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PROCEEDING

# INTERNATIONAL CONFERENCE ON SOCIAL DESIGN 2022

Theme:

## THE FUTURE OF SOCIAL INNOVATION DESIGN: DESIGN AS STRATEGY

## 1ST – 2ND, SEPTEMBER 2022

Fakultas Desain, Universitas Pelita Harapan

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# PROCEEDING

# INTERNATIONAL CONFERENCE ON SOCIAL DESIGN 2022

**Theme:**

## THE FUTURE OF SOCIAL INNOVATION DESIGN: DESIGN AS STRATEGY

Thursday & Friday, 1-2 September 2022
School of Design, Universitas Pelita Harapan

Published By:
**School of Design**
**Universitas Pelita Harapan**

# Welcome Message

## Rector

Universitas Pelita Harapan

Greetings dear all, Social Design academician, initiator, inventor, facilitator,

First, I want to welcome you all from all over the world to this International Conference on Social Design.

For the past two years we have been enduring the pandemic and with it a great challenge but also an opportunity of technology that is greatly accelerating. These two aspects change the world and open up the new future, the new digital world. We have seen how education changes with blended learning as well as how design creates with all this technological advancement. Hence, we will undoubtedly see all these changes build social innovation in our society. Design as Strategy will play a great part in this exciting future, that will be shaped creatively and innovatively.

In accordance with this spirit, I am excited that our School of Design, Universitas Pelita Harapan initiated this International Conference on Social Design in partnership with all these respective universities:

1. Faculty of Creative Industry, Universitas Ciputra, Surabaya.
2. Architecture Department, Universitas Pembangunan Jaya, Tangerang Selatan
3. Faculty of Architecture and Design, Universitas Kristen Duta Wacana, Yogyakarta
4. Faculty of Art and Design, Universitas Sebelas Maret (UNS), Surakarta
5. Faculy of Design and Creative Industry, Universitas Esa Unggul, Jakarta

which is supported by:

1. Product Design, National Institute of Design, India.
2. Salford School of Arts, Media and Creative Technology, University of Salford, UK.
3. Monash Art Design and Architecture, Monash University Australia.

I am also greatly appreciated all the keynote speakers from Indonesia and all over the world that has joined and will give input on how the future should be reframed with creative innovation:

1. Elizabeth Wewiora, BA (Hons), MRES. (Programme Leader for the MA Art and Design Courses) & Niki Colclough (Programme Leader for the MA Socially Engaged Practice) - Salford School of Arts, Media and Creative Technology, University of Salford, UK.
2. Dr. Ranjit Konkar Principal Faculty of Product Design) - National Institue of Design, India.
3. Prof. Diego Ramirez (Associate Dean International and Engagement Monash Art Design and Architecture and Director of Informal Cities Lab.) - Monash University Australia.
4. Gracia Ugut, Ph.D (Dean of Faculty of Economic and Business) – Universitas Pelita Harapan, Indonesia.
5. Dr. Ernest Irwandi, S.Sn., M.Ds. (UPH) – Participative Visual Design Expert (Ka. Prodi Magister Desain untuk Inovasi Sosial, Fakultas Desain, UPH).
6. Muhammad Kamil - Director of Design pppooolll – Research Based, Award-Winning Architectural and Design Studio).
7. Triyanto - Head of Social Engagement Department, PT. Astra International, Tbk.

I believe that this conference will not just give a contribution to innovative and creative design, but also on how design should be able to shape and improve the quality of human beings and the environment in this exciting new future. In this respect, design will be the steward of the environment and have a redemptive impact that empowers society. Design will become a strategy to glorify God.

Have a great conference! Stay safe, be productive and healthy.

Only by His Grace,
**Dr. (Hon) Jonathan L. Parapak, M.Eng. Sc.**
Rector of Universitas Pelita Harapan
Karawaci, Tangerang, Banten, Jawa Barat
www.uph.edu
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# Welcome Message

## School of Design Dean
Universitas Pelita Harapan

Greetings dear all, Social Design academician, initiator, inventor, facilitator,

Welcome to The International Conference on Social Design (ICSD) 2022

The International Conference on Social Design (ICSD) 2022 is the international version of National Seminar on Social Design (Seminar Nasional Desain Sosial (SNDS)) –2022. SNDS 2022 is the 4th national seminar held by the School of Design (SoD), Pelita Harapan University (UPH), Lippo Village, Karawaci, Tangerang, Banten, West Java together with its 4 Study Programs: Visual Communication Design, Interior Design, Product Design and Architecture (http://snds.uph.edu), while ICSD 2022 is the 1st. The conference is in partnership with:

1.Faculty of Creative Industry, Universitas Ciputra, Surabaya.
2.Architecture Department, Universitas Pembangunan Jaya, Tangerang Selatan;
3.Faculty of Architecture and Design, Universitas Kristen Duta Wacana, Yogyakarta.
4.Faculty of Art and Design, Universitas Sebelas Maret (UNS), Surakarta.
5.Faculy of Design and Creative Industry, Universitas Esa Unggul, Jakarta.

and supported by:
1.Product Design, National Institute of Design, India.
2.Salford School of Arts, Media and Creative Technology, University of Salford, UK.
3.Monash Art Design and Architecture, Monash University Australia.

At the SNDS 2021 the theme raised was: 'Social Design Adaptability – Strategy and Innovation during a Pandemic', as an effort to see the response and resilience of Social Design during the pandemic. The seminar was having a great responses from Social Design enthusiasts from various background. Thus, we can conclude that the role of Social Design within the pandemic situation is crucial in developing a better social situation and empower the communities during this C-19 pandemic crisis (Katoppo, 2021). Having seen this enthusiasm, we thought it will be the right time to expand SNDS's discussion scale and reach in 2022 into the international scope, where we are trying to see the future of Social Design innovation, in which the design moves at its highest level as a strategy (https://issuu.com/dansk_design_center/docs/design-ladder_en).

In this level, design will move towards an ideal position, namely looking for a theoretically informed practice where design is an action, followed by research through 'objectification of an experience' and 'disciplining of subjectivity' (Taggart, 2006). It is at this point that design can initiate social innovation (Katoppo, 2019).

Hence, this is the theme for our International Conference on Social Design (ICSD) 2022. The pandemic situation that has been going on for more than 2 years will be the starting point for discussing the future of Social Design as an evalutive studies. The ICSD 2022 also invite us to discuss the future of Social Design innovations seen from: Design as a Strategy (as mentioned above), Hybrid Human Centered Design (Katoppo, 2021; Salmons, 2015; IDEO, 2013), and new imaginative possibilities of Social Design innovation in the realm of the 5.0 world of technology that utilizes big data and even creates a digital world with new social order and empowerment.

Thus we have Social Design experts as ICSD 2022 Keynote Speaker, that comes from vairous background as follows:
1. Elizabeth Wewiora, BA (Hons), MRES. (Programme Leader for the MA Art and Design Courses) & Niki Colclough (Programme Leader for the MA Socially Engaged Practice) - Salford School of Arts, Media and Creative Technology, University of Salford, UK.
2. Dr. Ranjit Konkar Principal Faculty of Product Design) - National Institue of Design, India.
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4. Gracia Ugut, Ph.D (Dean of Faculty of Economic and Business) – Universitas Pelita Harapan, Indonesia.

Hence, ICSD 2022 would like to welcome the new world (post) pandemic through an innovative perspective of Social Design by inviting all initiators, academics and government institutions, stakeholders as well as Social Design innovators to share their thoughts, discuss and continue to develop Social Design discourse as a future empowering design for all!

Have a great conference!

Stay safe, be productive and healthy. See you in the next International Conference on Social Design.

Only by His Grace,
**Dr. Martin L. Katoppo, S.T., M.T.**
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(School of Design) – Universitas Pelita Harapan
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# Social Design in a Developing Country

**Ranjit Konkar**
National Institute of Design, India

## ABSTRACT
"Social Design" was the default mode of design in the pre-industrial era. All design effort was by the people and for the people. It rarely was monopolized by individuals or special interests and was never protected. Objects of pleasure or mere curiosity were rare. Many of these traits still persist in developing countries where participatory approaches flourish and the purpose of design is often less to do with material comfort and equally to do with convenience of systems involving the public good. This paper explores how Social Design exists even in such an environment, taking examples from service design, non-profit design, and ethically conscious design from a developing country like India to illustrate the point.

## INTRODUCTION
Design is an occupation, an activity, a process as old as civilized Man. The event that marked the domination of the prairies by the two-legged genus Homo was the invention of tools. Tool development was unlikely to have been the work of a single individual, rather would have been the effort of a social group, or the entire herd, putting their collective minds to refining something that an individual might indeed have noticed, and then developed it for the benefit of all.

Design of the modern world has become an individualist activity, with armies of specially educated and well-trained individuals taking on the well-paid task of creating objects of great convenience and aesthetic experiential pleasure for people who use them but were never involved in their making. Increasing industrialization has meant the compartmentalisation and specialization of the task of design in the hands of a few.

Somewhere in between this spectrum of owned-by-all-made-for-everybody design and made-by-few-sold-to-buyers design lies the world of Social Design. In the experience of this author living in India, many instances of successful design for the public good have been observed which span the spectrum of highly visible commercial design at one end and public projects of low visibility at the other. They all have the common factor of being design efforts (intentionally planned and targeted efforts to achieve some desired goal), of being for public good, and of being for other than purely commercial profits. Some involve participation of the beneficiaries, others democratic decision-making, some production by purely manual, employment-generating means. All these capture the essence of what is defined in the literature as and are described in this paper as examples of it.

## SOCIAL DESIGN
Ideo defines (IDEO, 2015) Social Design as a process that a) encourages community facilitation, b) is supportive and empowering for those involved, c) offers

an innovative and feasible process, d) does not try to change people's behavior, e) draws on cultural traditions and beliefs to frame problems within society, and lastly f) acknowledges the importance of the wider influence of design, for example upon the environment.

Wikipedia defines (Wikipedia-contributors, 2022) the term as the application of design methodologies in order to tackle complex human issues, placing the social issues as the priority.

There are many other definitions which all substantially capture the same essence. Considering "design" to include projects of designing experiences, services, and policies in addition to physical products and message-conveying images, many projects the world over can fall into the category of Social Design for abiding by some if not always all the criteria mentioned. Some (described in the section Pseudo-Social Design) have the contrary combination of achieving social good through use of a service designed for commercial benefit of the creator.

Kokum Design Trust have compiled and catalogued (Kokum-Design-Trust, 2022) many such Social Design efforts happening in India in the domains of Architecture and Urban Design, Communication Design, Product and Industrial Design, and Strategic Design. It is an invaluable library of the documentation of such efforts. The described projects cover a range of topics like Energy, Water, Climate Change, Craft, Culture, Disability, Environment, Education, Economy, Health, Gender, Governance, Food Security, Textiles, Tourism.

Many educational organisations have also opened departments or disciplines dedicated to this area of Social Design. National Institute of Design, India, is a prime example of mainstream educational institutes offering programs that stress upon social needs in a time of unbridled material development. Through all its courses, it encourages its students to question the social realities in the midst of which material development is taking place. Its students in turn respond by choosing highly sensitive topics for their design projects such as women's reproductive hygiene needs, children's mental needs, needs of the differently abled, and so on. Many choose to deviate from the traditional individually-scripted design paths and instead explore co-creation and participative design as alternative design processes. Courses like Design for Special Needs, Systems Design, and the program for Universal Design are ones that particularly kindle the interests of students in Social Design. Examples of such student work are Co-creating Farmers' Futures (Patil, 2021), The Juvenile Justice System (Narvekar, 2021), Out of Syllabus (Prasad, 2021), and Water Management in Smart Cities (Shenoy, 2018).

New York's School of Visual Arts (SVA) offers an MFA in Design for Social Innovation, covered very nicely in Metropolis (Mattioli, 2017). In this article, the founding chair of the program, Cheryl Heller, discusses the genesis of the program, how Social Design relates to people and things instead of things alone, the universality of social

aspects in all design, measurement of the impact of social design, responsibilities of the designer, design versus policy, and the opposition that Social Design faces in current political developments in the world.

The Master of Design (Social Design) program (Ambedkar-University, 2019) offered by Ambedkar University, New Delhi, India, is a 2-year, full time, practice-based programme in which students are (sic) trained in the methods, tools and approaches of design disciplines with those of the social sciences to creatively address complex social issues through participatory and collaborative design methods. The areas of focus are public services and systems (such as health, education, transport, waste, governance interfaces), community networks and livelihoods (pertaining to crafts, informal economies, built and intangible heritage, urban and rural commons), digital technologies (social media, user interfaces and experiences, privacy). Students are also introduced to entrepreneurial competencies and leadership to support them to establish their own enterprises while also providing internship opportunities in established organisations.

Another example is Maryland Institute of College of Art's Centre for Social Design (MICA, 2022) whose commitment is to (sic) "increasing the social literacy of designers so they have a better understanding of the issues of equity, power, race and privilege that exist at the heart of the social problems we aim to address."
The prevalence of such programs in mainstream education along with the relentless drive towards technological advancement is a very good sign of balance of human values alongside material progress.

It has not been long, however, since most design work the world over could be dubbed "social design" if only for the reason that it used to be individualized to customers, free from stifling protection over rights to manufacture, participated in by many, and involving the customer at many points along the way. The mass production era introduced by automobile manufacturing could surely be said to be that turning point. Even much more recently, however, in the author's own lifetime, he has experienced a way of living quite different from today's "ready-to-wear/eat/use" culture, in which things he used were designed and made for him. Clothes used to be tailormade to measure. Ready-made garments (made for everyone in general but no one in particular) were viewed with suspicion, not least because they were also more expensive than their tailor-made counterparts. Food was mostly cooked at home and thus by a known person (one's mother?) who knew our tastes, our preferences. Eating out used to be an extravagance, not to mention considered bad for health … and the pocket … and where the "design" of the food was guided solely by perishability and taste both of which are enhanced by ingredients bad for one's health. It was not uncommon to see cobblers offer to make shoes for you, although their livelihood had been well taken over by the branded shoe houses. Readymade shoes gave one shoe-bite as well as "pocket-bite" because none of them fitted one's Nature-made foot perfectly. Similarly, larger projects like wood-work, metal-work were commonly attended to by local carpenters and blacksmiths, both in design and in execution.

