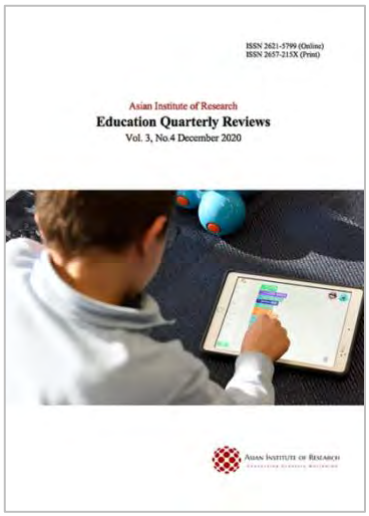


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# Memes on the Evolution of Derivative Architecture Design

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**Abstract**
Through genetic tracing, the origins of a person and who their ancestors are can be traced scientifically even though over time their genes have evolved following ecological changes. Likewise, a person's ideas can be traced where the origin comes from through memetic tracing. This article discusses case studies in several works which are assumed to be works of design product plagiarism at one of the famous universities in Indonesia. The plagiarism process is investigated through tracking changes in their memes. The research method was carried out by investigation. Data collection and analysis through field studies and in-depth interviews with participants who are actors and users of plagiarism products. The research was conducted in 2017. The results showed that plagiarism resulted in degradation of physical and visual qualities, visual disguises for the purpose of copycat self-actualization, and a sense of innocence from them.

**Keywords:** Meme, Evolution, Plagiarism, Architecture Design

## 1. Introduction

### *1. 1.Plagiarism Issues in Architecture Design*

Information technology and social media have opened the eyes of architects to the opportunities and speed of plagiarism by the building construction industry. China, for example, is accused of being a copycat country, not only the Eiffel Tower or the White House, but also the design of buildings whose construction work has not been completed. Zaha Hadid's Wangjing Soho, for example, was quickly copied by a Chongqing, South West China developer before the original building was completed (Orr 2013; Wood 2017). In another case, Hadid also claimed that Kengo Kuma's Tokyo Olympic Stadium was similar to her design proposal that was rejected by The Japan Council. Kuma denied and believed that his design was different from Hadid's design (McCurry 2016; Frearson 2016).

The era of China's awakening in the last two decades has had the impact, among others, economic reforms, and the privatization of housing which has triggered changes in the culture of the middle class. Property development occurs on a large scale where the developer emphasizes the design style as Western. The imitation architecture of

Paris, Venice, Amsterdam, London, Madrid, or New York that occurs in the phase of cultural change not only occurs in China but also in Japan, Indonesia, Cambodia, Singapore, Egypt, and the United Arab Emirates (Bosker 2013:4-6).

In 2017, The Infinite Bridge sculpture in Aarhus Denmark designed by the architect from the Gjøde and Povlsgaard Arkitekter studio was copied by architect Ihsan Latif from Makassar. This imitation sculpture is used as an icon for the entrance gate and to be presented as an icon of the University of Hasanuddin (UNHAS). This architect not only copied the design idea, but the whole concept of design public communication including the terms infinity bridge, terrace, and panorama. The most ridiculous thing is the copycat architects are not just copying ideas, but cutting out the original image of The Infinite Bridge and pasting them to the UNHAS landscape background image.

Plagiarism is a design derivative that spreads as an architectural idea that mimics the original architect's mind. Although the issues of plagiarism in architecture design are still debatable, the cases are always discussed apart from the problems of architecture design itself. It is said to be debatable, because generally, people think that an architect cannot but be influenced by the drawings that he sees and remembers. Therefore, the originality of the design does not yet have a history of active copyright protection. When the 1950s architect Cliff May won his claim over plagiarism done to his design, the case was seen as a major advance for the protection of the architecture profession (Giovannini 1983).

Twins who are genetically identical do not even have the same exact traits because of the variation in their genotype and phenotype influenced by genetic, epigenetic, and environmental factors. The uniqueness of the characteristics of each twin can still be recognized (Matias; Alexandra, et al. 2014). Likewise, two architects with similar training and experience throughout their careers, will not produce the same idea. The uniqueness of the ideas of each architect can be recognized (Anderson 2011:35). Thus, the assumption that design similarity is coincidence is hard to believe.

