Design pedagogy in symbology: denotative and connotative interpretation

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Abstract

This study introduces a new perspective on the design pedagogy in learning symbol design. A new experimental discipline implemented by the design methods demonstrates positive learning outcomes for students on the development of symbol study. Understanding denotative and connotative interpretation in visual literacy is essential in order to convey not only a clear message but also distinctive recognition as the nature of symbol quality. Students executed design experiments with design theories and methods for understanding design fundamentals of the denotative symbol and explored a matrix table for cultivating connotative symbols. This pedagogical strategy applied to the expansion of visual concepts with progressive experiments on each stage; 1) analyzing perceptive characteristics, 2) simplifying visual construction, 3) developing a visual concept with connotative meaning, and 4) configuring visual balance and enhanced quality based on design principles. With examples of student outcomes, this paper explains an analysis of functional expression and interpretation applied by design methods. This study discovered that earlier teaching of design fundamental disciplines with theories and methods in the graphic design major gave students better opportunities to pursue their further study more effectively and productively.

Keywords: Symbol study, Visual literacy, Design pedagogy, Design methods

This paper aims to demonstrate an empirical study of the design pedagogy in denotative and connotative symbol study. The study was implemented by the sophomore level of graphic design students and the instruction focused on design theories and methods for helping students to improve their design proficiency of visual literacy. This study was also to cultivate effective and productive learning outcomes from a pedagogical strategy in which students were able to expand critical thinking ability from the problem-solving process in the discussion with the interpreting and understanding visual language and communication.

Literature Review

A symbol study is a significant discipline of graphic design major in learning fundamental visual language as to how it interprets formally and conceptually. Academic curricular activities are typically comprised of creative exercises and practices related to visual literacy for design students. While many design pedagogy introduced a logo or brand identity as a case study, students have difficulty to accomplish the successful goal of understanding “how to” and “what to” for developing visual concept. According to the arguments between “seeing as” and “seeing that” while designers are working on figural properties in the sketch (Purcell & Gero, 1998), it is significantly considerable to learners as how they improve their proficiency

of visual language beyond vocational skill sets in visual creativity. Many designers in the professional fields still rely on "intuitive decision" during the creative process (Maggie Macnab, 2015). However, the example of the logo design shows the visual attention on multiple levels: symbolic, metaphoric and semantic (Figure 1).

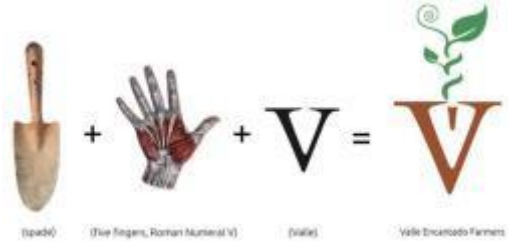


Figure 1. Valle Encanotado Farmers logo (Source: visuallanguage.com)

In contrast to "feels right" in the intuitive decision making process from the experienced designers, learners (students) still need to acquire knowledge and experiences to be a great thinker. Moreover, art needs to be considered as a visual literacy of the syntax meaning that are facts, principles, and rules learned through an educational discipline (Hausman, 2008). As symbols and metaphors definitely existed on the process of development for visual concept, focusing on the denotative interpretation of inherent meaning is conventional, however, identifying and interpreting symbols is considered as a visual connection to the connotative level of meaning (Barthes, 1977; Hasenmueller, 1978; Serafini, 2011). Symbol design also applies to a variety of visual metaphors with different role and responsibility. As a symbol appeared by elements of iconic design, it should keep in simple, relevant, traditional, distinguished, memorable and powerful (Airey, 2010). A successful symbol provides visual quality with an effective balance between clarity and uniqueness (Hsu & Wang, 2005). Any abstract form combined with some attributes of both icon and symbol should be considered as not only being simple and clear, but also being in a "self-consciously" abstract way appearing on symbolic qualities (Samara, 2014; Arnheim, 1969; Arnheim, 1974).

Research Methods

According to the nature of the academic environment in liberal arts in which students' learning outcome requires both comprehensive visual literacy and proficiency of design ability, the discipline of the symbol study in the beginning level of graphic design major has focused on the design theories and methods instead of placing the subject matter on the practicum basis. The pedagogical strategy demonstrates how students approach the development of visual concepts with progressive experiments on each stage (Table 1).

