

Visual Communication Design

Original research articles

Introduction to Critical Thinking in Educational Model for Visual Communication Design Methods: Study Case Design Methods Class for Visual Communication Design Program at Binus University, Indonesia.

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Abstract: According to the *Programme for International Students Assessment (PISA)*, where problem-solving skills and critical thinking were measured the Indonesian students ranked below standard. In a smaller scope, there were other phenomenon in the learning process of a Design Methods class, in the Visual Communication Design programme at Binus University where students struggled to perform design analysis specifically on the part where the process of classifying which data belong to each of the three analytical aspects of the Triadic, despite definitions had been given in the prior session. In *The Ethics*, Aristotle thought about classifying as one of the thinking processes that would help in the process of analyzing. According to the Reboot Foundation, an institution dedicated to critical thinking research in the United States of America, critical thinking is needed in the decision-making process. The study was conducted to find the influence of the addition critical thinking method in C-F-C Triadic, one of the design thinking methods, in its learning process. The method in this investigation is qualitative primary data collection based on the observation of two different classes, class A and class B. In class A, the learning process was given following the existing learning process, while in class B, an additional short critical thinking demo was given in the first session of the class. The result was elevation in the analysis performance of the students in class B.

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Keywords: Critical-Thinking, Design, Education, Methods

INTRODUCTION

This research was conducted based on the phenomena of the low of knowledge and skills index level of Indonesia Students based on the *Programme for International Students Assessment (PISA)*, where problem-solving competency and critical thinking were measured. Based on PISA's report, Indonesia's ranked below standard. In accordance with that, in smaller scope and more specific in terms of discipline, another phenomenon was found, in the learning process of Design Methods, in Visual Communication Design program, at Binus University, where students struggled to perform design analysis based on Contexts-Form-Content (C-F-C) Triadic (D. Rio Adiwijaya, n.d.), specifically on the part where the process of classifying which data belong to each of the three analytical aspects of the Triadic, despite definitions had been given in the prior session.

Critical-Thinking is important due to its capacity to support the process of decision making, problem solving, even as the power to other thinking process, namely in rationalizing, creative thinking and other ways of thinking. Unfortunately, the practice of critical thinking still needs to be introduced to the society. On 2015, in Incheon, the World Education Forum UNESCO, agreed that critical thinking is one of the skills that needs to be trained in the learning process (Education 2015 Forum, 2015). But the socialization of Critical Thinking globally remains a big challenge. Reboot foundation, a research center in the United States of America (USA), focusing on critical thinking, reported that based on questionnaire shared to parents, one of the findings is that most of parents have the awareness of the importance of critical thinking, but also admitting that the training of Critical-Thinking process is still inadequate.

The Critical-Thinking Index in Russia as country whose ideology stands as opponents to the USA, is also considered low. According to the 4D index, ranking of skills, character and meta-learning, in the critical thinking process, Russia sits between score 50-60, under the USA, which sits in between score 60-70 (Fadel, 2021), while in Indonesia, research regarding the Critical-Thinking skill is still very few. For example, based on the research trend about the process of Critical-Thinking, within specific topic language learning resulting only 21 publications in the year of 2023 (Diksi et al., 2024).

This study aims to investigate the influence of additional critical thinking training on students' design analysis abilities. By addressing this gap in design education, the study seeks to improve students' critical thinking skills, enhance their design analysis performance, and their ability in producing a quality design. Furthermore, this research also intent to contribute to the advancement of design research in design education, by investigating the connection between critical thinking and design problem-solving.

Research Objective

This study aims to confirm how the addition of Critical-Thinking methods course topic would influence the learning process of Design Methods.

Research Problem

How does the Critical-Thinking process contribute to the Design Methods learning model.

Literature Review

Visual Communication Design

Visual Communication Design in Indonesia firstly known as a working profession more familiar with the terms Graphic Designer. This term is in line with its era contextual state, around 1990, where graphic design at that time was still limited to two dimensional related and statics visual communication problem solving. In its development, Visual Communication Design needs to answer the technological challenges, hence, the problem-solving activity is not anymore limited to what is two dimensional and statics (Purbasari & Carrollina, 2023). But what remains of the discipline, is its core activity, as problem solving process, related to all that is visually perceived.

Unlike Visual-Arts, that is conceive subjectively and freely in the process of its creation, Visual Communication Design focusing on creation of objects that serves human as its subject. In the design process there are steps needed to be taken to achieve objectivity, and the consequence after is that the process will be depended on factors. Steps to be taken is the definition of Design Methods, which is one of the study courses taught in Visual Communication Design, in Binus University, with the Contexts-Form-Content Triadic became its way of thinking (D. Rio Adiwijaya, n.d.).