Although issues regarding plagiarism for various reasons do not appear as legal cases, awareness of the need for nobility in carrying out the duties of the architecture profession always appears in various ethical discussions. In Indonesia, the Indonesian Architects Association Code of Conduct in Code of Conduct 2.103 clearly states that architects are not allowed to be involved in fraudulent work or which are detrimental to other parties. Things that are considered as fraudulent or detrimental to other parties include imitating / duplicating architectural works without the designer's permission (Ikatan Arsitek Indonesia 2007:1). The same thing can be seen in the Code of Ethics and Professional Conduct of The American Institute of Architects Rule 2. 101 (The American Institute of Architects 2017:12).

Awareness of plagiarism issues is always present in the lecture halls of architecture. Since the beginning students have been introduced to the moral view of architects as a general rule of thumb. When a student copies a design from an architect without the architect's permission, it is considered a violation of the law and a plagiarism error. Copying written text, copying designs without permission or in a manner prohibited by copyright laws is illegal (Chao-Duivis 2011).

If the theory of genetics occurs in the process of biological evolution, the theory of memetics occurs in the process of the evolution of cultural products. Just as genes determine the traits of the descent of living things, memes are the carriers of the inherited characteristics of cultural products. In 1976, Richard Dawkins through his book entitled The Selfish Gene introduced the term 'meme' which is equivalent to 'gene' as the evolution of an idea, behavior, or style that spreads from person to person in the culture.

Memes spread because they have something interesting that stays on someone's mind. If genes reproduce by passing from one body to another via sperm and egg, memes reproduce from brain to brain through a process of imitation. This is found in the products of song creation, ideas, expressions, clothing, and building arches. With meme information, the nature of the original design that was passed down as a replica can be traced through the identification of design properties (Dawkins 2006:192). This means that if there is a debate about plagiarism works, actually it can be traced who did the plagiarism and who was harmed.

*1. 2.Memes as Imitation Design Tracker*

In the process of biological evolution, the process of change occurs in all forms of life from one generation to the next. In each generation, organisms inherit traits from their parents that are passed down through genes. Mutations in genes will produce new traits in the offspring of an organism. In a population of organisms, some traits appear, while others disappear. The characteristics that appear are those that support and benefit the survival and reproduction of the organism.

After several generations, adaptation occurs through the combination of these random, continuous small changes in traits by natural selection. Meanwhile, genetic drift is an independent process that produces random changes in the frequency of the traits of a population. Genetic drift is generated by the probability that a trait will be inherited when an individual survives and reproduces (Ridley 201312-13).

Adaptation of traits does not occur completely, but through small and random changes, but is continuous in several generations. During this period, genetic drifts are found which are the result of a process of random changes in the frequency of a population. This deviation is expressed in individuals who are able to survive and reproduce (Ridley, 2013:12-13).

Even though the changes produced by drift and natural selection are small, these changes will accumulate and cause substantial changes in organisms. This process reaches its peak by producing new species (Patrik 2012:19). The similarities between one organism and another suggest that all known species descended from a common ancestor through this slow divergent process (Coyne 2009:8. Darwin accepted that organisms were designed for a specific purpose, arranged functionally. Organisms are adapted to a specific way of life and their parts are adapted to perform specific functions (Ayala 2007).

Darwin (2004) states that mutations, migrations, and genetic drift in the basic mechanisms of evolution produce natural selection. Not all individuals are able to adapt to their environment to be able to reproduce to support unlimited population growth. There are individuals whose reproduction is rare because they are eaten by individuals whose reproduction is denser because they are more able to survive.

Evolution requires mutation and natural selection. Without mutations, evolution cannot occur because no variation can be transmitted differently from one generation to another. But without natural selection, the mutation process will result in disorganization and extinction because most mutations are not profitable. Mutation and selection have driven the evolutionary process together to produce new species.

In the process of biological evolution, the process of change occurs in all forms of life from one generation to the next. In each generation, organisms inherit the traits their parents have through their genes. Mutations in genes will produce new traits in the offspring of an organism. In a population of organisms,s some traits will become more common as others disappear. Traits that aid the survival and reproduction of organisms are more likely to accumulate in a population of unfavorable traits.

In the process of creating a design, ideas compete in the mind of an architect. Furthermore, these ideas compete again in society. The viability of ideas that can survive because they are in some way accepted as superior and plausible. These reasonable ideas spread by copying outside the minds of the early architects in what we later know as architectural styles. The easier the repetition, the easier the reproduction. Otherwise, difficult repetitions will kill reproduction (Dawkins, 2006:194; Salingaros & Mikiten, 2002).