Table 1. Process for the comprehensive design methods of symbol study

Stage	Learning Activity and Implementing Creativity
S1	Analyzing perceptive characteristics.
S2	Simplifying visual construction with denotative interpretation.
S3	Developing a visual concept with connotative interpretation.
S4	Configuring visual balance and enhanced quality based on design principles.

This pedagogy was implemented in the design studio, "GRC 320 Design Methods & Research" which is in sophomore level of the current graphic design program at UNLV. As

one of the learning design methods in the course, this assignment began with a lecture to discuss about fundamental design theories and methods with analyzing design examples in abstract symbol structure such as logo, icon, infographic, sign, etc.

Statement of Assignment

The assignment was comprised of two different tasks: delivery of the semantic distinctions between denotative and connotative consequences satisfied with clarity and uniqueness of symbol quality. Each student was given a subject matter by other students so that they were able to practice creative problem-solving beyond one individual preference. Randomly given each attribute provided students to consider it as how a symbol set can depict different visual concept integrating with visual metaphors in connotative consequences.

Preliminary comprehension for understanding a nature of symbololgy

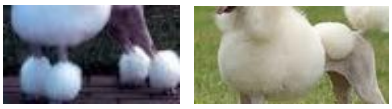
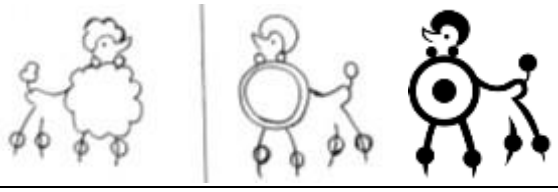
The assignment began with discussion about how to simplify the visual image. With a draft thumbnail sketch, regardless of the quantitative results, a group critique occurred for discussing a lack of visual quality based on clarity of visual information. Table 2 shows a common procedure of producing an abstract of the object. Form is not yet described in any specific details, but it is clear to perceive a fundamental distinction of the character as "Poodle" from other breeds.
Depending on the object that each student dealt with, visual description was varied with graphic identifications. As a graphic symbol requires presenting a visual characteristic of the object that can be discovered by different views, students collected various images/photos from different views and analyzed significant characteristics on gestures and poses. This process allowed students to expand visual characteristic to be diverse and unique for the visual concept, moreover, the result of initial ideas appeared recognized visualization with meaningful definition.

Table 2. Common procedure of understanding abstract for clarity

Photo/Image	Thumbnail sketches	Vector Transformation
		

Table 3 addresses the second step for transforming a visual imagery with more accurate characteristic and impact of visual abstract that established symbolic construction with understandable visual definition. Students could be able to narrow down the decision-making process in developing visual concept with more enhanced abstract form in consistency through the visual construction. This result produced a great discussion for students to be realized that the visual abstract is not only required by visual clarity, but also unique identity distinguished with other decisions and visual concept.

Table 3. Analysis of Visual Characteristic for uniqueness

Characteristics	Abstract of characteristic
	

Implementation of design methods for denotative interpretation

With completing a practice on the comprehension of basic symbol methods, students moved the second stage for development of the denotative symbol set based on the subject given by each other. Each student executed the same task from the previous practice to develop a total of five symbols and they produced a vector image for the clearness of visual quality (Figure 2).

