

An Examination of The Design Process of Indonesian Architects Through The Lens of Design Theory

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In research on several professional architects, it was found that architects in the design process did not always use linear processes such as analysis, synthesis, and evaluation (Darke, 1979). How professional architects think and process when designing is the subject of discussion. This paper is a study on normative attitudes, methods, strategies, stages, and others related to the design process, with a case study of two female architects, namely Wendy Djuhana and Osrihalita Gabriella. These two women architects are part of the phenomenon of the rapidly growing number of women architects in many countries in the world, including Indonesia in the last 20 years. This study uses a descriptive qualitative approach with narrative nuances. Primary data is obtained through interviews, therefore the analysis method used is qualitative text data analysis. As an instrument of analysis, it uses Rowe's (1991) premise on normative attitude as a Professional architect and 3 (three) theories of designing from Jones (1970), Broadbent (1977), and Lawson (2005). The objectives of this study are 1) To reveal what kind of normative attitude both of them have as professional architects. 2) How is the designing process of both architects in the selected architectural works? 3) Finding the common thread of the designing process done by the two female architects. The result of this study will be beneficial for the enrichment of Architecture science, as well as the world of Architecture education, especially for students, and Architecture researchers who can use this research as a foundation for other research. This study is also believed to be important for practicing architects because it can add insight as well as alternatives in carrying out the process of designing architecture.

Keywords: Architect, Architecture, Design Process, Method, Strategy & Stages

1. INTRODUCTION

The design process comes from the tradition of *techne* (art and craft), in contrast to science which comes from the tradition of mathematics (Ekomadyo, 2019). Later, the scientific revolution and modernism strongly influenced design as a science. Philosophy of science thinker Zainudin defines design as "a science that seeks to formulate and construct ideas using scientific academic methods into a system of product artifacts that have practical uses based on values" (Zainuddin, 2006). This statement is in line with the thoughts of Nigel Cross, who examined three understandings of design, namely, scientific design, design science, and science of design. From there, it can be said that design is a scientific discipline (Cross, 2001). With similar principles and goals, but with a different approach, integrating research and design practice

to create a new field, academic design (Dorst, 2016). So far, there is an assumption that the culture of science is motivated by only two starting points, namely the culture of art and the culture of science. Cross proposes one more culture as an articulation of these two cultures, namely the culture of design (Cross, 1999).

Therefore, when the process of designing is defined as a science (the science of design), and designing is inseparable from the academic field, and designing has also become a culture, then the process of designing becomes important to study. `explain what he thinks when designing (Ekomadyo, 2019). Because the main thought is, that besides the results of the design can answer the needs required by the client, every architect also wants to have his "signature" through the design of his work (Winarwan, 2007). The way Architects

work and think is not always structured and sequential, but not a few of them can find solutions or design solutions that are appropriate in the context of certain problems. Ideology or principles believed by an architect will affect the result of his design (Indrosaptono, D., 2021). The statement is an affirmation of the idea that the character of the Architect's thinking, which is referred to as normative attitude, becomes the basis for the Architect in designing and making decisions (Rowe, 1991).

Design is a process, of making plans, analyzing, and designing to create something new or to solve existing problems (Dorst, 2011). In research on several professional architects, many found that the architects studied did not always walk with a linear process of analysis, synthesis, and evaluation. There are leaps of ideas, discussions, and negotiations from the existing design stages, it can be said that the process of designing architects is iterative (Darke, 1979). Therefore, the discussion in the following stage is a study of what and how the designing process is done factually.

Women Architects

In the book *Where are the Women Architects?* (Stratigakos, 2016), it is mentioned that the intensive atmosphere and rhythm, as well as the many demands for more working time, often make it difficult for women (especially those with families) to adjust their time. On the other hand, women in Indonesia have a different situation. Practicing architect Stephanie Larasati, in an interview with reporter Sabrina from the online magazine whiteboardjournal.com, said, "Regardless of whether you're a woman or a man, we do have the obligation to separate. Sometimes I see that women in Indonesia can't progress as they should because, for some reason, they believe that they can't. That's the saddest part," she said. "That's the saddest part about it" (Sabrina, 2018).

Larasati's view can be explained through Constantinople's opinion, which says that women's thoughts and personalities are constructed by society regarding role boundaries. Women should not go beyond that limit. Society will stigmatize "abnormalities" when women cross them (Constantinople, 1973). Different thinkers have similar views, namely that it is a culture that defines women's roles narrowly, namely as wives and mothers only, and social and economic institutions that prevent or make it difficult for women to break out of the constraints of tradition (Friedman, 1979).

However, the phenomenon since the beginning of the 21st century has taken a different direction. Marked by Zaha Hadid, the first woman to receive the Pritzker Prize in 2004 (an award that has existed since 1979). Since the end of the 20th century,

many great women architects began to emerge, as evidenced by the fact that from 2004 to 2023, six women received the Pritzker Prize. Similarly, the number of women who work as architects in many countries in the world, especially in Indonesia, in the last 20 years has increased rapidly. As seen in the increase of women architects participating in the Indonesian Architect Week (IAW) international exhibition. In 2011, the IAW exhibition in Tokyo was attended by 10 women architects. In 2017 in Seoul, 12 women architects participated, and in 2021 in Rio, the IAW exhibition was attended by 19 women architects. This shows an increase of more than 50% of women who are actively working as architects (Alacasa, 2021).