The market was not the customer's paradise it is today. Markets were oligopolistic—many consumers, a few producers. People had to be satisfied with the offerings available in the market. A number, let alone a variety, of choices was a rarity, one used what one got and learnt to be happy with it. There was no overt or covert wooing of the customer. Things had to be custom-made—that was the only way there was—and making things custom-made is time-consuming. Wait times were long, mistakes were difficult to rectify. Parts interchangeability was non-existent in custom-made objects.

On the positive side, things had a low ecological footprint, since the producer-consumer gap was small relative to today. People found happiness through non-material things, mental stresses might have been lower too. Because of low mechanization, individual's skill were at a premium. Work was based around human skill, human execution, resulting in high self-esteem (and sometimes arrogance) of the producer, but in low reliability (compared to machine-made objects of later years), low repeatability, low interchangeability, high dependence upon people (all frustrating) for the consumer. Products used to be used till their disintegrating end, used to change owners, used to be repaired, repurposed, recycled.

Community services-wise, people of the neighborhood got together to build facilities of common need. Projects of social consequence used to be charted by residents themselves. Even in recent times, the social crusader Anna Hazaare managed to come up with a model (HydrateLife, 2013) of ideal village development through gathering village folk themselves and getting them to do their own development for themselves without relying upon external help.

## DESIGN IN THE AGE OF TECHNOLOGY

With Industrial Revolution 2 came the enabling of mass production. But "enabling" is a slightly misleading term, since it signifies choice. The investments in large machinery and the mathematics of economies of scale meant that mass production was compulsory. One could not make a few pieces of a plastic product, one had to make thousands since the process involved—injection molding—required a die, producing which was so costly that unless one produced thousands of parts from it, its cost was not recovered. This caused mass production out of all proportion with actual demand. Shops stocked up with unwanted types and numbers of goods and presented a wastage and disposal problem and resulted in a stockpile of garbage that today litters the gyres of our oceans.

But prices dropped too and capacity was no longer an issue in meeting needs (incomes were, but that is yet another story).

With mass production and efficient long-distance transportation of raw materials and goods, came into being the discipline of Industrial Design. Creative minds could now think about designing things out of materials that did not need to be local, could be of previously unimaginable shapes and colours, were light if wanted, and because of mass production, inexpensive too. The producer-consumer distance

increased hugely, to leverage efficiency, and increased the apathy of consumers to the source of their consumed objects and labours. Design unfortunately turned a blind eye to the suffering of animals, to climate change, to resource depletion.

Industrial Revolution 3 onwards brought us the technology of electronics and computers, opening enormous possibilities of what was possible and in smaller and smaller sizes because of miniaturisation. Creativity and design skills began to use technology to create wants that nobody needed or had asked for, but all enjoyed.

Design began to now be done for population segments, not individuals. Made-for-the-masses replaced custom-made, with the resultant compromises in fit as far as apparel was concerned. To make them buy the huge amounts that were being produced for no proven demand, the customer began to be pandered to. The open market allows multiplicity of choices and variety. Human ingenuity and creativity thrived.

## CASE STUDIES

Below are presented 4 case studies from India that have some elements of Social Design in them. The connection might seem tenuous in some, but are included because of their relevance to the quality of life of people and the environment. It is not claimed that these have been life-altering or that are well-known to all in India, but are just examples that the author has experienced and been impressed with as examples of good Social Design.

### 1. Trash management in Himalaya Trekking

The desire of tourists to go trekking in the hills is natural and universal. The grand Himalayas are an exceptional attraction. However, the popularity of this activity (trekking) has come with bad consequences for the very locale that people come there to enjoy. Garbage littered everywhere on trekking trails, in water bodies, in forests is a sad sight (Figure 1[1]).

**Fig. 1: Bags full of human waste, tents and garbage left behind by climbers above Camp II on Mt Everest.**

Concerned citizens have responded to this depredation by volunteering efforts to clean up the trails and the hill slopes. But these are individual, one-time, charitable

[1] Photo courtesy: David Liau00f1o

efforts that cannot be relied upon to last. It is also not possible to monitor every hiker on the hills and penalize the defaulters. Public education and motivation through public service messaging and sloganeering also has effects upon only a minority of people, usually the ones already faithful to the cause.

In a trek up to the Gomukh glacier where the river Ganga gets its water from, the author found a very interesting system set in place to counter this problem. At the entry point of the trek, a check-point was set up manned by personnel from the local administration. Tourists passing the check-point were being asked to show the contents of their back-packs and all other articles carried and worn by them, much like a manual airport security check. The security guard made a note of all disposable items he found (potato chip packets, fruit juice cans, etc.). At a rate fixed for each type of item, a charge was levied for all the disposables the tourist was carrying, which he had to pay and for which he got a receipt. On the way back, he would get his security deposit back (minus some processing fees, maybe) only if he showed the same number of wrappers and cans (empty if consumed) that he carried in.


**Fig. 2: Garbage management system in which refundable deposits are charged for all disposable items one carried into the trek.**

Tourists were seen (Figure 2[2]) readily complying with the procedure since all transactions were being documented and seemed reasonable. The security personnel himself also was conducting himself civilly bringing out the best in the tourists. The system seemed to be a success and hopefully has led to less litter in the surroundings.

This system is presented here as a social design example because of the following factors: a) it strives for an outcome that is not of material benefit to any individual or group, but rather for the cause of preservation of Nature, which is of benefit to everyone, b) it does so in part by appealing to the consciences of the people involved as part of the process, c) what it charges is for the purposes of recovering costs and for exemplary penalty, thereby hoping to modify the irresponsible mindset and behavior of people involved, d) the effort is financially supported by the relevant public administrative body in part and partly by the fines charged.

[2]https://www.newsncr.com/national/administration-started-a-new-initiative-regarding-waste-management-in-gangotri-national-park-940-tourists-have-so-far-collected-18-bags-of-garbage/

## 2. Railway ticket line system at Mumbai Railway Station

**Fig 3: Long queues at railway booking windows due to one-window-one-train restriction**

Railway travel is common in India—trains are a very affordable means of travel for its middle class. Travelling by train involves obtaining tickets for the travel… and obtaining those tickets means standing in line with the other people wanting to travel with you. Serpentine queues in front of ticket windows was a common sight at railway stations (like Figure 3[3] , except far worse), and something that the author has been a part of more often than he had wished to. Each window used to be for a particular set of trains with the result that after standing in line for 2 hours if that train became full you had to move to the end of another line for another train. Entire mornings used to be wasted in such incredibly badly designed service systems. Until the author came across a system where someone had thought of a very sensible and non-wasteful way of doing the same thing. This involved: a) getting a physical token with a serial number on it indicating your turn, b) multiple windows all attending to any route, any train, any destination, c) a large display board visible to everyone in the hall with a constantly updating display showing the token numbers being served currently and the counter numbers attending to them, and d) places for people to sit. You had to look at the display board, get a sense of how fast it was changing and therefore how long your turn would take, and be seated waiting your turn. If it seemed as if your turn would take 2 hours, you were free to leave, attend to other work you had, and return in time for your turn. The concourse changed its looks from long queues to an empty hall with just one person in front of every window (Figure 4[4]).

**Fig. 4: Effect on customer comfort of the new queue management system: no lines, better service.**

[3]https://www.asianage.com/metros/mumbai/240518/vip-quota-train-tickets-racket-busted-by-cops.html
[4]https://www.dailypioneer.com/2020/top-stories/ticket-reservation-counters-to-open-at-select-railway-stations-from-may-22.html

No “product” was involved in doing this. No expense beyond display boards. Noone stood to monetarily gain by doing this. No rocket science was involved. In fact, this system might well be  in use everywhere in the world. Everybody gained. Even if not original, its efficacy is undeniable and a lot of relief was brought to the life of the common traveller by whoever thought of this way of doing the same task. And thinking and doing is to design, isn’t it?

### 3. Bicycle rental MYBYK

The third example illustrates a very recent effort by a group that seeks to popularize bicycle riding (Figure 5[5]). Called MYBYK, it seeks to achieve its aim by a) removing the need for owning bicycles to be using them, b) using a model of availability where the point of access is not one shop in the whole town but multiple points, c) using the best of modern technology (internet, electronics, online payment) to achieve the logistics of the rental process like payment and ensure security for the company (in terms of stolen bicycles), and d) providing attractive, branded bicycles compared to the unappealing black bikes no one likes anymore.  All one has to do to rent their bike is to a) download the MYBYK app, b) sign up in the app, c) use the interface to locate the nearest available bike and navigate your way to it, d) unlock the bike, e) use it to your heart’s content (or your wallet’s), and lastly, when done with it, f) drop it off at the nearest hub indicated on their interface. The advantages of design thinking stand out in the flexibility (of pick up, drop locations), in the provision of full information for self-help (in locating available bicycles, drop-off points), and in the ease of payment. Definitely, MYBYK gains monetarily, but it is not selling us a bike, it is encouraging us to share a resource. In doing so, a very healthy, non-polluting, inexpensive, slow-life, outdoor habit of bicycling is revived with all-round benefits for the user, the environment, the planet, the economy, the city, everybody, without the compulsion to buy the bicycle.


**Fig. 5: The bicycle rental MYBYK as publicised on its website**

### 4. Ecokaari

This example is of a plastics-upcycling cooperative. The passion of one person led to the setting up of this social enterprise which achieves the end of turning our excessive plastic waste into very functional items of allure and desire, like purses, bags, and other accessories (Figure 6[6]) which in turn it appeals to people to buy, using their sense of guilt at excessive plastics consumption and waste creation and exhorting them to play a part in its responsible repurposing by purchasing articles made from it.

[5]https://mybyk.in/
[6]https://www.ecokaari.org/

Although they have an established supply chain of disposed plastic, it invites every person to mail them the disposable plastic articles they might have, thus contributing to the supply. At the cooperative then, these are segregated (Figure 7 [7]), cleaned, cut into strips, woven into fabric, designed and stitched into accessory products by women artisans of less privileged backgrounds.

By using raw material avoided by most (in fact, discarded by all), employing people of humble economic background, using manual labour, yet delivering products that only minimally compromise on quality (compared to their virgin plastic counterparts), and having an appeal to people's sense of duty to do well by the planet and its residents, this project is an ideal example of Social Design.

**Fig. 6: Lifestyle accessory made out of waste.**

**Fig. 7: Female workers of Ecokaari sit down to segregate and group plastic waste**

**Others…**

There are many other examples that are evocative of the idea of Social Design. The simple service design model of bottled milk home delivery in Mumbai was a time-tested and well-accepted way of obtaining milk (Figure 8[8] as illustration ). Until materials technology created a convenience that proved to be irresistible: a plastic pouch of a 100th the weight of the glass bottle and unbreakable too (Figure 9[9]).

**Fig. 8: Bottled milk delivered on doorstep and empty bottles picked up from doorstep.**

[7]https://www.ecokaari.org/
[8]https://totallywelsh.co.uk/wp-content/uploads/Milk-doorstep-e1571828780844.jpg,
https://commons.wikimedia.org/wiki/File:Milk_Bottles_on_Doorstep.jpg

**Fig. 9: Milk pouches popular now…and the garbage they create**

Gone was the need to be tied to the morning delivery for one's supply of milk, and the need to be careful not to drop the bottle or inadvertently puncture the foil cap and cause a spill. But people's attraction to convenience turned to addiction and their tenuous commitment to the long-term idea of environmental sustainability proved to tilt the scales on the side of the plastic pouch, never mind the enormous waste it generates (Figure 9).

The service design model of lunchbox delivery to offices (also in Mumbai) is another old example that has proven successful over the decades and has not yet fallen prey to modern alternatives. It is a project that employs the extremely coordinated manual labour (Figure 10[10]) and mental synchronization of many hundreds of daily-wage labourers to bring an office goer's lunch box full of home-cooked food to him on time. It is reported to have a failure rate of 1 in 2 months.


**Fig 10: Mumbai's dabbawaalas (lunchbox carriers)**

**Pseudo-social projects**

Often projects that are undertaken for the commercial purpose of profits alone are of a nature as to share some characteristics with Social Design projects. Such projects are of service design nature and involve service to a large, if not the general, population. An example is the taxi-hailing services like Ola and Uber in India. While purely profit-centric in genesis and purpose, these services have used a model of behavior-modifying design that benefits society as a whole and which few other agencies have built into the working system's models.

For example, both Ola and Uber ask you to rate the driver after the ride is over. The driver knows this and is therefore at his best behavior in order to get a good rating from his rides because he knows that the ratings convert to more rides for

[10]https://smedia2.intoday.in/indiatoday/images/stories/2016April/mumbai-dabbawalahs3-650_041416060958.jpg

him. Likewise the driver also gets to rate the passenger, keeping him at his best behavior too. This nugget of user experience and interface design borrows from a deep understanding of human psychology and is at the heart of the system. The reason to think of this as Social Design is that although built by a few designers its working involves the participation of a large population of customers and a large population of drivers who are together vested in the system, and whose combined ethic of working makes for the success of the system.