The visual communication design has its strong ties with the pragmatic-syntactic-semantic semiotics thinking method theory by Charles Morris, which he believes that signs act as the mediator of all human activities and relation. In his semiotics, Morris also divides the semiotics dimension into three priorly mentioned aspects, whereas the pragmatic aspect focuses on the origin, function and impact of signs within the behavior where it occurs; the semantics aspect explores the signification of signs in all modes

of signifying, and lastly the syntactics investigates the formal combination of signs, free from their specific signification or meaning or their relation to the behavior in which they occur.(Fan, 2006)

Design Education

The world of design still has big challenge in its daily practice. Design is not only a thinking process, but also process of making or producing, from what is intangible into tangible. In a research journal, a group of lecturers, from bachelor, master and doctoral program in Lucerne University of Applied Science and Arts, objectives of the discussion were formulated, where in accordance to time and world that have become more complex, uncertain, volatile, ambiguous, the higher the challenge to the design education. Two of three objectives are the urgency to innovate, in the world of design of education, and to adapt, to develop the education through research, and professional practice, to maintain relevancy. The result of the study as followed:

“the task of design education is to provide a frame for the plurality of design principles and methods that grounds design as a field and discipline. This, we conclude, requires new integrative forms of research and education in design and speaks to a change in the design culture itself.” (J. Eckert, S. Junginger, G. Noël, 2021)

It was agreed that the obligation of the design education right now, is to prepare a strong structure that able to contains the extremely diverse principles and methods in design, that will also be able to be the foundation of design both as ground and as branch of learning. In Indonesia, for example, where the social culture is based on diverse value, more thorough research on what is considered as aesthetics values, and as intellectual values (Gatzka, 2021), where the two are considered important in human behaviors, which leads to social or collective behaviors.

Design Thinking Methods Contexts, Form, and Content Triadic

The design thinking methods comes from the ideas by John Dewey, an American philosopher who is also a psychologist. In his aesthetics idea, the book Art as Experience the human interpretation of everyday objects comes from their sense, which is bodily activity that is ruled by unique experience of each person—influenced by history, memory, trauma, cultural conventions, collective awareness—in this triadic stand as context, which based on that, value or meaning or in this triadic, content, was generated. (Dewey, 1934)

Design Methods : CFC Analysis

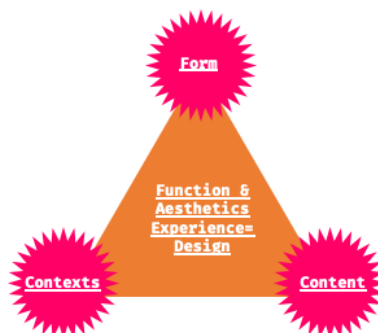


Figure 1. Design Thinking Methods, Contexts, Form, and Content Triadic

Contexts: The definition of contexts is everything related with the conception of design was made. Contexts for example contains cultural background, ideas, conventions, values, from the biggest scope into the smallest ecosystem of human,

Form: Form is anything that is produce into material through a design thinking process, using design elements, to create a design works that before only exist in conception or ideas.

Content: Any meaning, value that needs to be conveyed to the audience, using form with contexts as its base.

Critical Thinking Process

In the World Education Forum, 2015, the critical thinking skill become one of the sub domains of learning that required to be trained. Looking back, Aristoteles also claimed the idea of the importance of an examined life, one of critical thinking thoughts written in one of the most important books in history, The Ethics which conclude the importance of critical thinking skill. Aristotle's wrote about the importance of classifying, one of steps that needs to be taken in order examine and to achieve a logical conclusion. The classifying process consists of decision-making activity. According to the Reboot Foundation, an institution dedicated to critical thinking research in the United States of America, critical thinking is needed in the decision-making process. In line with that, The Organization for Economic Co-operation and Development (OECD) report their measurement of the skill and the result was the level of critical thinking skills in globally in index score, where Indonesia sits on the bellow average level (PISA 2022 Results Factsheets Indonesia PUBE, 2023).

Table 1. Index PISA 2022.

Index PISA 2022

Topic	Score
Matematika	366
Membaca	359
Sains	383

source: <https://www.oecd.org/pisa/PISA%202022%20Insights%20and%20Interpretations.pdf>

METHODS

This study means to explain the result of the observation on the induction of Critical-Thinking training in helping students to achieve their performance in the process of apprehending in learning process in a modified model of Design Methods class, incorporating the Practice-Led research model, where in this study there are mixed quantitative and qualitative sample collection, conducted on two classes, from two Visual Communication Design classes, containing more or less 50 pupils each. First class, called class A in this study, were not given additional assessment of Critical-Thinking, while on the other class, called class B in this study, were given the assessment.