The phenomenon of the increasing number of female architects is in line with the increasing number of female students in Architecture study programs on various campuses in Indonesia. The proportion of female and male students is starting to balance (Aryanti, 2021). The same is the case with the number of female students in the Architecture study program at ITB, Bandung. According to Abadi (chairman of the ITB Architecture department, 2012), the number of female students in the Architecture study program has increased to almost exceed the number of male students. The same applies to other campuses.

This development is interesting and becomes a consideration as to why the chosen study cases are both women architects. Another consideration is that the thoughts and works of women have not received enough coverage and study like the works or thoughts of male architects. The writing of conventional architectural history makes too many women invisible (Gomez, 2017). As Gamolina, founder of Madame Architect and director of Trahan Architects New York, said in her interview, "Instead of asking where, what, and how women architects work, it is better to write about them and their work" (Architizer, 2019).

Case Study and Study Objective

In line with the phenomenon that began to develop in the 21st century, the selected female architect figures are figures who started in the early 2000s (early 21st century) working as architects or at least at the end of the 20th century. Among many female figures of Indonesian Architects in the 21st century, these two Architects were chosen because they could fulfill several important criteria, namely: 1) Architect who completed Architecture study, at least in the late 1990s or early 21st century. 2) Acting (having a position) as principal or lead architect in the design of the selected architectural object. 3) Have received awards at least twice, either from IAI (Indonesian Architect Association) or other official institutions. 4) Consistently working as an Architect, at least for 10 years. 5)

Both architects are from different generations, +/- 15 years. So that it is expected to have a different way of thinking and working. 6) Both Architects can help provide the widest possible data access to the selected Architectural object.

The objectives of this study are, 1) Revealing what kind of normative attitude (character of thought) of the object of study as an Architect professional. 2) How is the designing process of the two architects in the selected architectural works? 3) Finding the common thread of the designing process done by the two female architects. The result of this study will be beneficial for the enrichment of Architecture science, as well as the world of Architecture education, especially for students, and Architecture researchers who can use this research as a foundation for other research. This study is also believed to be important for practicing architects because it can add insight as well as alternatives in conducting the process of designing architecture.

Selected Case Studies

Wendy Djuhara (June 17, 1969)

Graduated from Parahyangan University in 1995. Awards received: a) IAI Awards for "Shining Stars Bintaro School" - 2009. b) World Architecture Festival nomination for "Shining Stars Bintaro" - 2010. c) IAI Awards for "Rumah Tanah Teduh Unit #3" - 2012. The selected architectural objects are Widjarnako House, Depok - West Java, and Shinning Starr Kindergarten, Bintaro.



Figure 1: Widjanarko House (a), Shinning Stars Kindergarten (b).

Osreithalita Gabriella (28 Oktober 1987)

Graduated from Trisakti University, in 2010 and National University of Singapore, in 2014. Awards received: a) BCI Asia, Future Arc Green Awards for Individual House - 2018. b) Architizer A+Awards Choice Awards, Living Small Category - 2019. c) IAI National Award for "Small House" category - 2020. The selected Architectural Objects

are Saraswati House, Cipete and Al-Hurriyah Mosque, and Pasar Minggu (both in Jakarta).



Figure 2: Saraswati House (a), Al-Hurriyah Mosque (b)

2. LITERATURE

2.1. Social Relationship

In the book Design Thinking, it is said that the normative attitude of the Architect as a professional practitioner, becomes the basic footing in making decisions and designing (Rowe, 1991). This normative attitude is like an ideology, which forms the personal thinking character of the Architect. The form of normative attitude is divided into two, namely: (1) Doctrinaire Position. It is a special perspective, attitude, and approach to define proper architecture and become a guide in making it. Such as Mies Van der Rohe's "Less is More" credo and Louis Sullivan's "Form Follows Function". This attitude becomes a principle that influences the architect's consideration in designing. (2) Categorical Systems. In contrast, this perspective emerges through certain requirements or categories to define proper architecture. As described in the book Intention in Architecture (Schulz, 1997), architecture must fulfill three categories namely: "building task, form and technics". It is this normative attitude (the character of personal thinking) that forms the basis of the interview questions and is also the instrument of analysis.

JC. Jones, in his book Design Methods (Jones, 1992), shared three of his most important thoughts. (1) The evolution of the process through 3 (three) phases, namely a) Craftmanship. Designing is done by relying on the craftsmanship skills of the designer. b) Draughtmanship. Has used drawings with scale and dimensions in the design process. c) Design Method. The design work is the result of a process of systems and work teams that conduct analysis, synthesis, problem seeking, and others to lead to decision-making. (2) Designing Method which consists of a) Black Box. The idea of design

creativity is not clear where it comes from, maybe a dream, even a revelation, and others. b) Glass Box. Design creativity comes through stages that are carried out rationally, logically, and systematically. c) Self-Organizing Systems. The design process does not depend on one designer, but rather on an organized and independent team. (3) Design stage strategies consisting of Linear, Cycle, Branching, Adaptive, Incremental, Random, and Control.

Another thinker, in his book "Design in Architecture: Architecture and the Human Sciences" (Broadbent, 1978), shared one of his important thoughts on the "four approaches to design". a) Pragmatic, the designer uses trial and error. b) Iconic, the designer uses form solutions, to represent certain values or meanings through iconic forms. c) Analogical, using analogies from different contexts to create design structure principles. d) Canonic, designing by using certain rules or principles. Canonic, design by using certain rules or principles.