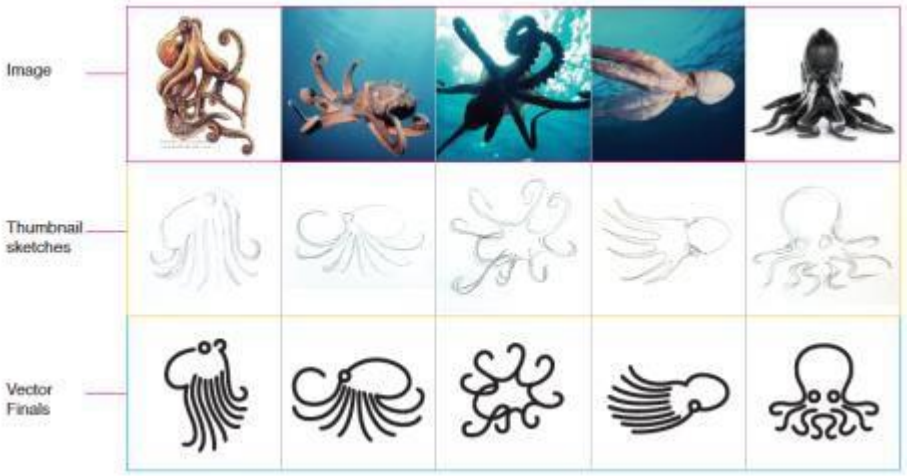


Figure 2. Development for denotative symbol set

According to the discipline with understanding abstract form, the final denotative symbol set required to be clear with understanding the visual characteristics. Any judgement of debating between clarity and uniqueness for the symbol quality left for the final outcomes in which all symbols need to appear with both satisfactions and effectiveness in the connotative consequences. However, the abstract form was considered to describe with line and mass for the high contrast in visual construction (Table 4).

Table 4. Visual construction with line and mass contrast

Line and Mass with characteristics	
Line and Mass with dimensions	

The decision to apply when and how to use line and mass depends on the personal references, allowing many possible ways to come up with different variations in the design methods. In addition, contrast in design principle is an essential element to symbol design due to the functional expression for readability, legibility and comprehension when the symbol appears as logo, brand identity or signs. If a symbol does not carry on enough contrast in visual information, students were asked to examine a line thickness in the denotative symbol set.

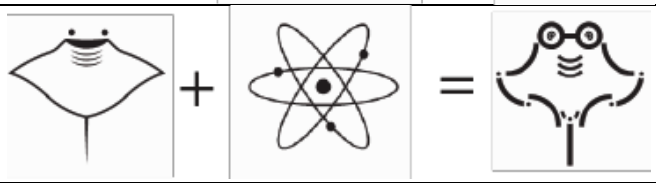
Implementation of design methods for connotative interpretation

For the implementation of design methods for connotation, each student wrote three attributes which required not to be specific relations with their subject matters. Students were encouraged to propose all different objects which may produce a visual abstract from organic to geometric in visual characteristics, less to more in visual information, and objective to subjective in preferences. With given attributes exchanged by anonymous assigners, students integrated those words with denotative results in a matrix table referring to each visual characteristic. In this experimentation, there were some considerations for developing visual balance between clarity and uniqueness:

1) *how much visual information can be controlled in a way two visual characteristics included or excluded?*
2) *what role or function of attributes do you perceive for connotation?*
3) *how do we utilize two visual structures equally adopted into another?*

Moreover, these questions supported design methods to their experimentation in connotative design methods. Students developed visual concepts for the connotative symbol with three design methods, however, visual experimentations with three attributes were not limited to explore more or less effectiveness of the visual balance between subjective perceptions and objective descriptions. Table 5 describes three different demonstrations per each method. The solution appeared as successful outcomes with visual balance between clarity (denotative interpretation) and uniqueness (connotative interpretation).

Table 5. Connotative design methods

Design method	Example of the solutions
M1) adopt an entire construction of the attribute as a characteristic	
M2) describe additional attribute characteristic into the subject	
M3) discovering a new form based on equal combination between two entities	

Discussion

The final symbol set in a matrix table required a total of 15 symbol sets. The final solution was not required to apply any color yet due to the discipline focusing on visual construction of symbolic fundamentals more precisely. In a new pedagogy of implemented design methods for symbol study instead of intuitive thinking and decisions, I found that students excelled creative performance successfully beyond visual aesthetic concerns. Among a total of 16 student works, this paper brought four different examples to the discussion and findings. First, we learned that considering more than one visual characteristic could identify unique visualization, but we found that some attribute has a difficulty to be associated with inherent characteristic when the object is not clear to perceive visual identity. Figure 3 overall shows decent quality of symbol set, but two attributes, “clothespin,” and “rose” were conflicted to utilize an entity of the tiger symbol.

Among the 15 examples, most students responded to three examples. The red highlighted on the table below were most successful to be satisfied with the visual balance between clarity and uniqueness.

