

Chapter 5 - Closings

5.1 Conclusion

What's the difference of the digital design process and design thinking of the winning architecture student and the participant (average) architecture students in 2016-2024 generation in architecture student competition? There are a lot of differences in digital design process and design thinking between the winner architecture student group and the average architecture student group in 2016-2024 range. The design thinking tendency between two parties in some parts are different (Divergent and Convergent Theory, Refinement Theory Abductive Thinking, Algorithmic & Heuristic Theory, Logic; & Intuition Theory) The only similarity is in framework of thinking process perspective. Digital design proficiency, digital team management, individual motivation & strategy, the way facing consequence of digital are also different.

Is there any lesson that can be learned from the average (participant) to the winner? There are a lot of things that the average architecture student can learn from the winner in order to increase the speed to catch up with them. In design thinking and digital design process perspective, please spot all of the difference in this thesis and tried to match yourself with winner majority tendency (except the way they digital storage idea, it's not recommended based on interview experience).

Undeniably, several external factor outside architecture design thinking & digital design also highly recommended to be enhanced such as interpersonal skill, international language fluency, willingness to learn, being curious, time management, team commitment, learn from other winner (coached), and even choose a right university that have a lot winner that you can learn & inspired with (subconsciously set your result standard), educator role, and have a curriculum that support digital design skill development will help increase your chance of winning. People are often talking about design thinking, less talking about design feeling, and almost forget about design execution. In this research, it would be really fair to say that these 3 are equal and correlated to each other. We cannot lose one of them. Thinking X Feeling X Execution = Good Design.

5.2 Research Limitation

There are several research limitations even though researcher tried to optimize the research. The limitation is: 1) Not every group had well-kept all of their design process. 2) Some small part of the interviews limited by Chinese language and cannot be shown in quantitative triangulation perspective because the small quantity of transcription 3) The research design thinking perspective limited to the chosen theory and the story-mapping processing data limited to those theories. Increasing the amount of theory is making researcher more capable of seeing the problem more holistically. However, it increases the difficulty when analyzing the data and making the researcher easier to be exhausted by the high complexity while interviewing the informant. The researcher requires to focus and constantly remember all the theory while also simultaneously constructing the storyline of the informant. Increasing complexity makes the researcher more likely to repeat the recordings and reread the transcription which is time consuming. 4) Designing is a very complex process, there is no way every informant remembered all of the details clearly. The researcher tried his best to get the outline of the story in the interview. There might be details that forgotten by researcher or informants.

5.3 Recommendation for Future Research

Researcher didn't know what caused the winning architecture student or average architecture student have intuition in certain time. The informant also struggles to answer those questions, and it would be interesting to be researched in the future what cause intuition to appear in the first place in digital design practice. "impulsivity" and "feeling" might be the two keywords for intuition based on this interview,

This research is impossible to do in real time because we won't know if the team that we researched is a winner or not. However, it's still possible to research winner architecture students by asking them to record everything in the future when they discuss in a team, modelling, rendering, sketching, etc. Researcher just need to watch all of the design process from start to end, which is very time consuming and impossible for this one semester thesis research. It might be

suitable for dissertation or any long research project that can last years. Ask as many potential winners as possible and ask them to record every single detail design process (screen recording, chest mount camera, and microphone).

It will be interesting to research professional cases to find if there is any different nature and approach in design thinking and digital design process. Professional cases hypothetically might face less digital hindrance because they are professional and fully experienced in digital design process. BIM perspective hypothetically might be different compared to architecture students.

If there is any university that accepting average high school student (not a privileged, filtered, well-gifted student) and able consistently to train high portion of them to be a caliber high win rate architecture student, that university can replace the winner locus and will be a very interesting to research their way educate and compared it to university that never or less likely produce winners. This research requires update in the future because digital tools landscape always updated by industry demand. New software or new tools might change some design process or even design thinking. Cheaper technology hardware might also change the workflow. The development of AI in the future might also affect the way of design. It might be necessary to ask for every prompt of informant design in the future. The future research can also be a more quantitative approach to validate findings in this research even though every architecture student project is unique. Quantitative methods might give different perspectives while also need to maintain the ability to find something undiscoverable if only by using qualitative methods.

The future research can also be more specific based on the type of competition. There are several categories of competition. For example, competition that tends to be imaginative, sustainable calculation oriented, or logical problem solving, etc. This research still mixes all of the competitive types. There are probabilities that someone who is more imaginative, aesthetic oriented gain advantages from imaginative architecture student competition format. More specific classifications can reduce these biases.

The summary findings from figure 97 and 98 might be an early finding that can be developed in the future. The more theories used in the future, the more holistic the findings and the more we can understand someone's design process and design thinking is. There might be other theories that have correlation and interesting relationships. This research is still early framework for design thinking exploration in digital design process. The future research might be beneficial to validate the findings for future architecture education curriculum. Another approach and future research integration into curriculum is highly recommended.



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