Meanwhile, Lawson, in his book "How Designers Think" (Lawson, 2005), wrote some important thoughts, of which 3 (three) are about, a) Designing Footing Strategies. The first is the Primary Generator. It is the main element or factor that influences the design. The second is the Central Idea. Namely elements or factors that become the foundation of a design. b) Design Guidelines. Namely Client, Users, Practical (technical problems), Radical (design objectives), Formal (design principal issues), and Symbolical (expected visual character of design). c) Design Problems. They are radical (design goal), practical (technical problem), formal (design principal problem), and symbolical (emerging visual character).

Based on these three thoughts or theories, 7 (seven) interview questions were prepared that were directly related to the specific design process of the selected architectural object. While 8 (eight) questions to recognize the normative attitude (character of thought) of the personal of the resource person as an architect.

3. METHODOLOGY

Given that this research is more about the thoughts, processes, methods, and considerations of design decisions, this research uses a qualitative, descriptive approach with narrative nuances. At the operational level, interviews became the foundation for obtaining primary data. To confirm existing answers and complement the data, field observations were also conducted. Data analysis uses qualitative text data analysis methods.

4. FINDING

Qualitative text data analysis is analyzing and interpreting data in the form of text, such as interviews and transcriptions of conversations, to understand the meaning and patterns contained therein (Lockyer, 2008). In line with Lockyer's opinion, text data analysis can and is valid because each sentence has a specific meaning and significance (Miles & Huberman, 2007). Therefore, the existing answers were carefully examined to find some key sentences from the short answer sentences. Then, some of these key sentences can be formulated into a finding. Through summarizing all the findings, conclusions can be made which also answer the study objectives.

As an instrument for the study of the interview results, four design theories were used, consisting of one theory related to normative attitudes (character of thought) and three theories of the design process as described earlier. Therefore, all of the interview questions that were developed and the analysis variables used were based on the four theories that have been presented.

Examination Steps

The study steps are (a) Step 1: Conduct a literature and theoretical review, related to the design process (Jones, Broadbent, and Lawson), which will be used as a basis for interviews, field observations, and analysis. (b) Step 2: Create a list of questions and analysis instruments, based on the main points of thought from the study of the three design theories. (c) Step 3: In-depth interviews with semi-structured questions (based on theory) and explanatory, to get directed answers as well as open-ended ones. (d) Step 4: Transforming recorded interview data into sentence transcripts while maintaining the authenticity of words and sentences according to the interviews conducted. (e) Step 5: Field observation. In addition to making visual recordings, it is also to "see, feel & experience" the architectural space created and at the same time do "enjoyment of architecture" (Saraswati et al., 2010). (f) Step 6: Validating the interview results into transcripts to the resource persons. (g) Step 7: Analysis of text data based on the four thoughts of the design process of all architects' answers. (h) Step 8: Making conclusions based on the findings and answers to the interview questions asked.

Wendy Djuhara.

Normative Attitude as a Professional Architect (table 1). Analysis based on the answers to the interview questions that have been carried out.

Table 1. Analysis of Wendy Djuhara's Normative Attitude as a Professional Architect

No	Questions and Answers (Key Sentences)	
1	What architectural ideology or thought do you believe in (modernism, post-modernism, neo-modernism, traditional or other) and why? Please explain.....	
	Key Sentences : a. Not adhering to a specific ideology b. Not involved in traditional or classical projects c. Showcasing 'contemporary' elements derived from the past	Substance : Considered to embrace Postmodernism
2	Apart from your ideology, what things or principles have been your main considerations in architecture? Please explain.....	
	Key Sentences : a. Architecture must function according to its purpose b. The layout and floor plan takes precedence over its visual form c. All primary activity needs must be accommodated	Substance : The essence of Architecture lies in fulfilling spatial needs and organization, although visual form is also crucial
3	Does your design method adjust to the function/typology of the building? Let's say the method of designing a house will be different from a public building, please explain.....	
	Key Sentences : The method is the same. Starting from fulfilling the basic needs arranged in such a way to be good or attractive.	Substance : The method and process are the same
4	In your "creative" process, what things do you need that might accelerate the process (as mood boosters)? Please explain.....	
	Key Sentences : a. Does not require any boosters b. More motivated due to schedules and deadlines	Substance : Commitment to time & results is the booster
5	Still related to the creative process, when you are "in the process" of looking for layout or shape ideas, what media do you use, is it hand sketches, hand sketches + study mockups, computer applications, or others? Please explain.....	
	Key Sentences : a. Till now, sketches remain an important medium b. If you already have the basic idea, use the Skhetchup apps, so it's faster. c. AutoCAD is only used during the Detailed Engineering Design (DED) phase	Substance : Sketches and SketchUp as the main media
6	Le Corbusier is known for his "Five Principles" credo, Mies van DeRohe for his "Less is More" and Louis Sullivan for his "Form Follows Function", what about you? Please explain.....	
	Key Sentences : a. Still exploring, not daring to determine yet b. The client should obtain their primary needs c. Still striving to incorporate architectural idealism	Substance : Architectural Rationalism
7	Regarding technological advances. How has the use of digital technology influenced your design process? Please explain...	
	Key Sentences : a. Technology is a tool for humans b. Architecture is the result of the work of the architect's thought character, not technology c. Architecture resulting from technological work is merely a commodity	Substance : Technology is an important tool to facilitate human creativity
8	Related to gender issues. Directly or indirectly, there are still many people who think that the Architect profession is a male profession. What is your view? please explain.....	
	Key Sentences : a. We, female architects, do not feel any different from male architects. It is society and men who create stereotypes b. In the early 2000s, there were very few female architects. This was due to the stigma that architecture was a male-dominated profession, c. The profession of an architect requires depth of thinking and openness of perspective, not physical strength	Substance : The profession of an architect depends on mental agility and openness to new paradigms, not gender, as seen by the increasing number of female architects in the last 20 years.