Other plus points of the system are also hallmarks of good design such as transparency (rider can see his fare at all times), real-time feedback (rider and ride can both see each other's locations before the ride arrives and the status of the ride as it goes underway), multiple payment options, possibility of changing one's mind (to a limited extent)…which all also go some distance in making it better socially since ill-behaved and law-violating, extortionist taxi-drivers have been the bane of this country. A proper design of taxi-hailing system has made life much better for all. This is valuable especially for developing countries with less-than-professional quality of services, public transport being one of them.

## HOW DESIGN PRINCIPLES AFFECT SOCIAL PROJECTS TODAY

The examples above all demonstrate that for any project the functional goal has always been prime to achieve. For most of them of older vintage scant attention is paid to the get-up or the presentation, partly because the executors or the participants of the project might not be schooled, if even literate. Not for them the luxury of aesthetics and usability. Design was implicit, practised intuitively by the maker using her common sense. It was not considered more than fine art and therefore not worth spending money upon. Products and services were consequently not known for their aesthetics or experience quality. Social Design particularly so.

However, in urban projects of recent times, for example MYBYK (started in 2014), a new attitude to their formulation is apparent. Reliance upon technology, transparency of information, attention to detail of usability, quality of experience, the very quality of product rented out (the bicycle) are all the hallmarks of a design-sensitive and design-aware generation of entrepreneurs. Table 1 below summarises many aspects of bicycle rentals as they used to exist in the author's childhood to the MYBYK of today.

**Table 1: Comparison of bicycle rentals 40 years ago and now**

| | In my childhood | Now |
|---|---|---|
| 1 Agency | A cycle-repair shop doing rental also | A "start-up" doing just renting |
| 2 Publicity | Word of mouth, no branding, no advertising | Paid advertisements in media |
| 3 The bike | Rented bicycle was just another bicycle | Designed attractively for rental, with branding, security features, etc. |
| 4 The deal | Time-based rent | Subscription, deposit, rent |
| 5 Accounting | Time of issue jotted in a physical "register" | Automated record of all rental parameters |
| 6 Reach | Only local | Spread out over multiple cities |
| 7 Service | Human (sometimes smiling and talkative☺) | Software (sometimes user-friendly☺), no human |
| 8 Demand | Necessity, for commute | For health, recreation |
| 9 Presentation | No attention paid. | Attempt to allure. |

## Design thinking as behavior-modifying strategy

In a country burdened by legacy of habits and behaviors, design thinking is of utmost importance in setting out to solve social evils. One example worth mentioning here is that of public sanitation, specifically the habit of people to chew and spit out 'paan' (tobacco and other intoxicating ingredients wrapped in the leaf of the betel-nut) in public. This leaves walls stained with extremely unsightly red spit marks everywhere. Many social design projects have been carried out, most of them unsuccessfully, to dissuade people from this practice. Laws have been formulated, penalties levied, public service message campaigns taken up…but to little avail. However, the design thinking demonstrated by one group's insight into people's habits and overall religiosity proved to be more successful than the administrative ideas of government officials: this group realized that the people habituated to spitting would not be dissuaded by any amount of sloganeering or moral exhortation.

Penalties were impractical to implement. What they came up with was the idea that if walls are painted with pictures of religious and spiritual figures, with the gods and goddesses of various religions, that even the most apathetic tobacco-chewer would not spit on those pictures. Somewhere this crossed the line of acceptable behavior even for him. This was a great insight and has led to many walls, public and of stairwells, being painted or tiled with pictures of religious symbols (Figure 11[11]).

[10]https://qph.cf2.quoracdn.net/main-qimg-a8d722c1b919b68ed6bfd464ff0f4105-lq

**Fig 11: Wall painted with spiritual images to deter people from spitting on them.**

Similarly, still on the topic of design insights in sanitation, the people's surprisingly responsible civic behavior in keeping the premised of Metro stations of India clean has revealed that if given a something in excellent condition and remarkable appearance, even normally apathetic people would not want to deface it. Railway stations and the general trains in India are sadly pictures of insanitation and unhygienic conditions (Figure 12[12]).

**Fig. 12: Unsanitary conditions of many railway stations**

But when the same people were presented with Metro stations and trains with their polished metal and glass and slick surfaces, good colours and aesthetically designed interiors and exteriors, they did not let them become the victim of their bad habits. Our metros are as spotlessly clean as any in the world simply because they started clean and aesthetic (Figure 13[13]).

[12]https://akm-img-a-in.tosshub.com/sites/dailyo/story/header/201605/train-ban_051616113537.jpg
[13]https://static.toiimg.com/photo/90042369.cms


**Fig. 13: A spic-and-span metro railway station**

## TRAITS OF SOCIAL DESIGN PROJECTS TODAY

Social Design projects, at least in India, are characterised by the following traits:

- Small in scale and ambition, local in scope, e.g., EcoKaari. This is often the result of the promoter of the project being a passionate individual or group who don't want their commitment to waver for numbers or size. They stress performance over growth. Many of them do not have a profit motive to begin with. They cannot therefore think too big.
- Low investment, donation-sourced, tax-benefitting. This too is natural since the revenue model of such projects is usually not their strong point. Their point is not the revenue but the result and the effect of the result upon the public good. Investors on the other hand demand growth and returns. A lot of social design ideas find funding in the Corporate Social Responsibility (CSR) investment requirement of the government from companies.
- Service design rather than product design. All the examples presented above are about service design and not about the design of a single object. This is a result of the fact that what hurts the public most is a lack of good services. Good products are available for anyone to buy in the open market.
- Idea that captures an insightful gap. All social design projects possess a spark of an idea which is usually uni-dimensional but sufficient to make a difference in its chosen focus area. Creative entrepreneurs with bright minds and a keen eye spot gaps where they exist in the service economy, such as in the last-mile delivery of goods, in delivery of food, in home service during the pandemic.
- Motive usually involves some element of ethics and socially beneficial outcomes. Alongside entrepreneurs who put their efforts behind wealth-increasing enterprises, more and more college graduates from management and design are turning towards solving problems of society than to come up with newer luxury goods. The young social entrepreneur is more value-driven than is given credit for.
- Means now almost always include technology: IoT, for example, is now ubiquitous in new service designs to make implementation easy, usage convenient. The low cost of modern electronics and computer peripherals makes use of digital engines and interfaces a rather obvious choice.

- Special-needs users find attention: Many new enterprises address the disadvantaged segment having special needs, thus making their effort deserve the title of Social Design.
- Design of offering being paid conscious attention. The overall packaging, interface, interaction of the experience offered is now getting good attention compared to that of a generation ago when functionality was the sole focus. The field of UI/UX is now pervading the social spectrum also.
- Attention from Media suddenly more. Media is now much more keen to cover social enterprises than merely wealth-creating ones. The positive publicity obtained by good coverage helps spread the cause…and increase the app downloads.

## TRAITS OF SOCIAL DESIGN PROJECTS TODAY

Although the industrialised "first world" has always been the benchmark for the developing "third world," the differing situations, realities, and legacies of the two necessarily bring in differences in the way social design is conducted in each. Technology-wise the global South would always look to the North and hope to benefit from developments happening them when they reach them. The developing world is seeing a happy application of technology to solutions of their problems but with differences because of the different ecosystems and cultural legacies that exist in the two. This section tries to present some such points:

- **Poverty.** The low wealth available to governments is naturally spent on basic infrastructure like electricity-roads-water (bijli-sadak-pani in Hindi). It is another matter that it doesn't do a good job of spending the resources it has efficiently even on these. Lack of round-the-clock electricity is a common problem in many parts of the country, affecting the nature of solutions that can be thought of to address people's problems there. Low purchasing power also means that people availing of services offered by private enterprises would not be able to afford them unless in their budget. This in turn means that a very minimal, appropriate solution has to be devised—a challenge to the designer.
- **Thrift mindset.** This is a mindset peculiar to Indians, maybe to other countries still coming out of poverty. Memories of poverty, of living hand-to-mouth, on a very meagre income bring with them a tendency to save, a reluctance to spend, a willingness to make do and bear inconvenience rather than spend that extra 10 rupees on a well-designed product or service. People will repair, reuse, repurpose but not buy new. This is very good news for the planet's environment and is wholly to be encouraged. However, it also limits the creative output of the designer, who has to channel his creativity into making his ideas extremely inexpensive.
- **Old cultures.** The setting of the old world brings with it not only the baggage of the past that has survived the march of time but a resistance to change as well. Social customs, rituals, practices that are in dissonance with modern values of equality of all human beings present a challenge in removal. In many cases, they present obstacles more difficult than solving the actual problem.
- **Work ethic, work culture, mindset.** Absence of the structured, disciplined ways of working of the industrialised world often makes transplantation of western models of problem-solving less than a success here. In a work culture where inefficiency and unprofessionalism are common and quality requirements are not taken

seriously, a good design can often fall prey to bad implementation and therefore dissatisfaction and frustration for the intended beneficiary of the project.

However, new realities are setting in the world over (at least in democracies). Economies are opening up, open markets are the norm now. Old procedures and paperwork is reducing, business is becoming easier to conduct. Rules and regulations are becoming less and less restrictive, and technology such as the internet is making most remaining rules irrelevant. Private enterprise is encouraged. Young people are dominating the market. The internet is making individual achievements possible without dependence on large physical infrastructure or financial backing.

In this new era of today, enterprising minds and indefatigable bodies are searching for all opportunities to earn honest money in serving the needs of people. Many of these needs are mundane, for example, the need to transport one's belongings when changing jobs to another city and moving. The need to have food of your choice delivered to you at home when tired of cooking. The need to send something to someone urgently overnight. The need, in the pandemic, of having someone come home to cut your overgrown hair. The author recently needed to have his new rented apartment bathrooms thoroughly cleaned and could easily find a service provider for just that task.

Those were the needs of the vast majority of the population. Then there are people with special needs—the elderly, the disabled, the sightless, the slow learners—the outliers of society. There are many organisations working towards that as well, with innovative approaches to serving them, pooling together money from philanthropists, labour of love from volunteers, and physical products from donors. And why only human causes, there are many projects done for the non-anthropocentric world of animals, Nature, our ecology, the environment. The world of social design is alive, well, and growing.

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# Embedding Socially Engaged Pedagogies for The Future of Art and Design Practice

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## ABSTRACT

This paper describes the shifting approaches to student and teaching experience on the MA Art and Design programmes at the University of Salford, (North West of England), in the wake of the global covid19 pandemic. The paper offers a series of case studies from both staff and students, which seek to employ socially engaged approaches to their practice. Each case study focuses on how individuals navigated their way through delivering projects whilst physically separated from each other and the communities they wished to engage with. The projects discussed were delivered both during and in the wake of the pandemic in the UK – which has left an indelible mark on the discourse students want to raise through their work. Case studies cover themes such as the role of creative technology as a democratized learning tool, visual communication as a powerful enabler of access and inclusivity to culture, and projects at the intersection of art, environment and health. The paper addresses conflicts, creative solutions and any emerging ethics of practice involved as a result of these projects. Ultimately the paper seeks to champion and argue how embedding socially engaged approaches to higher education (HE) pedagogy is crucial, even more so since the pandemic, to support staff and students to create art and design work which is not simply for society but work which is made with society. The paper also questions where and how art and design can exist in the world today.

**Key words: Socially engaged practice, University of Salford, Higher Education Pedagogy, Ethics of Practice. *Practice of Place,* Place Making**

## INTRODUCTION

This paper explores the role of socially engaged approaches to practice for both student and staff on the Masters (MA) Art and Design programmes at the University of Salford, in the wake of the global covid19 pandemic. Whilst all art invites some level of social interaction, what categorises socially engaged arts practice ‘is its dependence on social intercourse as a factor of its existence’ (Helguera, 2011). The pandemic, however, shook our relationship to and understanding of social engagement and social mobility. This paper offers a timely reflection upon how

students and staff had to re-think what 'social' means in arts and design practice in times of isolation and separation, and how they navigated their way through delivering projects during and post-pandemic.

It is important to discuss the structure of the MA programmes, which support a hybrid of subject specialist teaching and wider cross-subject peer learning across Creative Technology, Visual Communication, Contemporary Fine Art, Socially Engaged Art and Socially Engaged Photography. This structure was set up to create 'interdisciplinarity opportunities of working across subject areas. The Creative Research Methods module, for example, works well because the processes work so effectively within each subject area that students can clearly see the effectiveness of specific research methods through their development in other subject areas by students from different specialisms' (Isherwood, 2022). Furthermore some courses traditionally had different demographics; 'fine art and design tended to have students straight from undergraduate whereas socially engaged courses had mature students so this peer mixing worked well' (Ingleson, 2022). The structure of the programmes echo the social design model; embracing participatory, human-centred and transdisciplinary practice, but how could this model work within the constraints of the pandemic?

The paper discusses a series of projects by students and staff including democratized digital learning tools, the role of design as an enabler of access to culture, and projects at the intersection of art, environment, health and wellbeing. This paper addresses conflicts, creative solutions and ethics of practice which emerged, champions socially engaged approaches to practice, whilst also questioning how and where art and design can exist in society today.

## LITERATURE REVIEW

### 1.The stance: Socially Engaged Approaches to Practice as a method of Higher Education Pedagogy

**Education for Socially Engaged Art: A Materials and Techniques Handbook Pablo Huelguera, 2011** - Explores the different approaches to socially engaged practice and the challenges this might present to artist and organisers. Helguera further discusses interconnections between creative pedagogy and socially engaged approaches to practice.

**Bell Hooks, Teaching to Transgress, Education As The Practice of Freedom, 1994 -** Sets forward a new education, education as a practice of freedom - advocating for a classroom community that acknowledges everyone's presence, recognising the classroom as a communal place to inspire a collective contribution to learning. There is an ongoing recognition that everyone influences the classroom dynamic and that these contributions are resources. With the emphasis on connecting learning to overall life experiences, enabling students control over the decisions they make.