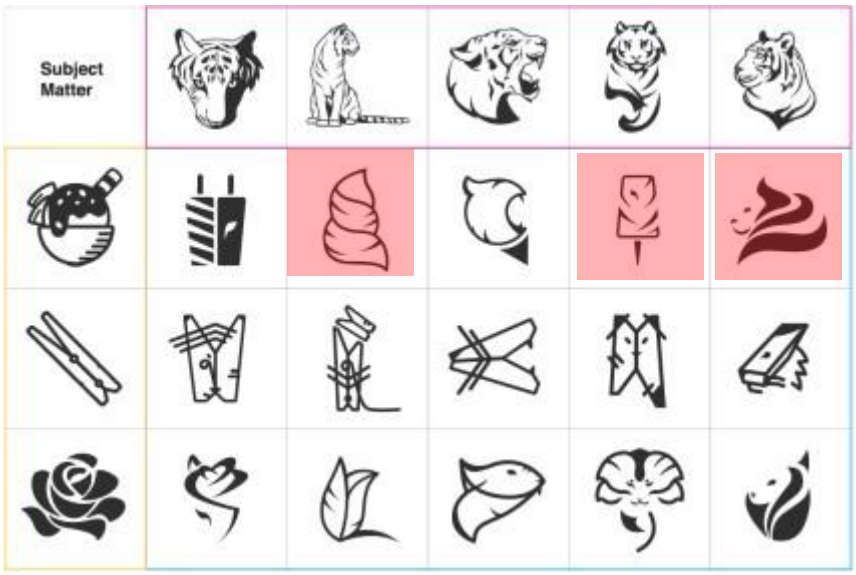


Figure 3. Final solution
I

As earlier discussion regarding the visual impact in symbol, we appreciate the great amount of visual contrast such as line and mass. Figure 4 shows an effective adjustment with line thickness combined with mass form by other attributes while denotative symbol of the octopus illustrated with only certain line thickness. We found that a lack of visual contrast was not strong as much as we perceived a variety of differentiate section on connotative symbol set. A majority of students responded to three examples highlighted in red on the table were most successful to be satisfied with the visual balance between clarity and uniqueness. The solution was positive to have a least one of each attribute criteria. From other feedbacks, the first attribute allowed the subject to be more unique in terms of the unexpected visualization from the typical visual thinking process.

Figure 4. Final solution II

As the matrix table allows students to explore more inclusion with the attribute as a primary entity, we found that the result of visual combinations between two characteristics was not necessary to be equal in terms of unifying visual concepts and identities. Figure 5 shows the successful visual unity and harmony, especially distinction of visual concepts from one to another characteristic. The result of each individual symbol describes an interesting visual information clearly at the level of visual balance between clarity and uniqueness. However, we also found that the same problem with lacking of visual characteristics was not possible to understand contents and visual identity. The last column of the table appeared as a difficulty of visual clarity, but it became a conceptual structure with each attribute. We found that attributes with "QR" and "Atom" made a ray as the most interesting visual concept and unique aesthetic in the symbol set. Students learned through this example that applying attributes into breaking and manipulating a subject entity with remaining denotative meaning would be the best way to experiment for finding a connotative symbol.