Analysis of The Design Process for the Selected Architectural Object

Shinning Starr Kindergarten, Bintaro. The selected building by Wendy Djuhara (figure 3), is the object of discussion of the design process through the analysis of interview answers (based on 3 design theories - table 2).



Figure 3: Shinning Starr Kindergarten, Bintaro – South Jakarta

Table 2. The design process analysis of Shinning Starr Kindergarten, Bintaro.

Theory - As Question Base		Questions and Answers	
J. Chris Jones	The Design Phase	Question 1 : How involved were you in the design process of the selected architectural object? Please explain.....	
		Key Sentences : a. I was involved in almost all stages of the process b. I am involved in all technical matters that will affect operations and visuals. I even make regular site visits. d. The involvement percentage is not the same at every stage	Substance : Involved in all aspects and stages of design, with unequal involvement. The lead architect's role is still important. → <i>Phase Draughtmanship</i>
	Design Methods	Question 2 : Related to the creative process. How did you design the form & and layout of the selected architectural object? Please explain.....	
		Key Sentences : a. The design starting point departs from the predetermined space program. b. Creating a layout plan from the results of optimizing space requirements, technical requirements, or physical context. c. The results of the plan optimization with all the context, then become the basis for designing the building form	Substance : The process is based on clear steps and analysis → <i>Glass Box</i>

	Strategy Design Stages	Question 3 : To obtain an optimal design solution, what kind of staging strategy did you use in designing the layout and form of the selected object? Please explain.....	
		Key Sentences : a. In this project, the design process was gradual. Apart from the renovation, it was also adjusted to the existing budget. b. Each stage seemed to have its starting point, even though it was a continuation of the previous stage.	Substance : The design is carried out in stages, which start from the existing that overlaps with the previous stage. → <i>Incremental</i>
Broadbent	Design Approach	Question 4 : What was your approach to design, to generate ideas for the form and face of the selected architectural object? Please explain.....	
		Key Sentences : a. Initially from the space program, make 3 alt. floor plans b. In subsequent considerations, the 3 plans became 2 plans with some adjustments c. For the form and expression inspired by Jengki Architecture which is adjusted to the existing context	Substance : a. The process runs on a trial-and-error pattern b. Form and visual expression are based on precedents → <i>Pragmatic & Iconic</i>
Bryan Lawson	Design Base Strategy	Question 5 : To get the design results effectively, efficiently, appropriately, and quickly, each designer has a strategy for a diverse design foothold. What strategy do you use as the basis for designing the selected architectural object, please explain	
		Key Sentences : a. Since this project is essentially a renovation, the position of the existing columns and beams is the footing. b. The layout follows the existing context	Substance : The final layout and form as a "result" of the existing structural system → <i>Primary Generator</i>
	Design Guidelines	Question 6 : What directs and influences you in the context of designing the selected object? Please explain.....	
		Key Sentences : a. The first is the amount of budget and program space provided. b. Secondly, since this is a renovation, everything must depart from the existing structural system. c. The third is that the land area of +/- 400m2 is inadequate for the ideal needs of the area.	Substance : The major influences and design direction are the technical issues of the existing structure and the space program requests. → <i>Client & Practical</i>
	Design Problems	Question 7 : What issues, if any, were obstacles in the process of designing this selected architectural object? Please explain.....	
		Key sentences : a. After the cost issue was assisted by the owner, the existing structural aspect became an obstacle in the design process. b. The constraints as well as the design reference are the structural system and the land area. c. The problem of visual form also has obstacles, it takes time and energy to get the right one	Substance : The position of the columns and beams is the main obstacle in addition to the land that does not meet the space requirements. → <i>Formal & Practical</i>

Widjarnako House, Depok. The private building by Wendy Djuhara was selected (table 4) as the object of discussion of the design process by analyzing the answers to the interview questions (table 3).





Figure 4: Widjanarko House, Depok.

Table 3. The design process analysis of Widjanarko House, Depok - West Java

Theory - As Question Base		Questions and Answers	
J. Chris Jones	The Design Phase	Question 1 : How involved were you in the design process of the selected architectural object? Please explain...	
		Key Sentences : a. In this project, my involvement is not much different from the process of designing Bintaro kindergarten. I was involved in everything b. I also made regular visits to the site. c. The involvement of the team is also similar. Design development for details and working drawings.	Substance : a) Involved in all aspects and stages of design, to different degrees b) The support team is fully involved at the DED stage. → <i>Draughtmanship</i>
	Design Methods	Question 2 : Related to the creative process. How did you design the form & and layout of the selected architectural object? Please explain...	
		Key Sentences : a. Similar to designing a kindergarten, i.e. from a predetermined space program. b. The land is adequate. Layout plan from the results of optimization of space requirements, technical requirements and land / physical context. c. Land optimization, floor plan with all its context, becomes the basis for designing the building form	Substance : The design process is based on a series of stages and a series of analyses on all related matters. → <i>Glass Box</i>
	Strategy Design	Question 3 : To obtain an optimal design solution, what kind of staging strategy did you use in designing the layout and form of the selected object? Please explain.....	