Kubler states there is a difference between prime objects and replicas. Prime object was associated with radical discovery, whereas replica was defined as continuous repetition. He also argues that in art change can be sudden and surprising because the inherited form no longer conforms to new views of the soul and attitudes toward nature. The replica of all things, actions, and symbols as well as human experiences did not happen suddenly but through gradual and continuous change. Like cohesion, each replica has an adhesive property that connects the prime

object shape and the replica shape itself. Replicas always have trivial variations. (Kubler, 2008:64-66). Unlimited variations that create unwanted drifts, which are referred to in genetic evolution as mutants.

This research explores and finds out: (1) How did the evolution process occur from the original architecture design to the artificial architecture design? (2) What is the motive for plagiarism in architecture designs? (3) What effect does copying design ideas have on product quality? (4) How does the copycat architect see the imitation products he creates?

## 2. Methods

The research method was carried out using an independent investigation. Data were collected through field observation and in-depth interviews ˇhe observation and interview processes were carried out simultaneously. Data analysis was performed by mapping the data using the domain analysis method. The research was conducted in 2017-2018.
Participants consist of architects, buyers, users, and workers. See Table 1

Table 1. Participant Data

| No. | Participant | Number |
|---|---|---|
| 1. | Architect | 25 |
| 2. | Buyer | 30 |
| 3. | User | 50 |
| 4. | Worker | 20 |
| | Total Number | 125 |

This research was not aimed at embarrassing the perpetrators but for the purposes of studying ethics for architecture education. Because of this, the participant's name was camouflaged.

## 3. Results

Between 2005-2010, as an architect, I was asked by the university leadership to design a new face for some of their strategic facilities. These facilities include the Academic Senate Room, the Chancellor's Workroom, the Global Development Learning Network (GDLN), the university canteen, and several other function rooms. As an architect, I surveyed various university stakeholders to get an idea of the university's vision and mission, so that the design's appearance could represent the university's ideals.

The university has a vision that is connected to the world and maritime culture. Marine humans are perceived as people who represent dynamic, courageous, honest, and open characters. These characters are then processed by the architect as a spirit that manifests visually in the design. With the concept of simplicity, the new design leaves a feudalistic, closed, locality, dark, and messy feel, which had been used in previous university designs to be equality, open, universal, bright, and neat. The design is named as RR Style, after the acronym for my middle name. Later, the design style that represented the character of the university was known as the T. Design.

After 2010, the work unit level leaders wanted to decide to come up with the same theme as that of the university leadership. The design process is carried out by the work unit leaders independently and independently, based on examples of existing university facility designs, involving the surrounding architects without communicating with the original designer architect.

### *3..1.Motivation*

A motive is an impulse that arises from within a person that causes that person to want to act do something. Motive is born from a person's desire to fulfill his own needs. When these needs have been met or satisfied, that need is no longer a motivation to do something (Maslow, 2013). In carrying out their professional duties, every architect

has different motivations. We can find architects who do their job because of the motive to fulfill only basic needs in order to survive, but also many architects who do it with a higher motive such as self-actualization. The motive for self-actualization through the desire for achievement is seen as better than others (McClelland 1987:10).

In the research location, the desire to do plagiarism work is influenced by the local culture which does not consider plagiarism as a bad thing. There has not been any attention from institutions that have seriously considered the plagiarism issue. If there is a plagiarism case being processed, it is more because it is demanded by an external party such as the Directorate of Higher Education who questions articles for lecturer promotion that are suspected to be the result of plagiarism. Other demands are made by publishers of scientific articles which are required for the university to get the standard as a World Class University.

In the case of this research, generally, motivation is done to produce basic needs in order to survive. Architects work closely with officials holding university asset management policies. They work according to the wishes and direction of policyholders, including duplicating original designs from the original architect. The process of proposal design to final design is not carried out openly or through consulting activities related to the vision and mission of the university, but discussions about construction schedules and costs only with the equipment unit (logistics) and the university's goods procurement committee.

There are several motives related to the university policy directives to imitate the existing original designs. First, the desire to imitate is an appeal from the top leaders of the university to their subordinates. The real appeal was more related to the quality of the construction work, which was perceived by the subordinates as duplicating the design. Second, there was a growing assumption that involving the original architect would result in strict quality control. This was interpreted by the relevant officials as creating a situation that could complicate the financial management system. Third, there are no clear regulations regarding the relationship between design fees and the complexity of the design process. Both original designs and duplicates of varying quality are valued the same only based on the total cost of the construction work. Fourth, although this institution is an educational institution, moral issues regarding plagiarism cases have not become the main concern of the academic community.