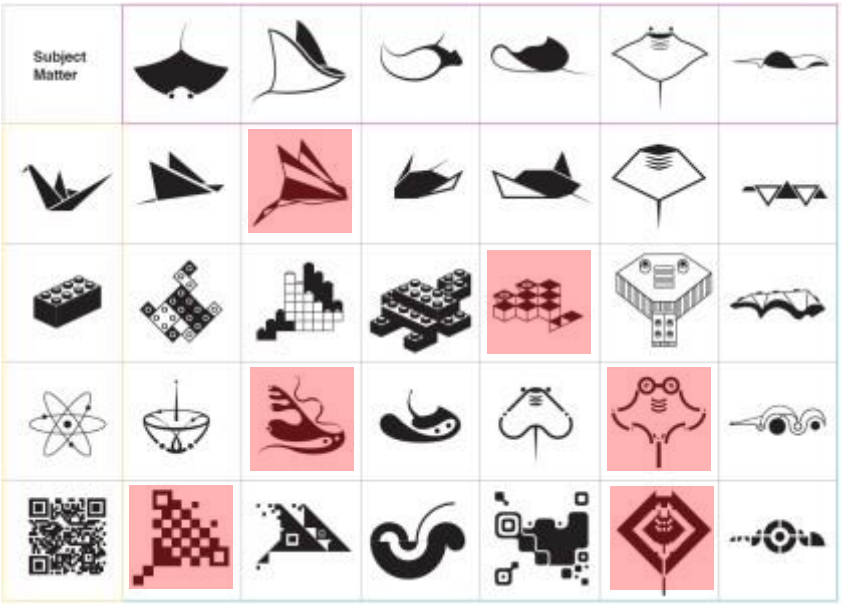


Figure 5. Final solution

III

A few students had a difficult time implementing the design methods in this study. While they were not fully familiar with design methods as how to develop the concept and idea in a critical thinking process, their solution showed a significant problem with both design quality and function. This phenomenon underpins that a lack of visual perceptions in an innovative level was not possible to improve design ability in learning academic disciplines. Figure 6 is an example of comparison between "Final solution" in the critique and "Revision" after the student fully understood design problems based on three questions of consideration for the connotative interpretations. The "Final solution" has poorly lost fundamental meaning of the object, but more difficult to understand when the attribute was not considered as role and function in design method. The "Revision" obviously appeared effective improvements of visual literacy and proficiency in learning objective. As a result, we found that students became more confident to expand critical thinking ability and to approach an effective decision making process to arrive at the best option as how to use an attribute for connotative interpretation.

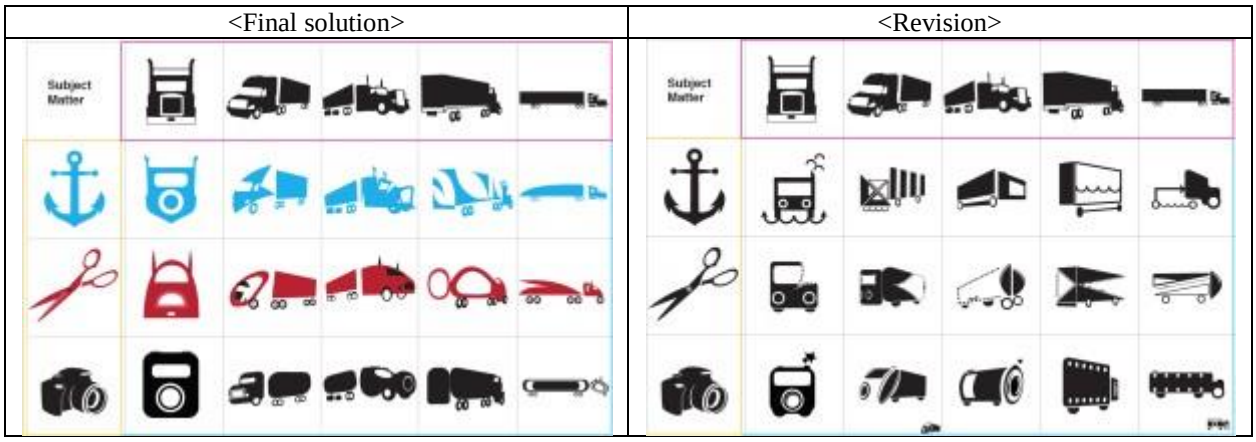


Figure 6. Revision from fully understanding methods

Conclusion

In conclusion, this pedagogical symbol study implemented into design method discipline brought an effective learning outcome in sophomore level of graphic design major. With the tangible solution and design outcomes at the end of the final critique, many students were more confident with developing visual concepts for an efficient balance between clarity and uniqueness.

Students, moreover, will face with many subject matters in design creativity through upper divisions and professional fields. This design method will help them to reach the goal of successful outcomes with any type of symbol design within limited schedule and time consumption. While there was a limitation with measuring the effectiveness of disciplines compared with other practical exercises for the symbol design, we believe that students will execute their creativity more productively and professionally. In addition, with various practices of design principles, students understood visual quality of symbol much better based on unity and harmony. This study definitely distinguished vocational discipline of practical exercises and students perceived the academic importance with research and methods through all the design study and activity as a team. For the future study, this design method in symbol study will expand additional parameters of attribute's roles and functions in a matrix table in where students will be able to develop their critical thinking ability in visual communication.

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Dr. Sang Duck Seo is an Associate Professor teaching graphic design and media at University of Nevada Las Vegas (UNLV) from his professional work experiences at Samsung and the Korean Mint. He has presented his teaching pedagogy in many international design conferences and his creative works have been published in various design shows nationally and internationally. He has received various award recognitions; Alex G. and Faye Spanos Distinguished Teaching Awardee in 2017, U.S. Higher Education Faculty Awards in 2015, UNLV Foundational Distinguished Teaching Award in 2013, Lincy Professorship Award in 2012, Adobe Achievement Award (Education category) in 2011, etc. He is also well known as a security printing designer who participated in the new banknote design project in Korea. His research also focuses on visual cognition and perception in UX and UI design, giving his students the knowledge and experience to succeed in the world class of graphic design field.