Practice-Led Research based on the recent study on *The Role of Documentation in Practice-Led Research*, is a possible research approach in the arts and design community, which can be conducted to aim transparency in the process of creation of an artifact. One of the common practices of the Practice-Led research is the practitioner-researcher documents their creative process and use the documentation and analyze the process and reflect on it to than processing it to answer their inquiry they interested in.(Nimkulrat, 2007)

The research analysis done by conducting a descriptive analysis based on data collection mention above, where result of the findings was compared in tables, from first session activity to the eleventh session.

Methodology

Observation

Observation was conducted for three months in class A, and in class B in the following term.

- A. On September-November 2023, Class A, Design Methods course.
 1. Offering information about Design Thinking Triadic: Contexts-Form-Content
 2. Class divisions into groups. Students were asked to choose one design artworks they would like to analyze
 3. The three stages of group presentation activities are as follows:
 - a) First Presentation: using explanation which given priorly about Contexts, classifies information regarding artworks into contexts in a presentation
 - b) Second Presentation: classifies artworks regarded information into Contexts-Form in a presentation.
 - c) Third Presentation: classifies artworks regarded information into Contexts-Form-Content, in a presentation.

Descriptive Analysis

Based on the observation, descriptive analysis was conducted, comparing progress of learning activity in class.

Interview

To confirm the result of data to be used in this study, an interview to professionals with interview topic regarding to the importance of critical thinking in analyzing process. The professionals come from different backgrounds, Art, Creative, and Mass Communication industries, there were three professionals who practice hard critical thinking approach in their profession in Indonesia.

RESULTS

Observation

There were two periods of observations. First period was conducted to class A, within September-November 2023, while the second observation were conducted on the Design Methods class B, within February-April 2024. According to table A, on class A, the quantity of students that managed to classifies information as first aspects from the triadic: Contexts, properly as explained was zero. While on class B, there are groups that managed to classify artwork's information into the Contexts aspect, and properly present them in the class.

Table 2. Class performance in analyzing artworks based on the Contexts, Form and Contents Triadic.

Design Method s Class	Intro to Critical- Thinkin g	Introductio n to Contexts, Form, and	Analytica l process CFC	Presentatio n of analysis	Quantity of participatin g group	Quantity of group managed to classify	Quantity of group managed to classify	Quantity of group managed to classify
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		Contents (CFC)				information into Contexts properly on first presentatio n	information into Contexts- Form properly on second presentatio n	information into C-F-C properly on second presentatio n
A	-	+	+	+	7	1	2	2
B	+	+	+	+	10	4	3	6

Source: data collection during research observation.

Observation was done in two periods. First period was conducted to students in Design Methods course, within September-November 2023, while the second period was conducted to students in the same course within February-April 2024. Based on the table above, on class A, the quantity of group of students that managed to analyze the artwork's information into the three analytical aspects, Contexts-Form-Content appropriately with the explanation given in the first session of the class was zero, while the class B, there are groups of students, in each stages of the presentation's stages, managed to analyze the artwork's information into the three analytical aspects, properly.

Observation to class A, September-November 2023.

During the observation, participants participating in the original model of the class, where students were provided with the information about Contexts-Form-Content Triadic, divided into groups, asked to choose artworks for their group, that will then be analyzed based on the Contexts-Form-Content Triadic, to be presented on class.

- During the first stage of the presentation, in most participating group, a missed conception on what Contexts is, were found, which led to misinterpretation of artworks information regarding contexts and missed analysis. Resulting to only one quantity of group managed to comprehend subject matters on the given task.
- During the second stage of presentation, whereas all groups were asked to analyzed artwork's information based on the second aspects from the Triadic, the Form, in this stage, the same missed conception also found in most presenting groups, resulting to two quantity of group managed to comprehend subject matters on the given task.
- During the third stage of the presentation, where all groups asked to analyzed artwork's information based on the third aspects of the Triadic, the Content, in this stage, the same missed conception also found in all presenting groups, resulting to two quantity of group managed to comprehend subject matters on the given task.

Observation to class B, February-April 2024.

During the observation, participants participating in the modified model of the class, where students were provided with the Critical-Thinking short training in the first session of the class, given information about Contexts-Form-Content Triadic, divided into groups, asked to choose artworks for their group, that will then be analyzed based on the Contexts-Form-Content Triadic, to be presented on class.