**Grant Kester, Conversation Pieces; Community and Communication in Modern Art, 2004 - 2013** Kester discusses a series of 'socially conscious projects'

historically, relating them to key issues in contemporary art and argues that socially engaged practices need to be treated as a process not only a final product in order to critically understand their value.

**Stephen Wright, Towards A Lexicon of Usership, 2013** explores the idea of Usership Theory and the language of our age. Wright offers a lexicon of terms for the Museum of Arte Útil movement (useful art) and is designed as textual toolkit for its readers. The Museum of Art Útil echoes the Museum 3.0 model which is an idea that a museum is built on its usership and so it is a place that is created and given meaning by the sum actions of all its users.

**2: The Context: The interconnection between nature, access and wellbeing**
***Nature Is A Human Right, (Why we're fighting for green in a grey world) Edited by Ellen Miles,* 2022** This series of essays sets out the importance of nature connection and its influence on the wellbeing of people, planet and place. Bringing together research from science, sociology, anthropology, urban studies and creative design practices, It asks us to examine our relationship with nature in the wake of the current climate crisis.

## METHODOLOGY

As an on-going piece of research, the project intention was to continuously reflect and adapt approaches for both students and staff, undertaking an action-based methodology.

Similar to the socially engaged approaches of the projects discussed, which enables the 'viewer to speak back to the artist in a certain way, in which the reply becomes in effect a part of the work itself' (Kester, 2011) taking participatory and action based methodologies approaches to the research aimed to foster two-way exchange and an unfolding process of learning together. It would support multiple voices and experiences to be shared, creating 'a sum of all its userships' (Wright, 2013) rather than a solitary or hierarchical voice.

Appropriate research methods included:

- interviews with individual students based on co-designed evaluation questions between student and staff
- Regular student-led focus groups and workshops about each project as a case study, reflecting on the themes during and post-pandemic.

## RESULT & DISCUSSION

The discussion is formed from the analysis of the following staff and student projects: Creative Technology Student Kennedy Iyeh's, 'Monie app'; a mobile learning app with a gamified approach to support people to learn important financial lessons 'within the mental stress of a traditional University structure' (Iyeh, 2022)

Socially Engaged Photography Graduate Lasma Poisa's 'Snappy Valley' project, a community photography collective formed in October 2019 in Todmorden, a West Yorkshire town in England. The aim of the project was to engage the local

community in photography with a view to develop participants' individual creative practice as well as create a collaborative body of work.

Visual Communication student Jessica Loveday's programme 'ELEVATE' (2021), an artist residency and community engagement project based at Stretford Public Hall, Trafford, Greater Manchester. ELEVATE was instigated as a response to the Black Lives Matter protests (2020); where stakeholders acknowledged that they must do more to engage local underserved communities. ELEVATE resulted in an artist residency, exhibition, public events and workshops.

Socially Engaged Art student Amelia Middle's, 'Let's Walk Alone Together', aimed to address the problems women face whilst walking alone. Middle lead a silent women's walk followed by a discussion and print workshop based at her home due to limitations on using more public spaces.

Socially Engaged Art Lecturer and Artist Niki Colclough's 'The People's Park' artwork was a project to utilize the natural areas on campus as a resource for creative wellbeing. The project was supported by The University of Salford's Revive fund which was initiated to re-integrate students back into campus life following the long period of home working. This was a collaborative action research project which investigated the role that art can play in nature and how spending creative and immersive time in greenspaces can be a tool for wellbeing, especially for those living in urban environments.

**Figure 1: *The People's Park workshop session*, in Peel Park, Universtiy of Salford campus, programme designed and delivered by artist and educator (Colclough, 2022)**

Whilst the paper can not offer a comprehensive description of each project, key themes emerged through the research process:

## DIGITAL VS PHYSICAL AS A SPACE FOR SOCIAL LEARNING

The pandemic had a global shift on our use of online platforms for daily life but what effect did it have on our students' practice? In Poisa's 'Snappy Valley', the structure of the project moved from monthly in-person to weekly online sessions. This decision was a practical one, but turned out to be a complete 'game changer' for shifting the dynamic of the group. Poisa transitioned from learning facilitator to an active collaborator. 'We began to make work together in response to the current situation, and I felt my role within the project shift as we were all going through the same thing together. The scope of the project also developed to host international guest photographers via zoom, something which we'd never even considered before covid19' (Poisa, 2022).

But what is the legacy of these digital engagement tools? "The world had a crash course on zoom…but now its second nature" (Poisa, 2022) suggesting that online engagement has easily cemented its presence as a tool for social interaction, whilst other projects such as the People's Park were created as a direct antidote to the isolation and anxiety many experienced from remote learning and engagement.

Student Iyeh argues that technology is the way forward for learning. "With time educational apps will feature a great deal of Augmented Reality, engaging the Metaverse, use Decentralized Autonomous Organizations, tearing down institutional walls (Iyeh, 2022). This leaves the question of what HE can learn from the future of digital platforms for education, and how do we still ensure the 'social' still exists within these designs if removed from in-person settings? `

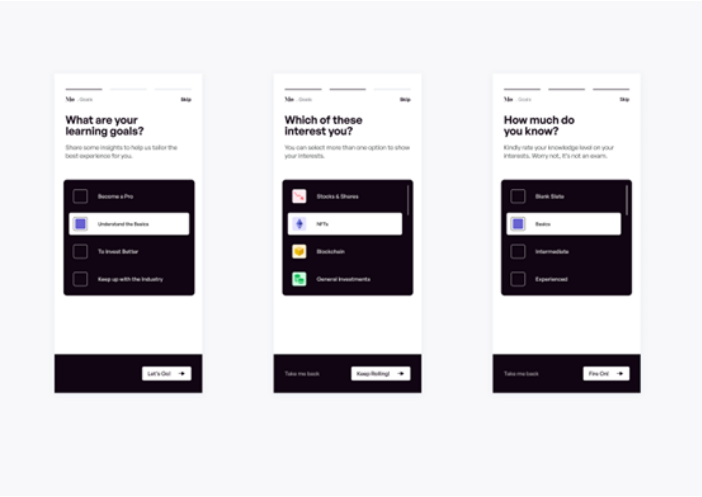


**Figure 2: onboarding design of Monie App, Major project for Creative Technology Master Degree at University of Salford, (Iyeh 2021)**

## MENTAL HEALTH

The Pandemic had a profound effect on people's wellbeing and our students were finding themselves addressing mental health as a topic in their own work for themselves and those they wished to engage with. With the 'Monie App', Iyeh's decision to develop the app 'stemmed from the mental fatigue which arose from

the effect of the lockdown and the restrictions on movement and socializing. For Iyeh, to offer something educational for a 'generation with a weak attention span who is going through anxiety', his design needed to 'move away from the formal institutional learning approach which could not be particularly appealing to them given their current distress' (Iyeh, 2022)

In the 'Snappy Valley' collective most of the group, including Poisa, realised during the lockdown that they lived alone, so the design of the project changed to increase in frequency and felt more informal. The photographs made over this time instead became a way of processing what was going on for everyone, it became a therapeutic process" (Poisa, 2022). With Colclough's People's Park, participating students reported that they had taken the creative 'tools' for wellbeing and adapted them into their daily routines enabling them to manage stress, low mood and feel more able to face the challenges of study.

**Figure 3: *Group Therapy* series, collaborative photographic series produced in reponse to the Pandemic by Socially Engaged Photography Graduate Lasma Poisa and Snappy Valley collective, (Poisa 2021)**

## DOMESTIC SPACE

For a period of time society's homes became their whole lives - their offices, gyms, school and for artists and designers, their studios. This was initially foregrounded by the digital engagement already discussed, when delivery across online platforms was the only option. Later, as rules relaxed but public spaces remained closed, artists began to consider how domestic spaces could become alternative places for engaging people in creative activity. In Middle's 'Lets Walk Alone Together' project which included participants joining in a discussion and print workshop in her home she reflected, 'the domestic setting actually added to an open discussion and feeling of building a community'. Whilst teaching staff needed to address safeguarding procedures students would need when using their private spaces for public purposes, it was clear that Middle's project challenged this question of where art and culture can exist in society today.

**Figure 4: *Lets Walk Alone Together*, workshop by Socially Engaged Art student Amelia Middle based at her home (Middle 2022)**

## THE ECOLOGICAL TURN

The pandemic provided an opportunity for society to reflect upon their relationship to immediate physical and social spaces, which instigated a renewed interest in public greenspaces. It followed that socially engaged artists would revisit the potential of outdoor spaces - as a safe space to physically meet, as a place that could support wellbeing and as a way to engage people with one of the most pressing issues of our time - the climate crisis.

In The People's Park project, 'the process empowered students to feel that nature can be a free, accessible tool for wellbeing that can be available to all' (Colclough, 2022). In Let's Walk Alone Together, there was a focus on access and inclusivity to utlising greenspaces, 'I'd always been interested in walking, but with key pandemic moments, namely the rules on daily walks, limitations on the right to protest and the Sarah Everard case; walking came into sharp focus. It made me reflect on others who had limited accessibility to walking and green spaces, due to issues of class, culture, gender, age and disability' (Middle, 2022).

## ACCESS

This issue of access and inclusivity emerged throughout the case studies. For Middle, 'the pandemic highlighted the disparities and inequalities in our society and invigorated a passion in [her] to try and make useful art' (Middle, 2022). The year 2020 was not only synonymous with the pandemic but other major events including Black Lives Matter protests, which spurred the ELEVATE project by student Loveday. The project aimed to engage the local Black and Minority ethnic community (BME) around Stretford Public Hall. For Loveday her role was two fold; to act as producer for the programme and as a graphic designer focusing on accessible design which felt relevant to the community she was trying to reach out to. Loveday focused on a participatory design approach. This required 'an understanding of who is best

placed to deliver the participatory activity so that it is inclusive and representative of the community it wishes to engage. Loveday invited the commissioned artist in all the decision making from the beginning. This was crucial to 'create a non-hierarchical working relationship, where the artist felt empowered to shape the project, which was particularly important as a white person working with a person of color'. (Loveday 2022).


**Figure 5: Workshop and promotional design for ELEVATE residency programme, Programme designed by Visual Communication studen (Loveday, 2021)**

## SOCIALLY ENGAGED ART AS PEDAGOGY

With the Socially Engaged Art and Photography courses, it has always been acknowledged that students and staff make art which exists in a range of social and public contexts. Students are encouraged throughout to ask ethical and moral questions of themselves and their practice - what is it that they wish to do in the world? What changes do they want to see? How are we designing and shaping social spaces? In the wake of the pandemic, this approach to pedagogy became crucial for students from all disciplines to consider their own resilience and to find a place for their arts and design in society today. In The People's Park project students were guided through a series of artistic activities to connect with the green spaces on campus, developing their own wellbeing relationship with nature before sharing these 'tools' with the local community through a public workshop. In this way, the project not only supported students with their own resilience, but gave them confidence to share these techniques with participants in their future projects including youth work, counseling, occupational therapy and art settings.

## CONCLUSION

The pandemic and the political context of the time with Black Lives Matter and

environmental protests, all highlighted the inequalities facing society today, which in turn fueled students to make art that spoke to these issues. Meanwhile, notions of learning and engagement were challenged at a fundamental level for students and staff to re-think their relationship to the digital as a social and educational tool.

The fabric of our social infrastructure has undoubtedly shifted over this time. If educational settings are to be responsive to these changes, then so too must our pedagogy adapt. Helguera discusses how in art school settings, the environment is essentially artificial and 'too often is not challenging enough or does not provide students with a clear understanding of the world in which professional art activity takes place'. In response the MA programmes are considering how social engagement processes can be better embedded in teaching, and more real world contexts employed. This is foregrounded by a non-hierarchical approach to the classroom, challenging where the classroom setting can be, and enabling students to set out their own enquiries honestly, supported by the lived experience and knowledge of the cohort.

The research is still on-going so is very much a work in progress at this stage. The paper does, however, go some way to highlighting the benefits of the social in social design and champions practice which incorporates multiple people in its inception and delivery.

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Middle, A (2022) transcripts from student interviews and focus group

Poisa, L (2022) transcripts from student interviews and focus group

**Figures**

Figure 1: *The People's Park workshop session*, in Peel Park, Universtiy of Salford campus, programme designed and delivered by artist and educator, Colclough, N (2022)

Figure 2: onboarding design of Monie App, Major project for Creative Technology Master Degree at University of Salford, Iyeh, K (2021)

Figure 3: *Group Therapy* series, collaborative photographic series produced in reponse to the Pandemic by Socially Engaged Photography Graduate Lasma Poisa and Snappy Valley collective, (Poisa, L 2021)

Figure 4: *Lets Walk Alone Together*, workshop by Socially Engaged Art student Amelia Middle based at her home, (Middle, A 2022)

Figure 5: Workshop and promotional design for ELEVATE residency programme at Stretford Public Hall (Loveday, J 2021)

# The Business Value of Design
## A model for design-driven growth strategy

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**ABSTRACT**
Design-driven growth is enormous in both product- and service-based sectors. There are more opportunities than ever to pursue user-centric, analytically informed design today. Customers can feed opinions back to companies (and to each other) in real time, allowing design to be measured by customers themselves—whether companies want to listen or not. The study by McKinsey Institute shows that top quartile companies in the McKinsey Design Index has outperformed their peer due to the adoption of design driven strategy the companies adopted, thus becoming the business value of design.

Keywords: Design-driven growth strategy, User-centric, Business Value of Design.

**INTRODUCTION**
Design-driven growth is enormous in both product- and service-based sectors. There are more opportunities than ever to pursue user-centric, analytically informed design today. Customers can feed opinions back to companies (and to each other) in real time, allowing design to be measured by customers themselves—whether companies want to listen.