		Key Sentences : a. The longest process was the pre-design and development. The pre-design stage was revised 3 times, there was an evaluation following another 2 revisions. In the development stage, we had one evaluation from ourselves. Then there was an evaluation from the client. b. In the DED stage, everything runs not long, maybe around one month, including BQ & and technical specs.	Substance : The design is done in stages and there are several evaluations, 2x in the pre-design and 3x in the development stage. → <i>Cyclic</i>
Broadbent	Design Approach	Question 4 : What was your approach to design, to generate ideas for the form and face of the selected architectural object? Please explain.....	
		Key Sentences : a. Based on a dedicated nursery and room program. b. Tried to create several layouts. Then focused on 2 layouts in the pre-design. Discussion with the client chose 1 layout with some adjustments. c. At the development stage there is also evaluation & and revision from the client. So several times until entering the DED stage d. For the form and expression inspired by Jengki Architecture which is adjusted to the existing context.	Substance : a. In principle, the process runs on a trial-and-error pattern b. The form and its visual expression depart from precedents → <i>Pragmatic & Iconic</i>
Bryan Lawson	Design Base Strategies	Question 5 : To get the design results effectively, efficiently, appropriately, and quickly, each designer has a strategy for a diverse design foothold. What strategy do you use as the basis for designing the selected architectural object, please explain	
		Key Sentences : a. Both children's health requires natural air circulation. The bedroom is a benchmark for space arrangement b. House proposal concept is surrounded by a garden	Substance: the children's orientation room and the garden were the basis for the overall design. → <i>Primary Generator</i>
	Design Guidelines	Question 6 : What directs and influences you in the context of designing the selected object? Please explain.....	
		Key Sentences : a. First was the request for a dedicated nursery. b. Budget constraints, then minimal space requirements. c. Proposal of mass and space concept	Substance : A combination of the client's needs and the architect's proposal. → <i>Client & Formal</i>
	Design Problems	Question 7 : What issues, if any, were obstacles in the process of designing this selected architectural object? Please explain.....	
		Key Sentences : a. In the design process, there were no serious problems, especially from the owner. b. The problem might be myself. I needed time to decide on the mass and space composition. On the one hand, it must meet the needs of the owner, on the other hand, the architectural composition must also be fulfilled.	Substance : The problem is more about getting the architectural composition to match the owner's needs. → <i>Radical & Formal</i>

Osrihalita Gabriella

Normative Attitude as a Professional Architect (table 4). Analysis based on the answers to the interview questions that have been carried out.

Table 4. Analysis of Wendy Djuhara's Normative Attitude as a Professional Architect

No	Questions and Answers	
1	What architectural ideology or thought do you believe in (modernism, post-modernism, neo-modernism, traditional or other) and why? Please explain.....	
	Key Sentences : a. Handled owner requested modern b. More on climate and physical context	Substance : Modern-Tropical
2	Apart from your ideology, what things or principles have been your main considerations in architecture? Please explain.....	
	Key Sentences : a. Design is the result of land & and climate analysis b. The space program provided by the owner will be adjusted to the results of the land and climate analysis	Substance : The existing physical context is the main guide, the space program adapts
3	Does your design method adjust to the function/typology of the building? Let's say the method of designing a house will be different from a public building. please explain.....	
	Key Sentences : The design method is the same. Based on the results of the analysis of the space, land & and climate program	Substance : Same design methods
4	In your "creative" process, what things do you need that might accelerate the process (as mood boosters)? Please explain.....	
	Key Sentences : In a quiet room + jazz music and discussion with partners	Substance : Need atmosphere support + discussion buddy
5	Still related to the creative process, when you are "in the process" of looking for layout or shape ideas, what media do you use, is it hand sketches, hand sketches + study mockups, computer applications, or others? Please explain.....	
	Key Sentences : a. Earliest stage, sketch & SketchUp basic + study model before presentation b. Then fine 3D sketchup and study model for presentation	Substance : Sketching is still used, but the main one is SketchUp (a software application).
6	Le Corbusier is known for his "Five Principles" credo, Mies van DeRohe for his "Less is More" and Louis Sullivan for his "Form Follows Function", what about you? Please explain.....	
	Key Sentences : In every project, always strive for a sustainable approach in all possible aspects.	Substance : Sustainable architecture
7	Regarding technological advances. How has the use of digital technology influenced your design process? Please explain...	
	Key Sentences : a. We use technology to optimize results. b. Sketchup to develop ideas for the initial shape of the sketch Ecotect software to simulate sunlight in further development and Autocad for DED c. Technology as a tool to help me make decisions, not to determine decisions	Substance : a. Technology is used in the design process b. Technology is more of a tool to help architects make decisions.
8	Related to gender issues. Directly or indirectly, there are still many people who think that the Architect profession is a male profession. What is your view? please explain.....	
	Key Sentences : a. Since college, I have felt different from the community b. Rejecting all gender issues, especially in architecture.	Substance : a. Gender equality advocates. b. Architects are a gender-free profession.

Analysis of The Design Process for the Selected Architectural Object

Al-hurrayah Mosque, Pasar Minggu – South Jakarta. The selected building by Wendy Djuhara (figure 5), is the object of discussion of the design process through the analysis of interview answers (based on 3 design theories - table 2).