- During the first stage of the presentation there were four participating group, managed to properly extract artworks information in accordance with the Contexts terminology as explained priorly, which led to the numbers provided in the table's column, quantity of group managed to classify information into Contexts aspect properly on first presentation, resulting to conclusion that there were four groups managed to comprehend subject matters on the given task during the observation.
- During the second stage of presentation, there were three participating group, managed to properly extract artworks information in accordance with the Form terminology as explained priorly, which led to the numbers provided in the table's column, quantity of group managed

to classify information into Form aspect properly on first presentation, resulting to conclusion that there were three groups managed to comprehend subject matters on the given task during the observation.

- During the third stage of the presentation, there were six participating group, managed to properly extract artworks information in accordance with the Content terminology as explained priorly, which led to the numbers provided in the table's column, quantity of group managed to classify information into Content aspect properly on first presentation, resulting to conclusion that there were three groups managed to comprehend subject matters on the given task during the observation.

Interview

Based on the observation in this study, a couple of interviews have been conducted to two professionals in fields of profession, namely art, creative, and mass communication, where the critical thinking skill is needed in their professional practice.

The first interview was with Gie Sanjaya, a Curator of art and art-related education programs at Creativite, Jakarta, Indonesia. Based on the results of the interview transcript, there are several important keys takes that support the findings in class. Sanjaya mentioned that in creative process, there is often this stage where artists lost motivation to create, there are things needs to be done to be able to jump into phase of creation, there are needs to be in the continuous process of analyzing before and throughout the creation phase. Analyzing requires critical thinking, Sanjaya said. For Sanjaya, critical thinking gives empowerment to continue the process, because in the critical thinking process there is also a process of clearing the mind.

Second interview was with Andini Haryani, a freelance journalist, where in daily basis as profession, the needs to interact with data and maintaining neutrality needed to ensure value of objectivity. Haryani mentioned that critical thinking to her is important factor. Most of the time, the data compiled can be invalid, for example, a manipulate data set, that purposely published to serve need of the people with power and interest. In this situation, critical thinking to Haryani is the ability to see the possibility of bias. Haryani also said that the practice of critical thinking also means having the courage to continue to seek knowledge or information from the ones already stands, in terms of view, paradigm, for example, even belief system.

CONCLUSION

Based on the observation results, it can be concluded that from the two teaching models observation, there has been an increase in the performance on class B, which leads to conclusion that the modified learning model, which provide short training on critical thinking has the potential to be furtherly develop. Since there are limitation on this study, namely the timeline of the study of class A and B was both conducted in different timeline. The sample in this study also limited to those who study Visual Communication Design in Binus University only, along with its demographical and curriculum limitation which could be an influential factor to the research. This research also does not study the factors that inflected students' analytical ability as part of their creativity process. Thus, future research will still be needed to cover beyond the limitation mentioned above, to convey the impact of critical thinking in the Educational Model for Visual Communication Design Methods, by questioning factors that influence the process.

On the other hand, the interviews conducted with the two professionals confirmed the importance of critical thinking in the correlation of producing a value or meaning through the creative process, where the design students of design study will iterate in their daily practice as future Designer. The critical thinking according to the two practitioner in conclusion is the ability of each individuals to empower, and to continuously processing in search of aesthetics experience, or truth, which in line with Platon's idea in his very Theory of Idea, where truth or beauty on exist in the world if Idea, hence the current

reality we are living now, could be considered far from truth or beauty, since they are consisting only fragments, of point of views along with its limitations, by time, space, and of other things.

DECLARATIONS

Author contribution statement

Please provides author(s) contribution statements in this section, Following the Indonesian Journal of Visual, Culture, Design, and Cinema guidelines, to be included in the author list a contributor must meet all 4 of the following criteria:

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Any contributors who meet fewer than all 4 of the above criteria for authorship must not be listed as authors, but their contributions should be detailed in the Acknowledgements section.

Acknowledgement

The author wish to thank all the fellow lecturers involved in the class of LF 32 2023 and LA 33 2024, Anita Lawujaya and David Tandatyu, respectively, and all participating students during the class. Also to all the mentors during Writing Week programs, conducted by Binus University. Lastly to Gie Sanjaya and Andini Haryani, for the time given.

Declaration of interest

- The authors declare that they have no known competing interests or potential conflicts of interest nor personal relationships that could have appeared to influence the work reported in this paper.

Data availability statement

- Data associated to this study will be made available on request.

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Name of Journal:

Indonesian Journal of Visual Culture, Design, and Cinema (IJV CDC)

Title: Introduction to Critical Thinking in Educational Model for Visual Communication Design Methods: Study Case Design Methods Class for Visual Communication Design Program at Binus University, Indonesia.

Author(s): Patricia Penina Adele

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