The study by McKinsey Institute shows that top quartile companies in the McKinsey Design Index has outperformed their peer due to the adoption of design driven strategy the companies adopted, thus becoming the business value of design (https://www.mckinsey.com/).

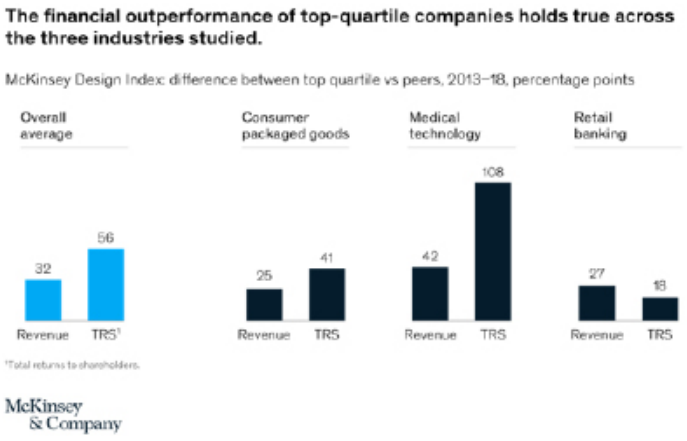


**Image 1 The McKinsey Design Index 2013-2018. (Source: McKinsey & Company, 2022)**

## LITERATURE REVIEW

Lean start-ups have demonstrated how to make better decisions through prototyping and iterative learning. Vast repositories of user data and the advance of artificial intelligence (AI) have created powerful new sources of insights and unlocked the door for new techniques, such as computational design and analytics to value.

Fast access to real customers is readily available through multiple channels, notably social media and smart devices. All these developments should place the user at the heart of business decisions in a way that design leaders have long craved.

The four clusters of design actions that showed the most correlation with improved financial performance: measuring and driving design performance with the same rigor as revenues and costs; breaking down internal walls between physical, digital, and service design; making user-centric design everyone's responsibility; and de-risking development by continually listening, testing, and iterating with end users.

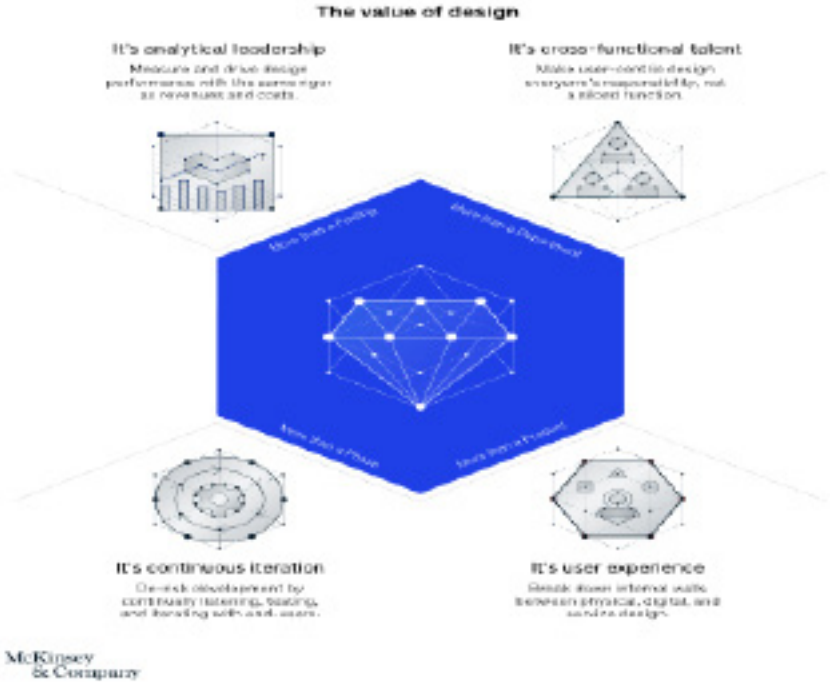


**Image 2 The Value of Design. (source: McKinsey & Company, 2022)**

Scharmer's (2016) Theory U below showed myriad application in social innovation, design thinking and conflict resolutions. Theory U offered a rich diversity of compelling stories, examples, exercises, and practices that allow leaders, organizations, and larger systems to co-sense and co-shape the emergence collaborative future. Scharmer offered 5 stages to define it: seeing, sensing, presencing, crystallizing, and prototyping.

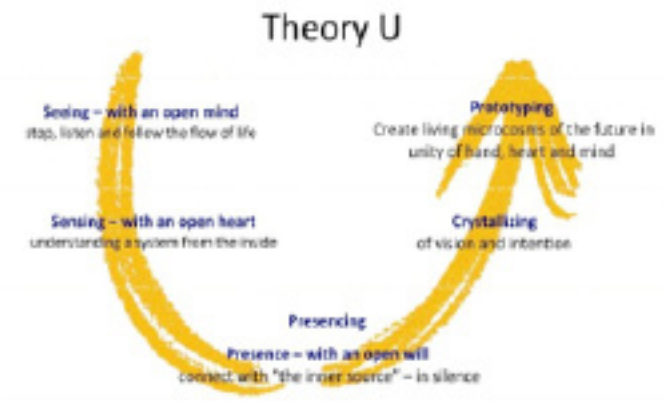


**Image 3 Otto Scharmer's Theory U. (source: Scharmer, 2016)**

## METHODOLOGY

The research is done as qualitative research with multiple case studies and the use of quantitative method of conjoint analysis in establishing the relationship the financial performance and design-driven growth enablers.
Over 40 percent of the companies surveyed still aren't talking to their end users during development. Just over 50 percent admitted that they have no objective way to assess or set targets for the output of their design teams.
With no clear way to link design to business health, senior leaders are often reluctant to divert scarce resources to design functions. That is problematic because many of the key drivers of the strong and consistent design environment identified in our research call for company-level decisions and investments.

## RESULT & DISCUSSION

When senior executives were asked to name their organizations' single greatest design weakness, 80 percent of the respondents reveal the following results:
Design issues remain stuck in middle management, rarely rising to the C-suite. When they do, senior executives make decisions on gut feel rather than concrete evidence.

Designers themselves have been partly to blame in the past: they have not always embraced design metrics or actively shown management how their designs tie to meeting business goals.

Top-quartile companies embrace the full user experience; they break down internal barriers among physical, digital, and service design. The importance of user-centricity demands a broad-based view of where design can make a difference.

The boundaries between products and services are merging into integrated experiences.

In practice, this often means mapping a customer journey (pain points and potential sources of delight) rather than starting with "copy and paste" technical specs from the last product. This design approach requires solid customer insights gathered firsthand by observing and—more importantly—understanding the underlying

needs of potential users in their own environments. These insights must be championed at every meeting.

Combining physical products, digital tools, and “pure” services provides new opportunities for companies to capture this range of experience.
Design-driven companies shouldn’t limit themselves to their own ecosystems. The best businesses we interviewed think more broadly.

Our research suggests that overcoming isolationist tendencies is extremely valuable. One of the strongest correlations we uncovered linked top financial performers and companies that said they could break down functional silos and integrate designers with other functions.

Design flourishes best in environments that encourage learning, testing, and iterating with users—practices that boost the odds of creating breakthrough products and services while simultaneously reducing the risk of big, costly misses.

## CONCLUSION

The best results come from constantly blending user research—quantitative (such as conjoint analysis) and qualitative (such as ethnographic interviews). This information should be combined with reports from the market-analytics group on the actions of competitors, patent scans to monitor emerging technologies, business concerns flagged by the finance team, and the like. Without these tensions and interactions, development functions may end up in a vacuum, producing otherwise excellent work that never sees the light of day or delights customers.


**Image 4 Business Model. (source: Ugut, 2022)**

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# Working with Communities: Integrated Urban Renewal in the Global South – RISE & CARP Project

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## INTRODUCTION

The paper is a discussion about social innovation design driven projects in Indonesia done by the Informal Cities Lab (ICL): RISE (Revitalizing Informal Settlements and their Environments) and CARP (Citarum Action Research Program). Hence, it is delivered as a project paper.

### Informal Cities Lab

The Informal Cities Lab (ICL) uses design and design thinking methodologies to forge sustainable urban development pathways for vulnerable communities and their environments. The ICL research group is particularly concerned with the rampant processes of urbanisation and environmental degradation that often comes with it.

We are interested in the intersection of built and natural environments and how to forge pathways that can deliver constructed habitats while supporting and enhancing the natural environment. In many countries in the Global South, the interface with water and waterways and the challenges of water supply, contaminated waters and disasters associated with water are of particular interest. However, it has become clear that to deliver effective and sustainable outcomes, projects have to be socio-technical in nature, that is, they need to address not only built and natural environmental challenges, but importantly social and economic imperatives.

Our vision is to help create communities and landscapes, that are clean, resilient and prosperous by developing community and ecosystem revitalisation pathways at the intersection of three domains -environment and climate change considerations, society and economy and technology and infrastructure, working toward developing one urban model that integrates social, economic and environmental aspects.

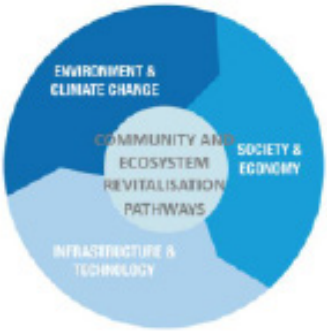


**Image 1 Community & Ecosystem Revitalization Pathways. (Source: Ramirez-Lovering, 2022)**

To deliver an integrated model combining social, economic, and environmental concerns we are working under the lens of two interdisciplinary frameworks:
1) Planetary Health- An emerging discipline which links the health of humans to the state of the natural systems on which humans depend- with the underlying principle that we must have a healthy environment for communities to be healthy. This is particularly evident now as we see the global devastation caused by the COVID pandemic.
2) The concept of Circular Economy- which aims to address global challenges of climate change, biodiversity loss and pollution, through minimising waste by creating closed-loop systems that among other things, and importantly, turns waste into resource.

## PROJECT 1: RISE

RISE stands for Revitalizing Informal Settlements and Their Environments a large planetary health project, exploring novel revitalisation pathways for informal settlement communities. RISE is a transdisciplinary research program working at the intersection of health, environment and water and sanitation.

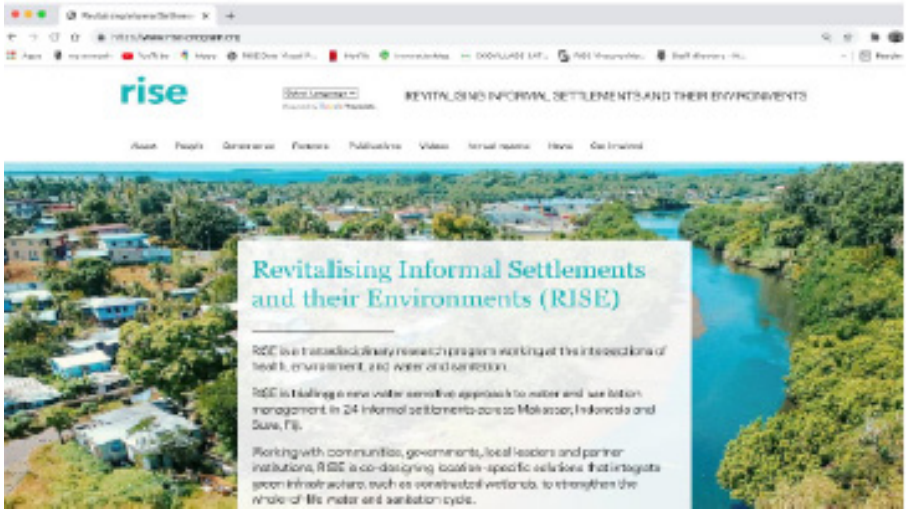


Image 2 RISE. (Source: RISE, Ramirez-Lovering, 2022)

The context of RISE is that in informal settlements of the global south: 1.7 billion people lack adequate housing, 2.3 billion people lack sanitation, over 580,000 children under 5 die of diarrhea each year. This number is likely to grow as informal settlements are predicted to double in number in the next 10-15 years. The significant problem lies in the cumulative effects of the water cycle as a critical factor aggravating the associated challenges of poor environmental quality and human health.

**RISE Design Approach**

RISE addresses these challenges by developing and implementing holistic, precinct-based interventions resulting in increased sanitation, improved flood protection, environmental stewardship, a sustainable water-supply, and greater resilience to effects of climate change in informal settlements. A large, randomized control trial, RISE aims to develop an evidence base for scaling up and inform the manner which global funders and implementers direct their efforts in informal settlement revitalization.

To address these compound challenges, we have developed a water sensitive design approach that aims to:

- Protect against floods
- Improve public health through the provision of sanitation
- Improve water and environmental quality
- Diversify water sources through rainwater and wastewater harvesting and reuse
- Service productive landscaped through these alternative water supplies

The approach has at its heart, context specific responses based on working with decentralised sanitation infrastructure known as green infrastructure, or nature-based systems. In this system a) we build new toilets, then, b) we connect the new toilets, or existing toilets if available to a reticulated local sewer network which we build, and c) we made the treatment train from toilet through the tank and then wetland treatment and safe discharge into the environment or for re-use for urban agriculture.

**Image 3 RISE design approach. (Source: RISE, Ramirez-Lovering, 2022)**

RISE are working in two countries. In the cities of Makassar, in Eastern Indonesia and in Suva, the capital of Fiji. In Makassar RISE working with 12 communities, approximately 600 houses, and 3500 people. These communities are very diverse and vary not only from country to country of course also vary within the same city. Not only do hygiene practices and bio-physical conditions of communities vary enormously but for delivering infrastructure, Land Tenure and land issues are very different. The communities in Makassar range from 20 to about 120 houses. With an average of 60 houses per community.