Figure 5: Alhurrayah Mosque, Pasar Minggu - South Jakarta

Table 5. Analysis of the design process of Al-Hurrayah Mosque, Pasar Minggu - South Jakarta

Theory - As Question Base		Questions and Answers	
J. Chris Jones	The Design Phase	<p>Question 1 : How involved were you in the design process of the selected architectural object? Please explain.....</p> <p>Key Sentences :</p> <ol style="list-style-type: none"> The basic idea is from me. In the preliminary stage, I discussed with my partner. The preliminary results were approved by the owner, then I developed them. Development stage, there were three developments. Development stage 1, I still develop by myself. Discussions also with partners. After Development 1 is approved by the owner. The development stage 2&3 Stage 2 development, assisted by 2 teams, for interior development & overall building including structure. Then stage 3, the M&E team was also involved. The involvement of the team is getting further until the DED stage approximately 50% in the 2nd stage, 75% in the 3rd stage, and 100% at the DED stage. 	<p>Substance : There is a clear division of tasks in the team. There is already a division of tasks between the designer and the production team, and there is a separation of production by element. More efficient production time.</p> <p>→Combination phase <i>Design Methods & Draughtmanship</i></p>
	Design Methods	<p>Question 2 : Related to the creative process. How did you design the form & and layout of the selected architectural object? Please explain...</p> <p>Key Sentences :</p> <ol style="list-style-type: none"> My team and I did a detailed survey to see all the potential of the land. 	<p>Substance :</p> <ol style="list-style-type: none"> Analysis is done in complete stages.

		b. Survey data is thoroughly analyzed by me & my team. c. I designed the layout and shape based on the results of the analysis that has been done.	b. The design is based on the results of a detailed and thorough analysis. → <i>Glass Box</i>
	Strategy Design Stages	Question 3 : To obtain an optimal design solution, what kind of staging strategy did you use in designing the layout and form of the selected object? Please explain..... Key Sentences : a. We design with sequential stages. There is an evaluation at each stage, before moving on to the next. b. In the development stage, the project was done by 2 design teams. My partner and I for the main worship area & building form, then 1 more team (2 Architects) for the ground floor + service area. The other 2 teams (external), namely structural & ME specialists, entered during the finalization of the development. c. From pre-design before the development stage, there was an evaluation first. In the design development stage of this project, there were evaluations, before the DED. d. At the DED stage, there are also 2 stages of evaluation, to ensure everything is by the plan.	Substance : Steps are worked in a linear pattern but can be evaluated at certain points, to determine the next step or to repeat the previous step. → <i>Branching & Cyclic</i>
Broadbent	Design Approach	Question 4 : What was your approach to design, to generate ideas for the form and face of the selected architectural object? Please explain..... Key Sentences : a. The roof is sloped unequally, to represent hierarchy. The further to the west/kiblat the more sacred. b. The roof is also a metaphor for the word Allah in Arabic letters. c. At the same time, the spatial layout refers to the Mosque's worship system.	Substance : a. The roof depicts the sacred hierarchy and represents the "word Allah" in Arabic letters. b. The spatial layout refers to the order of worship → <i>Analogical & Canonic</i>
		Question 5 : To get the design results effectively, efficiently, appropriately, and quickly, each designer has a strategy for a diverse design foothold. What strategy do you use as the basis for designing the selected architectural object, please explain Key Sentences : a. Since this is a mosque, the main orientation is Qiblat. So the Qiblat axis becomes the basis for the layout of the overall plan. b. Operational energy saving means the need for air conditioning & natural lighting and others	Substance: Qiblat becomes the main footing of the design and energy saving as a facial guide as well as the necessary openings. → <i>Centered Idea</i>
Bryan Lawson	Design Base Strategies	Question 6 : What directs and influences you in the context of designing the selected object? Please explain..... Key Sentences : a. Primary guiding purpose and role of the building b. The order of worship guides the spatial layout	Substance : The architect focused on the purpose of the building's design. → <i>Client & Formal</i>
	Design Guidelines	Question 7 : What issues, if any, were obstacles in the process of designing this selected architectural object? Please explain..... Key Sentences : a. The main problem was the lack of budget, causing the construction to stall during the construction of the building structure. b. Had to change contractors. As a result, a lot of time was wasted and the completion of details was different.	Substance : The most prominent issue is cost, which has an impact on technical issues. → <i>Formal & Practical</i>
	Design Problem		

Saraswati House, Cipete - South Jakarta. One of the private buildings by Osrithalita Gabriella was selected (photo 6) as the object of discussion of the design process by analyzing the answers to the interview questions (table 6).