3..2.*Degradation of Quality*

3.2.1. Physical Quality

Almost all artificial designs experience quality degradation both visually and material. At the Faculty of Medicine (FM), for example, architects have neglected the design of the acoustic wall work. The wall design for absorbing and silencing functions use the rockwool material covered with perforated gypsum panels. Thus, the architect hopes that the sound that enters through the holes in the walls will be absorbed by the rockwool behind it. The mistake made by the imitation architect at FM was not ordering the contractor to remove the paper layer behind the gypsum panel. As a result, the sound cannot enter the rockwool layer because it is blocked by the paper layer. Subsequent derivative degradation occurred, imitation designs no longer used rockwool as sound absorbers and absorbers, and only used porous gypsum panels.

The general degradation of user comfort that is encountered in almost all imitation designs ignores ergonomic principles. In meeting and working tables, dimensions are found that are not proportional to users in Indonesia. At the FM we find a meeting table with a height of 85 cm compared to the standard size of 70-75 cm. At the Faculty of Social and Political Affairs (FSP) a meeting table for the deans is only 40 cm wide. The narrow table surface with glass material makes users feel uncomfortable unless the user's belongings such as computers are not placed on the table surface.

For the selection of materials, imitation designs seem to avoid jobs that are considered complicated. In the original design, sunkai wood panel material with duco paint finishing on the furniture and walls of the room. The selection of materials and finishing was carried out with the consideration that the facilities could have a longer life, given the limited finances of the university for new investment. All imitation designs replace sunkai wood panel materials with High-Pressure Laminated (HPL) panels that do not require painting costs. In some cases, the use of HPL material for a period of 2-3 years shows a significant peeling of changes in quality.

The original design that imitators have always avoided is evident in the glass work technique which is mounted vertically on the table wall. The original design used a heating technique to create a glass arch. This technique requires calculating the shrinkage of shape and accurate dimensions of the glass material before and after heating. Inaccurate calculations will result in failure of the precision accuracy of wood and glass work joints. Avoidance of this complicated glass work is done by processing glass work on the table wall which can manipulate the shape that should be curved to become flat. Another avoidance is through replacing the glass material with plywood material.

3.2.2. Visual Quality

Visually, in the imitation design, the selection of the same material and color carpet is found. The difference is in the shades of the selected color. All the colors of the original design rugs use shade colors such as shade of blue and shade of red. The consideration is to avoid the glare of the very hot Indonesian sun when the user has just looked out the window of the building. Some imitation designs at the Faculty of Engineering (FE) use blue and red carpet colors with a very high degree of brilliance which causes an afterimage effect that tires the user's eyes when looking from outside the building into the building.

Although the imitation design also follows the visual composition of the colors in the original design, the proportions of the color components clearly feel very different. At the Faculty of Cultural Studies (FCS), this difference in color composition creates an impression of space that is also very different between the original and the imitation design. At the FM, the color composition is dominated by blue but without the support of an adequate balance of light and dark gradations.

In the original design, the architect did not make red, which is the color of university identity, as the dominant color in meeting or meeting rooms. The consideration is the red color in a meeting room will have a negative effect on the user because it is a stimulant that increases the heart rate and makes it uncomfortable. Far from being a requirement of a meeting room. Therefore, the proportion of red is deliberately muted by the dominance of blue which represents maritime and functions to provide coolness and comfort to users during the meeting. Even though blue is the dominant color of the composition, the balance of the proportion of light-dark blue is clear so that it does not cause a drowsy effect as happened in the FM.

In almost all imitation designs, the neatness of network placement is not a consideration for the imitation architect. At the FSP, it was found that the work of the electricity grid, sound system, and projectors appeared naked on the ceiling surface of the room and was not carried out as in the original design. When construction work is carried out on the original design, the entire conduit of the grid system, sound system, and the projector is installed before the floor, walls, and ceiling surfaces are worked on. In imitation design, this is not done because the imitation architect does not plan a network system that is hidden behind the floor, wall, and ceiling surfaces.