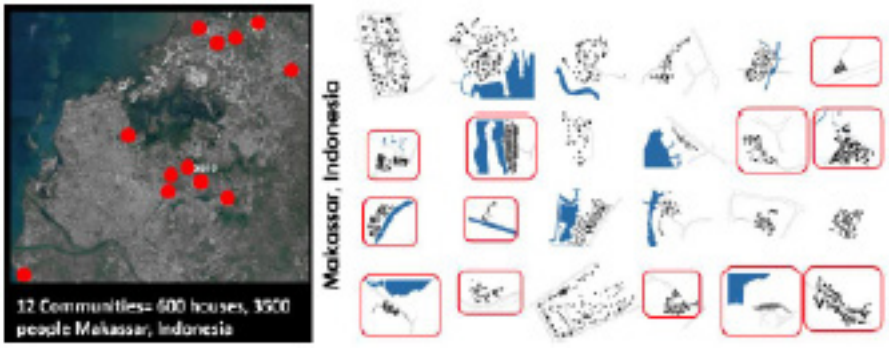


**Image 4 The situation in Makassar. (Source: RISE, Ramirez-Lovering, 2022)**

If contexts and problems affecting communities are so different, how can we deliver effective solutions that will address these differing challenges, be tailored to each biophysical and social situation to produce fit for purpose sustainable, outcomes?

## Co-Design in RISE

RISE follow a process called co-design. Codesign is a participatory and inclusive process which involves all relevant stakeholders, especially community members,

in the planning, design, implementation, and operations and maintenance of RISE infrastructure. I'd like to show a short video which captures the essence of co-design in one of the communities in Indonesia. In Indonesia we call the co-design process PANRITA, which stands for "planning in your neighbourhood". In PANRITA we gather different community groups, women, men, youth, and children to learn about their community and develop the community designs together. The community designs are captured through community maps and models developed through a range of tools and activities that allow us to identify water related challenges and opportunities. Residents discuss and locate challenges and opportunities with the environment and with their own houses to inform different infrastructure solutions. With this information, community and team members design the infrastructure system in the right arrangement and in the right location in the settlement.


**Image 5 Co-Design in RISE. (Source: RISE, Ramirez-Lovering, 2022)**

The outcomes of these activities and processes are recorded in the community model, which becomes a complex register of environmental conditions and contamination pathways, private and public land boundaries, and importantly, the locations for the infrastructure.

**Image 6 Community Model. (Source: RISE, Ramirez-Lovering, 2022)**

The model outcomes are then transcribed onto what we call the community map, that can be seen below:


**Image 7 Developed Community Map. (Source: RISE, Ramirez-Lovering, 2022)**

The map serves not only as a formalisation of the co-designed solutions, but as a process of identifying the different roles and responsibilities for project delivery. Please note, the pink notes are the elements that were identified as being the responsibility of the RISE Program, the yellow notes are the elements that were identified as being the responsibility of the Government, and the blue notes are the elements that were identified as being the responsibility of the Community.

## RISE PILOT PROJECT

An important aspect of the project has been to deliver a demonstration project in each city. We have delivered a demonstration project in Makassar to test and tailor the co-design process as well as the key green technologies for local conditions. In Makassar, the demonstration project is delivered in a relatively new settlement which contains 22 private lots with 11 houses built and another 11 to come. The community suffers from severe contamination which is exacerbated by extreme floods during the monsoon season. During this period the community uses a makeshift raft and a bamboo bridge to travel from their houses to the main road.

**Image 8 The situation in Makassar settlement where the pilot project is done. (Source: RISE, Ramirez-Lovering, 2022)**

Through the co-design process, we developed a proposal which was delivered in two stages. Stage one in yellow includes the rise infrastructure of new toilets and rainwater tanks, an elevated road as a type of service spine containing the communal septic tanks subsurface and surface wetlands. Stage 2 in purple will be delivered by municipal government including streetlighting, benches and new trees for the community.

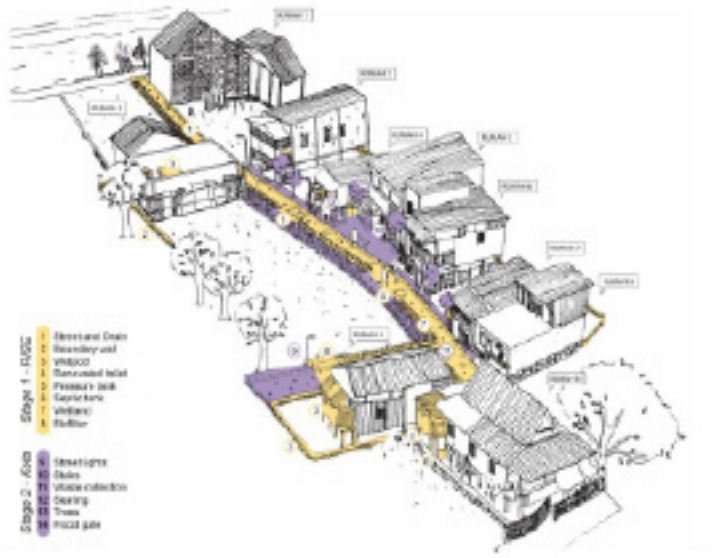

**Image 9 The RISE pilot project design schemes. (Source: RISE, Ramirez-Lovering, 2022)**

Here is the documentation of the finished design intervention:

**Image 10 The RISE pilot project. (Source: RISE, Ramirez-Lovering, 2022)**

Interestingly, an economic analysis of the demonstration site shows that while the per household cost of the RISE water sensitive intervention is similar to the cost per household of a centralised, trunk sewerage system, the RISE approach provides significant additional co-benefits such as safe access, a new water supply and flood protection.

## PROJECT 2: CARP

Citarum Action Research program (CARP) is partnering with the West Java Government and the International Researcher community to address the issues of contamination and environmental degradation of the Citarum river, Indonesia. CARP takes the learning from the RISE water sensitive upgrading of informal settlements approach and extends it through concepts of circular economy, where sources of waste are converted into resource, and whole of catchment thinking, which takes into consideration the wider catchment hydrology outside the local project area.


**Image 11 The CARP as an extended RISE project. (Source: CARP, Ramirez-Lovering, 2022)**

The Citarum River is the longest and largest river in West Java, Indonesia and, provides water and electricity for over 25 million people. However, It is also one of the most polluted rivers in the world. Each day 20,000 tons of waste and 340,000 tons of wastewater are disposed directly into the river. As waste is discharged into the river that supplies water, food and livelihoods, communities become increasingly vulnerable to flooding and ill-health.

The Government of West Java, in response to a presidential decree has embarked on an ambitious revitalization program lead by the Citarum Task Force. While some progress has been made, the Government is seeking new approaches to accelerate the transformation of the Citarum River. At the end of 2018 the ICL were invited by the Governor of West Java, Ridwan Kamil to join in the river revitalisation efforts, to assist with research and development efforts toward improving the river and its vulnerable communities.

**STEP 1 – A Village Demonstration in the Citarik Ekowisata**

Our river revitalization road map begins with a demonstration and living laboratory project in the Citarik river, where we are joining forces with central, provincial and local Government in a project called the Ekowisata. Here, we also used Co-design approach and test innovations through the development of an integrated water and waste model to generate evidence for river health, circular economy transformations, Capacity building and behavior change.

**Image 12 The CARP Citarik River Revitalization Plan. (Source: CARP, Ramirez-Lovering, 2022)**

The Citarik Ekowisata site, in the peri urban edge of the city of Bandung, spans over 2.5 kilometers and has over 1200 houses, schools, agriculture, and livestock. It faces a range of significant wastewater and solid waste challenges, as well as flooding and drought. It is a good representative case of the broader challenges faced by the broader Citarum river basin.

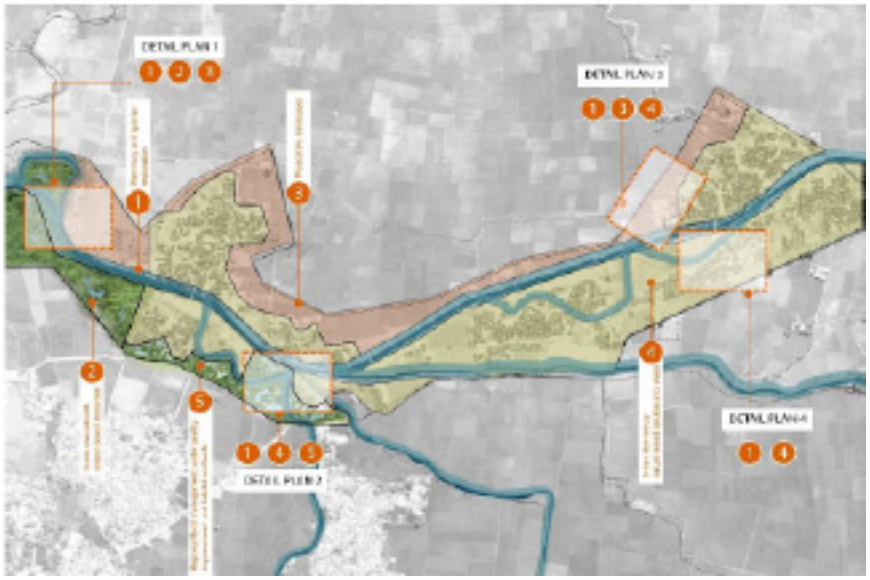

**Image 13 The Citarik River Revitalization Detailed Plan. (Source: CARP, Ramirez-Lovering, 2022)**

## Five Objectives for Citarik River Revitalization as part of CARP

We are co-developing, with government and community stakeholders a revitalisation framework which will guide project development, and up-scaling strategies. Here, below the revitalization framework, which is based on five key objectives:

1) Waterway restoration – The waterway and riparian corridor rehabilitations strategy focuses on mitigating site based and sub-catchment-based sources of

pollution and environmental degradation while maintaining the hydraulic capacity for floodwater conveyance. We will restore aquatic habitats through control of flow velocity, geomorphic form of the waterway, stream bank stabilisation and reinstating Oxbow lake environments through rehabilitation of ecological habitat.

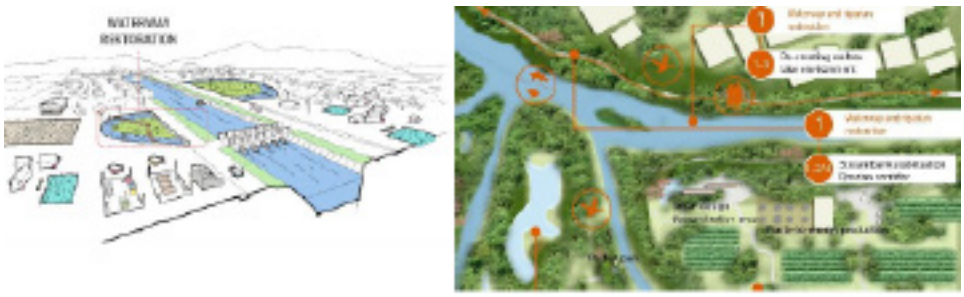

**Image 14 1st Objective: Waterway restoration. (Source: CARP, Ramirez-Lovering, 2022)**

2) Water and sanitation services – where nature based, green infrastructure is used to clean wastewater from households, village industry and livestock. The strategy looks at using water sensitive urban design through the incorporation of biomimicry in embedding nature-based solutions into urban environments in the surrounding villages for sanitation services, stormwater quality improvement and land and water pollution control.

**Image 15 2nd Objective: Water and sanitation services. (Source: CARP, Ramirez-Lovering, 2022)**

3) Solid waste services – where we will use grey and smart solutions for recovering waste at source and in river, waste separation and connecting to circular waste utilization services: Establishing in stream solid waste recovery through Garbage traps, and Household, small business waste collection and separation of organic and inorganic waste such as plastic and glass, and waste sorting systems at precinct scale.

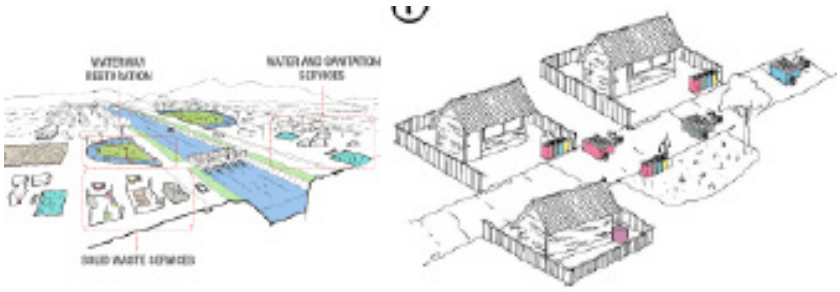

**Image 16 3rd Objective: Solid waste services. (Source: CARP, Ramirez-Lovering, 2022)**

4) Micro-economy promotion – using Circular economy solutions for green products, services, water and energy to enhance community economic outcomes. Small business ventures through the recycling of plastic and glass waste into products and energy as well as organic waste with black soldier fly farms and the sale of black soldier fly larva products, including livestock feed and aquaculture feed and through agriculture support products such as fertilizer into waste and resource loops that support local food production and the local economy.