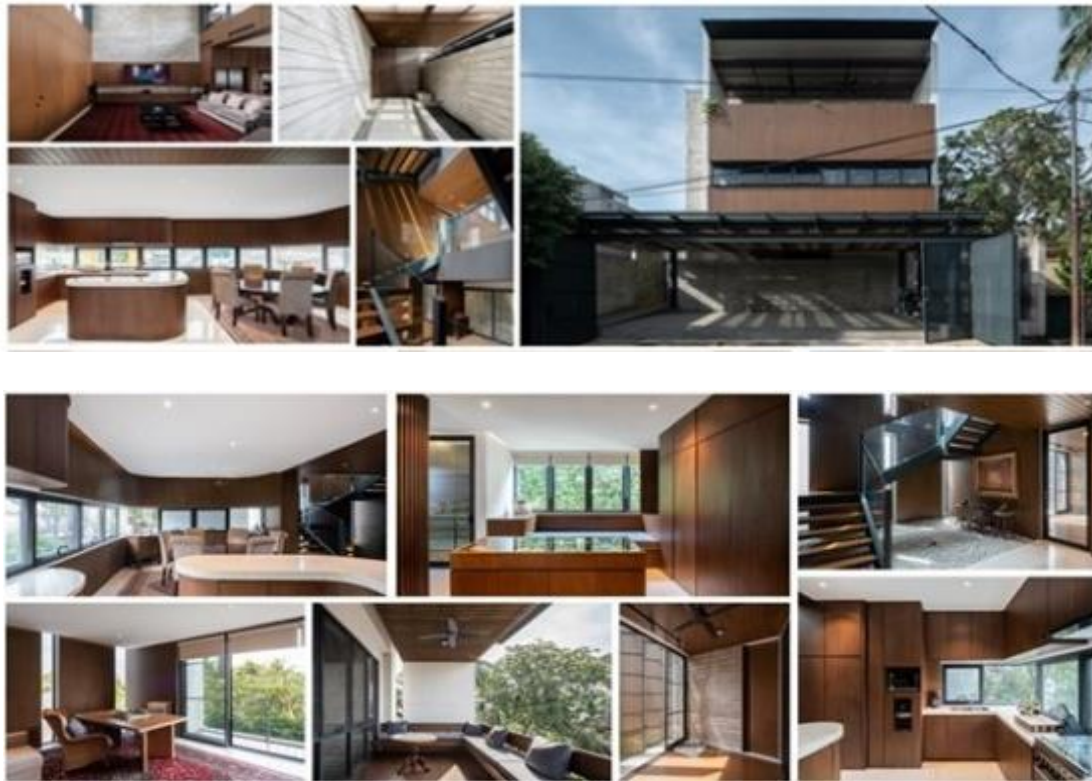


Figure 6: Saraswati House, Cipete - South Jakarta

The analysis of answers to questions (based on 3 theories of designing) interviews about the design process (table 6) on the Widjarnako house architecture object is as follows:

Table 6. Analysis of the design process of Saraswati House, Cipete - South Jakarta

Theory - As Question Base		Questions and Answers	
J. Chris Jones	The Design Phase	Question 1 : How involved were you in the design process of the selected architectural object? Please explain.....	
		Key Sentences : a. In the design, I was involved in almost all stages. The earliest idea came from me. Then before going to the prelim, I discussed it with my partner. b. At the development stage, the team was involved. Some of the room designs were developed by them. Such as the child's bedroom and bathroom etc. c. Basically, the development was done as a team.	Substance : a. Involved in almost all stages, just different percentages b. Preliminary stage with partners and development with the team. c. Begun to be systemized. There is a Development and technical. → <i>Draughtmanship & Design Methods</i>
	Design Methods	Question 2 : Related to the creative process. How did you design the form & layout of the selected architectural object? Please explain...	
		Key Sentences : a. In this project, the initial idea started from a detailed mapping of the user pattern, from the user's habits to the space requirements, considering that this house is used for 2 families to live in. b. During the process of designing the floor plan & zoning, it was parallel with envisioning and finding ideas for the form. c. From the consideration of the land, with all its context, the layout plan, natural lighting, air circulation, and others, become the basis for designing the shape and openings in the building.	Substance : The design process is based on a series of steps and a series of analyses on all related matters, not intuition. → <i>Glass Box</i>

	Strategy Design Stages	Question 3 : To obtain an optimal design solution, what kind of staging strategy did you use in designing the layout and form of the selected object? Please explain.....	
		Key Sentences : a. The earliest stage before prelim design, I still do it myself. I formulate the results of the interview with the client, then adjust the space program, to the principle of plan & shape. But on some occasions in the prelim stage, I also discussed with my Architect partner. b. There were 2 architects involved since the beginning of the design development. They developed the children's room and service area, I held the main room and view. We coordinated every week. c. At the development stage, our external partner is also our structural specialist. We coordinate every 2 weeks. d. At the DED stage, there is one more team (2 people), that specializes in detailed working drawings.	Substance : a. In the earliest stages up to prelim, using the principle of a cyclical procedure b. In the development stage, there is a division of tasks with the team involved working in parallel. The team regularly coordinates to Principal Architect. → <i>Branching & Cyclic</i>
Broadbent	Design Approach	Question 4 : What was your approach to design, to generate ideas for the form and face of the selected architectural object? Please explain.....	
		Key Sentences : a. What sparked the basic idea was the needs and activity patterns of the residents. From there, I tried to exercise the possibility & potential of the layout. b. I also tried to simulate the sun exposure on the layout and massing. There are team members who can operate the Ecotec application. So I tried to adjust the existing ideas with the simulation results.	Substance : a. Basically, the process runs on a trial-and-error pattern. b. The form & visual expression are the result of adjustments from the simulation. → <i>Pragmatic</i>
Bryan Lawson	Design Base Strategy	Question 5 : To get the design results effectively, efficiently, appropriately, and quickly, each designer has a strategy for a diverse design foothold. What strategy do you use as the basis for designing the selected architectural object, please explain	
		Key Sentences : a. Vertical zoning is the focus of the design step. The main family of this house has decided on the main room on the first floor and the children's room on the second floor. The ground floor is for the sister's room. b. Next, natural lighting and optimal air circulation are the basis of the design.	Substance: Vertical space zoning and optimization of natural lighting and air circulation were the cornerstones and sparked ideas in the design process. → <i>Centered Idea</i>
	Design Guidelines	Question 6 : What directs and influences you in the context of designing the selected object? Please explain.....	
		Key Sentences : What influenced and guided the design process was the client's wishes. Specifically related to the prospective occupants are 2 families, ground floor zoning, one & two, and also more privacy in each room.	Substance : The client needs & wants that influence and guide. → <i>Client</i>
	Design Problems	Question 7 : What issues, if any, were obstacles in the process of designing this selected architectural object? Please explain.....	
		Key Sentences : a. From the client's perspective, there were no technical aspects, such as piping and construction structure, nor were there any complicated issues that could affect the design, either at the design or implementation stage. b. What I consider a problem is perhaps more in the expression of the form. Compositional problems, and material selection, especially for the exterior, will affect the expression as well as the performance.	Substance : The problem was more about getting the composition and visual expression to match the owner's needs. → <i>Radical & Formal</i>