3..3. *Visual Camouflage*

Just like in the original design, the composition of the visual elements of the original design such as the presence of horizontal lines on the furniture and room walls, the glass area, and a touch of silver color also embodies the imitation design. See Figure 1. The difference is in the consistency of continuity of different horizontal lines and the addition of trinkets that did not exist in the original design. This is done to avoid the similarity in form between the imitation design and the imitation design. The more variations of the imitation design, the less the original design will disappear. See Figure 2.
The main color change occurs at the Faculty of Public Health (FPH). The imitation design turns blue to green. The continuous horizontal line elements are the same as the original design. There is a clear difference between the surface of the table wall, which in the original design uses a combination of multiplex walls and transparent glass, while the imitation design only uses multiplex walls without transparent glass. See Figure 3.

Figure 1: In the original design, the horizontal stripes of furniture walls are continuous. The glass plane elements are transparent.

Figure 2: In the imitation design the horizontal stripes are only in the middle of the furniture wall. The glass plane elements are not transparent.


Figure 3: The use of blue in the original design changes to green in the imitation design.

Artificial design variations are carried out by sticking to ideas without going through the analysis process and design concepts as in the process of creating the original design. The patching of variations on this imitation design is unable to disguise the character of the original design. This condition also explains that replicas do not produce sudden leaps of design ideas, but only bring about changes in a number of design variations. It is different from the original design which was done with a new concept because the old concept is considered to be no longer able to adapt.

Camouflage is a form of visual mimicry when one species, the mimics, evolve to share some properties with another species, the model. The goal is to make it invisible or hard to find (Pettersson, 2018). In this case there are two contradictory situations experienced by the imitation architect. The first advertises its ability to design like the

original. Here the architect maximizes the similarity between the imitation design and the original design. Second, try to disguise the imitation design so that authenticity is difficult to find.

In the process of biological evolution, it appears that gene mutations will create new gene traits that are capable of supporting the survival and reproduction of the organism. In imitation design cases, the character of the design also mutates according to the environmental conditions. Design characters that have a high level of difficulty in adapting to an environment that requires energy efficiency for the quality and price of goods. Plagiarism design ideas meditate following the conditions desired by the producers and users, creating a product that is similar in quality and at a price that is affordable to both the producer and user. If their ideas cannot adapt to environmental conditions, they will be eliminated from the opportunity to get a job.

*3..4.Sense of Not Guilty*

When I interview the architect team who is involved in plagiarism work, they initially feel uncomfortable revealing their work process. Some people reported that they plagiarized because the design was considered good. When I asked why they didn't contact the architect, they didn't answer my question. In in-depth interviews they finally revealed that they knew it was not a good thing to plagiarize someone else's design, but they thought it was because of the buyer's request. They only provide goods according to the wishes of the buyer. In this case it is the buyer, not the maker, to blame.

The rise of physical work plagiarism that is invisible to the eye shows that the environmental community is permissive to plagiarism activity. Informant Rasyid said that university leaders received information that copying someone else's designs was not considered plagiarism. The rise of physical work plagiarism that is invisible to the eye shows that the environmental community is permissive to plagiarism activity. There is no problem with imitation when there are different variations. Like comparing instant grits research. The first researcher found a method of making instant grits, while the second researcher found grits with a taste of seaweed.

Another reason that makes society permissive to plagiarism is the perception that as long as the design work is not registered as having a patent, then there is nothing wrong when someone's design is copied. Here it appears that it is appropriate for plagiarism to be viewed from a positive legal perspective and not from an ethical and moral side of the profession. Guilt from a review of professional ethics and morals are not automatically guilty from a legal standpoint.

## 4. Conclusion

This research found that plagiarism of architecture designs develops easily and quickly because people do not consider plagiarism as bad. The architect's motive as the creator of the plagiarism design idea is also still at the level of meeting basic needs and has not yet touched the level of self-actualization to perform better than other architects. Their performance is measured by the ease of the process convenience simplicity and cost efficiency, ignoring the complex processes that are involved before a design is created. Therefore, the idea of imitating architects only rests on how the products they create can adapt to what buyers and users are interested in.

Plagiarism of potential ideas creates design deviations that are physically and visually degraded in quality compared to the original design. Copycat architects ignore difficult ideas only and opt for copying only easy ideas to be implemented. Form not work perfectly. There is a condition of ambiguity in the copycat architects between the desire to present a design that is very similar and the desire to hide the origin of the design idea, making the disguise of the design form not run perfectly.

Although moral issues regarding the bad idea of plagiarism have been discussed in theory, these issues are neglected in the conduct of activities in the academic community. The space for moral awareness that the process of creating new ideas capable of producing various prime objects is not yet open. The academic community is still limited to producing replicas that repeat existing prime object ideas.

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