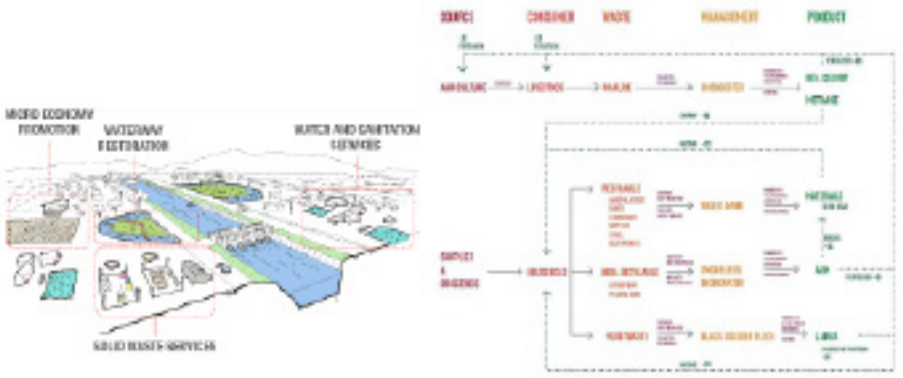

**Image 17 4th Objective: Micro-economy promotion. (Source: CARP, Ramirez-Lovering, 2022)**

5) Climate change adaptation – includes a regional flood management strategy through the creation of regional wetlands for flood mitigation and detention as well as the reinstatement of threatened habitats for flora and fauna.

**Image 18 5th Objective: Climate Change adaptation. (Source: CARP, Ramirez-Lovering, 2022)**

## STEP 2 – Generate Evidence for Scaling

The demonstration project will inform a spatial analysis of land use practices leading to river pollution and an investigation into the Social and economic enablers and barriers to river transformation (culture, poverty, gender, local governance) to inform strategies for upscaling.


**Image 19 Step 2 of The River Revitalization Roadmap. (Source: CARP, Ramirez-Lovering, 2022)**

### STEP 3 – Develop Capacity for River Revitalization and Circular Economy

The final step will look at the development of these upscaling strategies through the creation of Tools and guidelines for local solutions, River resilience monitoring, evaluation and reporting programs, Training and skills development programs which aim to inform Policy & governance for basin transformation. We aim for the evidence generated to inform and support current and pipeline Government infrastructure and community development to sustainably restore the river over the next 20 years.

**Image 20 Step 3 of The River Revitalization Roadmap. (Source: CARP, Ramirez-Lovering, 2022)**

### END NOTE: TRANSDISCIPLINARY IMPACT RESEARCH

The RISE and CARP projects present a new direction in what we call transdisciplinary impact research - On the one hand there is an agenda for direct and tangible on the ground change and impact for these vulnerable communities. On the other the aim of establishing a long-term cross-sectoral platforms and consortia with a wide range of partners to sustainably embed the enabling conditions that will ensure enduring revitalization approaches.


**Image 21 Transdisciplinary Impact Research. (Source: CARP, Ramirez-Lovering, 2022)**

# SOCIAL INNOVATION DESIGN (SID) EVALUATION IN PANDEMIC TIME

# Sticker & Schedule Planner Design with Endemic Animals of Indonesia Theme for Children

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## ABSTRACT
Stickers and schedules are forms of stationery that are popular among children. It has a beneficial function that can help them organize their daily life. This research discussed product designs of name stickers and schedules with endemic animals of Indonesia theme for children. The theme of endemic animals is chosen as an educational theme that children can learn about. Quantitative methods are used to survey the target market. The results show that 32 respondents agreed that the theme of endemic animals of Indonesia and cartoon and flat style illustration style used is suitable for children.

Keywords: Sticker, Schedule Planner, Children, Product Design, Endemic Animals

## INTRODUCTION
Name stickers and schedule planners are two popular stationery items for children. They would use name stickers on their belongings as an ownership mark and use schedule planners to plan out their day for school or on a regular day. Doing this; could also develop children's discipline to fulfill their duties and obligations properly. The purpose of discipline is for children to be creative and dynamic in developing their lives in the future (Wara, 2019).

Since stickers and schedule planners are popular these days, there are a lot of themes that go with them. However, themes that specifically show Indonesian nature are rarely seen, especially about endemic animals of Indonesia. Even though Indonesia has a vast species of animals, there are about 813 endemic animals from categories like mammals, birds, and amphibians (IUCN, 2018). Therefore, the purpose of this research is to know whether the designs of stickers and schedule planners using endemic animals of Indonesia are suitable or not for children from their parent's or older siblings' perspectives based on illustration style and colors.

## LITERATURE REVIEW
### Social Design
The terms "social" and "design" are used to define social design, according to

Veiga & Almendra (2014). The term "design" relates to problem-solving and meeting demands, while the word "social" in social design refers to parts of the human condition that society produces and is therefore recognized as a "social" issue. Dealing with social concerns using design methodologies is the definition of social design.

For instance, Safe Nios: The Healing Tree, a children's book and environmental graphics system, is used in educational media to inform patients about burn therapy by using the characters of two burned children who travel far to aid a magic tree. Patients can join the magical adventure by undergoing 10 distinct therapies (Globalroadshow, 2017).

**Endemic Animals in Indonesia**

The word "endemic" means something that is only found in a geographical area and not anywhere else in the world. So, endemic animals are animals found in just one region and nowhere else in the world. It is estimated that 300,000 species of wild animals or about 17% of the world's animals are found in Indonesia (Ramadhani, 2018).

Although it is rich in animal diversity, Indonesia is also known as a country that has a long list of animal extinctions. Choosing endemic animals of Indonesia as a theme for children's product design would help increase awareness from a young age.

**Sticker and Schedule Planner**

Stickers have become one of the most popular products purchased by children and can be used as a means to educate children. For example, a reminder sticker book was created to develop children's interest in brushing their teeth, where it is to associate tooth brushing with putting their stickers in the book as enjoyable activity (Effendi et all, 2021)

Another product that is popular among children is a schedule planner that would help children and parents plan their daily activities from school or work. According to Ostrosky (n.d.), children can feel secure and comfortable if they have predictable schedules, it also helps them to understand the expectations of the environment.

Combining the theme of endemic animals from Indonesia with products like name stickers and schedule planners could give an educational benefit to children about them. This could build awareness of the endemic animals in children where children still lack knowledge about these animals.

**Cartoon Style for Sticker and Schedule Planner**

In this paper, cartoon style is chosen because Karakas (2012) stated that for a child's physical and mental development, a cartoon can be used as a tool for the development of the children's mother tongue. The cartoon style is also an attractive and essential role in a child's visual reading skills. According to Bashara (2015), the cartoon style is composed of lines, flat, and bright colors, which will help children identify animals' shapes easily.

### Colors for Sticker and Schedule Planner

Color is an essential part of our lives, especially as children, it allows us to express ourselves and also gives meaning physically, mentally, and emotionally (Adams, 2017). In this research, the stickers and schedule planner design using a color palette that consists primarily of orange, yellow, green, and blue, because yellow & orange represent joy and playfulness while combining with green & blue represent the colors of nature. Green represents growth and environmental causes to preserve the earth. Blue symbolizes sincerity, inspiration, and the color of the ocean (Eiseman, 2017). The colors represent children and nature which fits with the theme of endemic animals from Indonesia.

## METHODOLOGY

The research method used in this research is a quantitative method by doing a survey using Google Form related to the targets that have been set and also literature review from journals, books, and online sources. The first step in the research process is identifying the availability of stickers and schedules with endemic animals of Indonesia theme for children. The second step is developing a design concept based on the literature review and visualizing it. The final step is conducting a survey to get validation from the target audience.

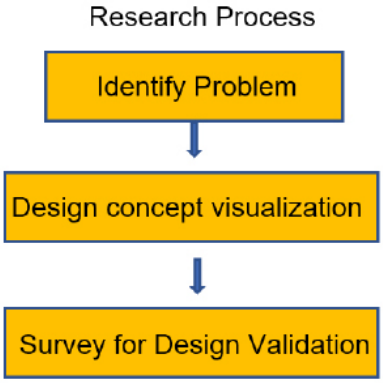


**Table 1 Research Process (Source: Personal Data, 2022)**

## RESULT & DISCUSSION

### Survey Results

This research surveyed name stickers and schedule designs with the theme of endemic animals in Indonesia using cartoon-style illustration, whether it is suitable for children or not. The endemic animals drawn in the stickers and schedule designs are the Sumatran tiger, Kalimantan elephant, and Kalimantan orangutan because tiger, elephant, and orangutan shapes are easily recognized by children yet they might not be aware that those animals are endemic. The sticker size is 4.4 cm x 2.8 cm and the weekly schedule planner size is 29,7 cm x 42 cm.

The total number of respondents from the survey is 32 respondents who are parents. The results show that there are 20 females and 12 males from the age ranging from 25 years old to 49 years old. The results also show that 75% of

respondents are married and have children while the rest 25% of respondents are not married. Other data respondents' are shown below:

- Data of Parents' Responses Based on Their Children's Age

The age range from the survey results is 0 years old to 15 years old and the majority of the respondents have children between the ages of 8-11 years old, followed by 4-7 years old.

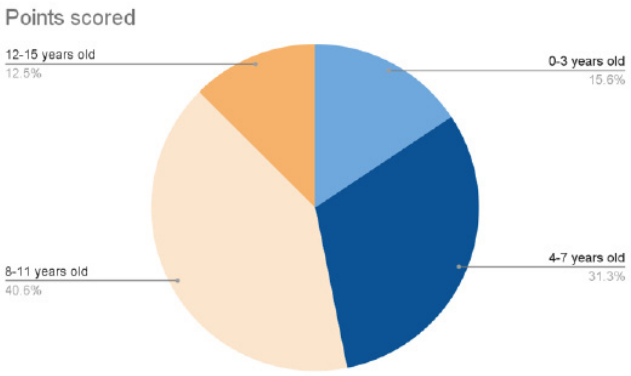


**Image 1 Survey Results on Parents Based on Their Children's Age (Source: Personal Data, 2022)**

- Data of Parents' Responses Based on Their Children's Liking of Stickers and Schedule Planners.

The results show that most of their children like and use stickers and schedule planners in their daily lives.

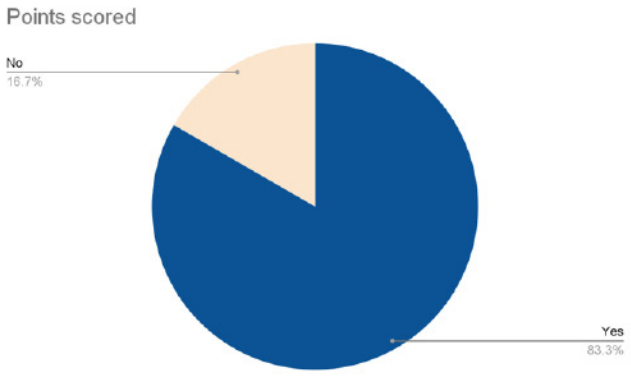


**Image 2 Survey Results on Parents Based on Their Children's Liking of Stickers and Schedule Planners (Source: Personal Data, 2022)**

- Data of Respondents Based on Whether the Theme of Endemic Animals from Indonesia is Suitable for Children or not.

From the survey results, all of the respondents agree that the theme of endemic animals from Indonesia is suitable for children.

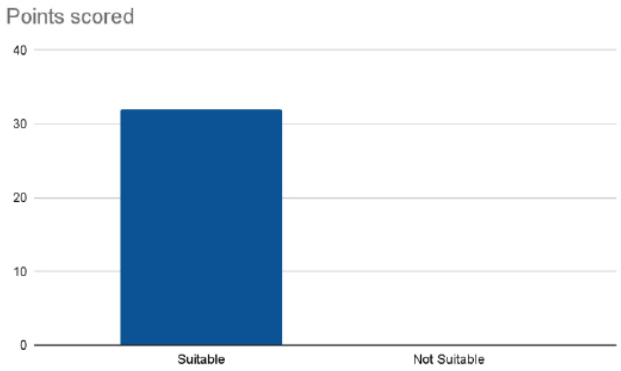


**Image 3 Survey Results Based on Whether the Theme of Endemic Animals from Indonesia is Suitable for Children or not (Source: Personal Data, 2022)**

From the survey results, most of the respondents like the name stickers with the theme of endemic animals of Indonesia are suitable for children. The reason was the design has a distinctly children's theme. There are pictures of animals with varied bright colors and eye-catching. They also said that most children love products with animal themes.


**Image 4 Name Stickers with the Theme of Endemic Animals from Indonesia using cartoon-style illustration (Source: Personal Data, 2022)**

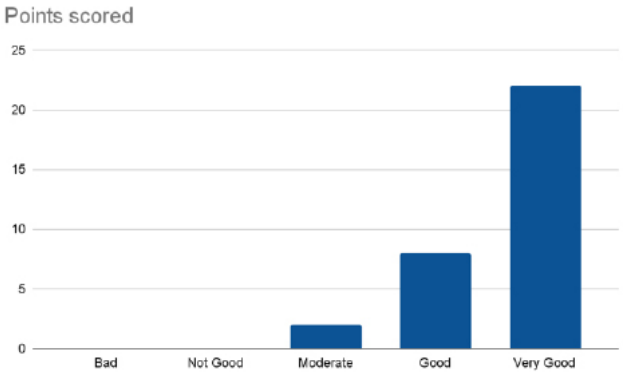


**Image 5 Survey Results Based on Their Liking of the Design of Name Stickers (Source: Personal Data, 2022)**

As for the schedule planner design, most of the respondents feel that the design is very good and agree that the theme of endemic animals of Indonesia is suitable for children. The reason was the design has bright & eye-catching colors and attractive designs of animals for children.


