Human beings are always seeking beautiful forms and pleasing ones.

Besides, forms are designed through originality. There is some connection between the process of producing objective form and the ideas shown in the products. For example, people only purchase things that attract and please them and fit their practical needs as well. As the daily commodities with specific forms, their design must include practicality, safety, operational ease, and the fitness to the environment. If the products are treated as the art collections, the priorities of its design are its aesthetic function. The following figure is the five indicative of the form originality.

The relationships between human beings and the works can be hypothesized according to the structural modeling of the concepts such as ideology, value, evaluation, method, and function.

The purpose of the works of human beings is to meet personal needs in the initial stages. The ideology of the works fit the concepts of human beings best. The most basic of the concept of the works is their operation function, which hardly meet human beings' ideology. The reason is that every individual has rather different perception on the same work. Therefore, they have different criteria of judgment of works, and they generate the concept of values. Form the value of the concepts of works, the generation of operation functions is necessary to act as one of the factors of the creation of the works. And one operation function should cooperate with other factors of the creation of the works of human beings (Lin, 1984).

The cooperation of the evaluation concepts, ideology, operation, value, method can be shown in Figure 1

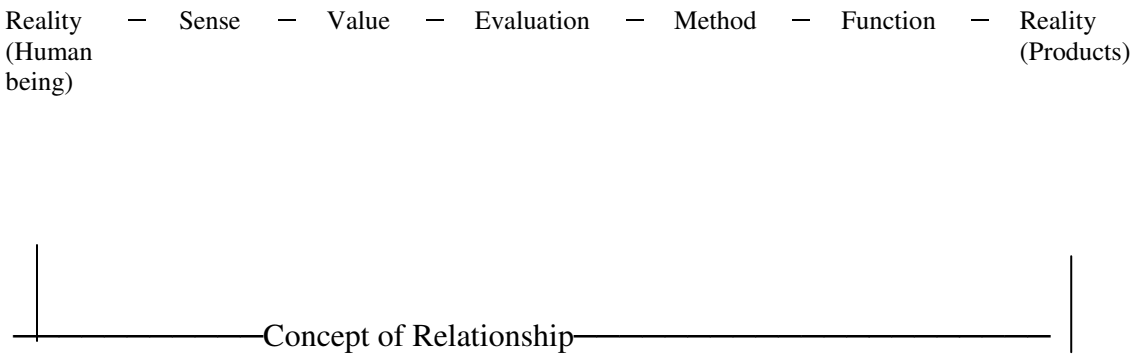

Figure 1. The Framework Figure Of The Cooperation Of The Evaluation Concepts (Lin, 1984)

The Index of Form Originality

As the concepts mentioned previously, during the creation of works of human beings, the most basic function would be considered first, then safety, operation function would gradually be considered. Finally, aesthetic function and the fitness of the environment are taken into consideration of designing.

The designers of products of specific forms should have knowledge of aesthetics and engineering, skilled techniques of design, skill of expression. The skill of creativity is one of most important elements. To design and produce a product of creative form requires the ability of applying scientific methods to evaluate the value and quality of the product.

The definitions of products of quality is not only based the designers' ideas. The quality of products is oriented from the relationship between human beings and things because the purpose of products is to provide with functions of operations. Thus, the products of specific

forms should have practicality, safety, operation ease, the fitness to the environment, aesthetic function.

The Development of Form Originality Scale

The scale was developed according to creative thinking test, the evaluation of works, and knowledge concept of relationships between forms. The process and result of thinking were both taken into consideration. Furthermore, the product-oriented concept was emphasized in the process of designing of the scale.

A. The Content of the Scale

There are two dimensions in this scale. The first one is to non-structural design, while the second one, structural design.

1. Applying five basic figures to extend the design of products of form originality
 (1) The extension of triangle-based figures
 (2) The extension of square-based figures
 (3) The extension of circle-based figures
 (4) The extension of oval-shape-based figures
 (5) The extension of rhombic-based figures

2. Selecting the forms with originality
 (1) Five kettles form which meets the index of practicality
 (2) Five cups form which meets the index of safety
 (3) Five pots form which meets the index of operation
 (4) Five vases form which meets the index of fitness of environment
 (5) Five dishes form which meets the index of aesthetic function

B. The Filling and Evaluation of the Scale

1. The first part of the scale is person basic information of the participants. They were asked to select the proper items.

2. The second part is the chief content composed of two dimensions. The first dimension is to ask the participants to draw the design form based on the application of the given figure according to their daily observation and ability. Besides, they were asked to write the

usage and characteristics. The second dimension of the scale is to ask the participants select the appropriate score from 1 to 5 to represent their opinion about the degree of originality of the given figures. The score 5 represents the highest degree, while the score 1 represents the lowest degree.

C. The Scoring of the Scale

1. The first dimension of the scale: one product design is given 1 score. Naming it is given 1 score. Writing one of its usages is given 1 score. Writing one of its characteristics is given 1 score. There is no limitation the sum of the score of each participant. The more the participants write the more scores they get. To make the scoring convenient, five parts of the scale are scored separately according to the types of the given figures.

2. The second dimension of the scale: use R. A. Likert's scoring method as the scoring method.

3. Time for answering: 120 minutes

4. The evaluation, validity, and reliability of the scale:

(1) Sampling: Purposive sampling is used in this study. The university and institute students of Applied Art and Design Department in Nan Hua University were selected as the participants. 40 university students in each grade and 20 institute students (180 as the sum) were the participants of this study.

(2) The validity of the scale: 8 experts of the related fields were consulted. The scale has ideal expert validity.

(3) The reliability of the scale: the inter-raters reliability is for the first dimension. The reliability is between .991~1.000. The Cronbach α is for the second dimension. It reaches .803.

Conclusion and Suggestions

This study is to develop a form originality scale which is appropriate for university design department students and to provide with some criteria for related studies and teaching realities. The development of the scale is proven to be feasible through empirical studies and the authentic application of teaching realities. It can be used in a study of larger scales, such as the studies of more subjects in different types of schools.

The first dimension of this study is to apply non-structural design, while the second one is to employ structural design. It is suggested that more objective items can be further developed in the future studies related to this issue.

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