5. DISCUSSION

Based on the findings from the analysis that has been carried out, the normative attitudes of the two architects are summarized in Table 7 below. From the table, it can be said that there are 3 (three) similarities and 5 (five) differences in the normative attitude of the two Architects.

(1) Similarities. Design methods related to typology, gender in architecture, and the role of technology in architecture. (2) Differences. Architectural Ideology, Priority in Design, Architectural Principles, Media to Create and Mood Booster.

Table 7. Normative Attitude (character of thought) of both Architects

Architect figures		Findings		Finding Dynamics	
		Wendy	Osrithalita	Similar	Different
No	Substance of question				
1	Architectural Ideology	Post modern	Modern - Tropical		●
2	Priorities in Design	Function/Space Layout	Physical Environment Context		●
3	Typology-related methods	Same Method	Same Method	●	
4	Credo in Architecture	Rational Architecture	Sustainable Architecture		●
5	Gender in Architecture	Rejecting gender	A gender-free profession	●	
6	Architecture and Technology	Technology as a design tool	Technology as a design tool	●	
7	Media to create	1) Hand Sketching - 2) Sketchup apps	1) Sketchup apps - 2) Hand Skethcing		●
8	Mood Booster	Deadline - as a booster	Quite room & Music Jazz		●

The Design Process of the two Architects on the selected Architectural works, based on the results of the analysis that have been done, and the details of the design process of the two Architects on the selected Architectural objects can be read in Table 8 below.

Table 8. The Design Process of both architects on selected architectural objects

Design Theory		J. Chris Jones											G. Broadbent				B. Lawson													
Research Instruments based on theory design		Design Evolution Phase		Design Methods		Strategy Design Stage						Design Approach				Strategy Base Design	Design Guide					Design Problems								
		Craftmanship	Draughtmanship	Design Methods	Black Box	Glass Box	S. Organize S.	Linear	Cyclic	Branching	Adaptive	Incremental	Random	Control	Pragmatic	Iconic	Analogical	Canonic	P-Generator	Centered Idea	Client	Users	Practical	Radical	Formal	Symbolical	Radical	Practical	Formal	Symbolical
Architects and Architectural Objects																														
Wendy Djuhara	Widjarnako House		●		●			●						●	●			●		●				●		●		●		
	Kinder Garten		●		●					●				●	●			●		●		●						●	●	
Osrithalita Gabriella	Saraswati House		●	●		●			●	●				●					●	●							●		●	
	Masjid Alhurrayah		●	●		●			●	●						●	●		●	●				●				●	●	

From table 8 above, it can be read as follows: there are three (three) design processes that are the same but have three variants. (1) Yellow: The process carried out on all four Architectural objects is completely the same, namely: Design Methods and Design Problems (2) Orange: The design process carried out on all four architectural objects is the same, but with additional variants, namely the design evolution phase and the design guide. (3) Blue: The same design process (with additional variants), but only on three architecture objects, namely: strategy design stages and design approach. In addition to the three process similarities, these two architects also have differences, namely strategy-based design.

6. CONCLUSION

What is meant by the common thread here is that, in addition to some related similarities, there is also one difference.

1. In the aspects of Design Methods (Jones) and Design Problems (Lawson), both Architects make fundamental similarities. Both of them use the Glass box design method. The design process goes through the stages of data-based analysis that are clear, complete, and can be traced in detail, not intuition and the like. Then, the problems in the design process of both architects are also the same, namely Radical (the main purpose of the design), Practical (technical problems, in addition to feasibility issues also due to the shape change), and Formal problems, namely getting the appropriate configuration & shape change.

2. In the aspects of the Design Evolution Phase and Design Guide, these two architects are similar in principle, but there are 1-2 additional variants (not completely the same). In the Design Evolution Phase, Osrithalita Architect is not only in the draughtsmanship phase but starts to enter the design methods phase. The interview

3. In the aspect of the design strategy stage and design approach, both architects have relative similarities. Because of the four selected architectural objects, there are at least 3 out of 4 things in common. Wendy used the cycles strategy on Widjarnako House and used Incremental strategy on the kindergarten project. The interview results show that the strategy adjusts the

character of the project. While Osrithalita in principle also uses the cycles strategy, but related to the number of members and the existing work system, it is possible to also use the branching strategy on the two selected Architecture objects.

In the aspect of design approach, both of them use a pragmatic approach in the design process. However, differences in normative attitudes have led to additional variants of approach in the four selected architectural objects. Wendy with an additional variant of the Iconic approach and Osrithalita with Analogical and Canonic.

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