**Image 6 Schedule Planners Design with the Theme of Endemic Animals from Indonesia (Source: Personal Data, 2022)**

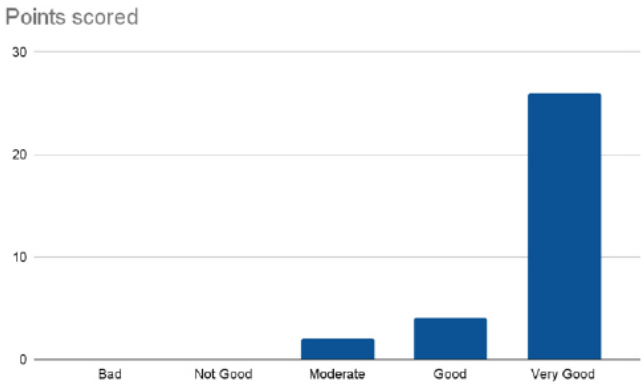


**Image 7 Survey Results Based on Their Liking of the Design of Schedule Planners (Source: Personal Data, 2022)**

- Data of Respondents Based on Their Interest in Purchasing the Name Stickers and Schedule Planners

The survey results show that most of the respondents would like to buy the products.

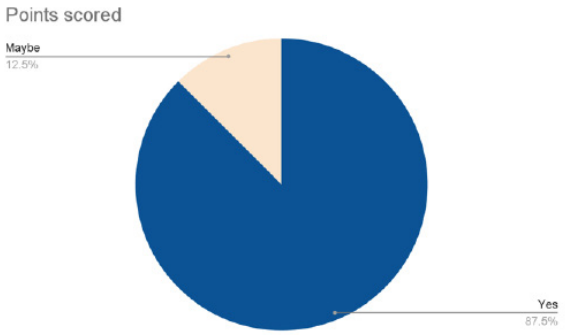


**Image 8 Survey Results Based on Their Interest in Purchasing the Name Stickers and Schedule Planners (Source: Personal Data, 2022 )**

Based on the survey results, parents who have positive feedback towards the endemic Indonesian animal sticker design and schedule planners are also most likely will buy the products. By providing information about the endemic animals on the sticker packaging, parents can use it as a tool to convey an awareness of the animals to their children.

## CONCLUSION

This research concludes that the products of name stickers and schedule planners with the theme of endemic animals of Indonesia using cartoon-style illustrations combined with a color palette that consists of primarily orange, yellow, green, and blue, are suitable for children. Respondents also have an interest in buying the products. This can be shown from the survey results of 32 respondents above.

Suggestions for developing future products are more variations on the animals and colors for the name stickers and schedule planners. This will also help children to aware and have more knowledge of the variety of endemic animals of Indonesia.

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# Visual Identity Design for Local MSME Product Packaging (Polo Dundang Banana Chips)

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## ABSTRACT

BEDA'KAN (Bedah Desain Kemasan) is a government program to improve the quality of Indonesia's Micro, Small and Medium Entreprises (MSME) products packaging. It is organized by the Ministry of Tourism and Creative Economy together with ASPRODI DKV (Association of Indonesian Visual Communication Design Study Programs). Several young designers and lecturers are joining this program from different universities in Indonesia. BEDA'KAN batch 10 was held in the Likupang area, North Sulawesi, with the communications between MSMEs partner and designers done online because of the COVID-19 Pandemic. The authors had the opportunity to redesign the packaging of a goroho banana chips brand named Polo Dundang. The design process was carried out by following the designer's workflow that had been prepared by BEDA'KAN committee. The workflow was divided into three levels, namely the interview stage, the design presentation stage, and the design finalization stage. All stages of the design process were carried out together with the participation of the owner of Polo Dundang, Mrs. Vahny Camelia Bastian. The result of redesigned visual identity and packaging are expected to attract more buyers' attention and are in accordance with design rules.

Keywords: Packaging Design, Participatory Method, Polo Dundang, Visual Identity

## INTRODUCTION

### D'Tjan Cake Cookies and Snack and Polo Dundang

In March 2022, the Ministry of Tourism and Creative Economy together with ASPRODI DKV held the BEDA'KAN program batches 9, 10, and 11 which aims to help MSME partner businesses, in terms of packaging design. In this activity, BEDA'KAN plans to print 1000 pieces of packaging for each business unit. Batch 10 is a collection of creative industries or MSMEs (Micro, Small, and Medium Enterprises) located in the Likupang area, North Sulawesi, and are engaged in the culinary field. In this activity, the authors had the opportunity to redesign the packaging of snacks produced by a business unit called D'Tjan Cake Cookies and Snack owned by Mrs. Vahny Camelia Bastian.

D'Tjan Cake Cookies and Snack is a business unit that sells various cakes, chips,

and snacks. The name Tjan itself is taken from the name of Mrs. Vahny's husband, and the letter D in front of it symbolizes her four children.


**Image 1 D'Tjan Cake Cookies and Snack Existing Logo. (Source: Personal Documentation, 2022)**

Specifically, the product line whose packaging will be redesigned is a banana chips product called Polo Dundang. This name is taken from the regional language of Siau, the hometown of Mrs. Vahny's mother, which means beloved. The type of banana used in Polo Dundang products is the goroho banana, which is a typical banana from the North Sulawesi region. The goroho banana (Musa acuminafe, sp.) has been a source of food for the Minahasa community since ancient times and is popular because of its savory taste (Karamoy, Loho, and Lolowang, 2017).

In this design project, the delivery of information in the packaging is to be made more efficient, structured, and visually able to attract the attention of consumers. The marketing target of Polo Dundang is young people, male or female, aged around 20-25 years. In North Sulawesi, young people tend to eat chips together in a relaxed atmosphere. Chips are also often consumed when traveling to the beach.

## LITERATURE REVIEW

### Visual Identity Design

One of the most important things in designing the identity of a brand is to differentiate it from competitor brands (Slade, 2016, p. 14). In the case study of Polo Dundang, goroho banana chips are snacks that are quite popular and are commonly used as souvenirs when traveling to North Sulawesi. This causes Polo Dundang to have many competitors. Thus, at the stage of the concept development process, the design needs to be carried out by considering the uniqueness that can be highlighted by Polo Dundang.

### Packaging Design

The information in the packaging is generally quite a lot and needs to be sorted hierarchically. The arrangement of informations can be overcome by maximizing layout settings, using a variety of typeface weights (on text with different degrees), the use of color, and also graphic elements that help direct consumers' eyes to relevant information. (Calver, 2004, pp. 126-128).

In the Polo Dundang case study, there is mandatory information that needs to be included, such as product brand, product type, net weight, producer info, distribution

permit number, nutritional value information, composition, production code, expiration date, as well as the logo of BEDA'KAN and Bangga Buatan Indonesia.

### Participatory Method

A participatory method is an approach that involves involving participants in the decision-making process (Slocum-Bradley, 2003, p. 9). The benefit of this method is to create a high-quality, effective, and efficient final result (Slocum-Bradley, 2003, p. 11).

In the case study of Polo Dundang, this method is used so that the final result does not only functioning practically from the business owner's point of view, but also aesthetically from the designer's point of view.

## METHODOLOGY

The design process begins following the workflow provided by BEDA'KAN. The designer's workflow used so that activities can run simultaneously and effectively in a timely manner. The designer's workflow is divided into six stages, namely the research process, concept development, stage one design development, presentation to MSME partners, second design development, and final presentation. These stages can be simplified into three levels.

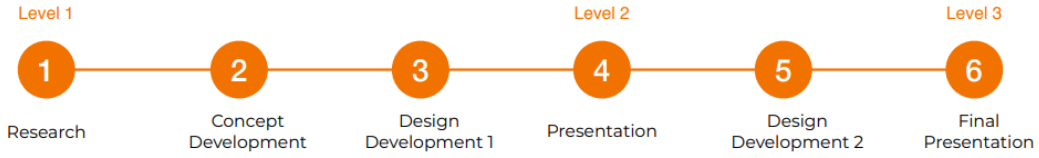


**Image 2 Designer's Workflow. (Source: BEDA'KAN Guideline Program, 2022)**

The first level is the kick-off meeting between designers and MSME partners. Designers wil lay questions to add insights about the product. In this activity, MSME partners may also convey their wishes and hopes for the new packaging. During the concept and design development process, designers are demanded to actively communicate with MSME partners so that the packaging designed is not only aesthetically pleasing but also functional. The results of the interview data will be processed and become the basis for exploring ideas, designing concepts, and producing packaging mockups.

The second level is the design presentation stage. Designers will present the exploration of ideas, concepts, and packaging designs to MSME partners. Then MSME partners and packaging experts from BEDA'KAN activities would provide feedback.

At level 3, designers will present the results of designs that have been revised according to feedback from MSME partners and input from experts. In this activity, the feedback given is minor, so the design presented can be declared semi-final. After level 3 is done, the designer is responsible for preparing the final artwork that is required for the printing process.

## RESULT & DISCUSSION

### Level 1 Activity Result

The time interval between each level is approximately one week. Level 1 activity is the initial data search stage. During the interview through Zoom application platform, the authors asked several questions about the products and D'Tjan Cake Cookies and Cake business. The data obtained is quite a bit and the business owner frees the authors to explore the design concept.

In level 1 activity, business owners also bring examples of packaging that have been used so far. From the visual analysis result, there are layout problems, the use of typefaces, and the hierarchical system in the information delivery structure. For example, there the words 'banana' and 'goroho banana' was mentioned twice in the packaging with no function whatsoever. This caused the delivery of information to be less efficient and redundant.


**Image 3 Existing Packaging (left) and The Analysis of Packaging Visual Problem (right). (Source: Personal Documentation, 2022)**

In addition, there were several problems with the application of the logo. *First*, the use of the D'Tjan Cake Cookies and Snack logo was inconsistent with the logo used on other packages. *Second*, there was no special logo for the Polo Dundang chip product line.


**Image 4 The Application of D'Tjan Cake Cookies and Snack Logo and Polo Dundang Logo on The Packaging (Source: Personal Documentation, 2022)**

Information and insights about the product, business, and visual problems in the initial packaging were then processed and analyzed. During data processing, the authors actively communicated with business owners to gain more understanding and knowledge through messaging app WhatsApp.

## Level 2 Activity Result

Before creating the design, the authors discussed with Mrs. Vahny to fix the logo system for D'Tjan Cake Cookies and Snack. This matter was done so it can raise the logo's adaptability and flexibility when applied in all product lines, including Polo Dundang.


**Image 5 The Comparison Between D'Tjan Cake Cookies and Snack Old Logo (left) and New Logo (right) (Source: Personal Documentation, 2022)**

The logotype used a handwritten typeface. This is intended to provide an authentic and personal style such as a signature, considering that the name D'Tjan itself has a personal meaning for Mrs. Vahny's family.

In the packaging design, the authors discussed with Mrs. Vahny about the habits of the target audience when consuming the product. According to Mrs. Vahny, banana chips are very flexible to be consumed, both during casual and official events. In addition, banana chips are also consumed when watching movies, gathering with family and friends, or as a treat during formal events.

The authors decided to divide the concept into two alternatives. The first design alternative will continue to use the name Polo Dundang, with a fresh visual style, and attract the attention of contemporary young people. The name Polo Dundang means beloved. Mrs. Vahny hopes that everyone who enjoys Polo Dundang chips can feel the love in every bite. The pink color dominates the packaging to represent affection or love. On the packaging, there are two banana and chip agent mascots in the form of cupid or the god of love. This visual element wants to represent affection that is more fun and expressive.


**Image 6 First Alternative (Source: Personal Documentation, 2022)**

The second alternative design will use Ambe Jo! as the product name. In this alternative, the writing team designed a new identity for the Polo Dundang chips. 'Ambe Jo' in the Manado language means 'take'. This word is usually said when someone is offering food. This second alternative wants to highlight the value of togetherness while eating together. In addition, the packaging also contains illustrations of bananas, banana leaves, chips, and beaches. This graphic element wants to highlight the atmosphere of eating chips with a view of the Likupang sea.

Ambe Jo! logotype design was inspired by the Lontara and Malesung scripts originating from Sulawesi. The logo used an irregular shape to represent the typographical characteristics of ethnical scripts. In the packaging design, the colors used are yellow, orange, and blue. The yellow and orange colors represent the sunset on the beach, and the blue colors represent the sea.

For the box version, each box face is connected. So that when consumers open the boxes, the surface of the packaging can be used as a container to eat chips together with relatives.


**Image 7 Second Alternative (Source: Personal Documentation, 2022)**

In the level 2 activity, there were several inputs from packaging experts. First, the packaging was highly recommended to be printed in the form of a pouch. This was decided by considering the cardboard material that can absorb the oil from the banana chip. Second, there was a revision for nutrition facts information. Third, the white lines on the beach illustration could be changed into darker colors to make it look consistent.

After a discussion with Mrs. Vahny, the alternative packaging chosen was the second alternative. However, the word 'polo' from Polo Dundang still wanted to be included, so the final name of the product was Polo Ambe Jo! which means 'darling, take it'.

**Level 3 Activity Result**

In this stage, the authors improved the input that given in level 2 activities. The design was continued by making other application mediums used when marketing the product, such as business cards, thank you cards, and tags.


**Image 8 Final Artworks of Polo Ambe Jo!. (Sumber: Dokumentasi Pribadi, 2022)**

Level 3 activities were then continued by preparing the final files for printing needs. The authors did not take part in the printing process. This process will be coordinated by BEDA'KAN with MSME partners.

## CONCLUSIONS

This design project is the result of collaboration between the Ministry of Tourism and Creative Economy and ASPRODI DKV in an activity called BEDA'KAN. At the BEDA'KAN activity batch 10 which was held in the Likupang area, the authors had the opportunity to redesign the packaging for the D'Tjan Cake Cookies and Snack brand. The product line that will be redesigned is Polo Dundang. The design process has divided into three levels. The end result of the design is a new packaging design that is more contemporary and attractive, as well as a new visual identity for Polo Dundang which changed its name to Polo Ambe Jo!. The authors hope that the process and result can be a reference for future designers in designing local MSME product packaging. The result itself could still be expanded further by applying the design language and system created to other product lines within D'Tjan Cake Cookies and Cake business.

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# The Influence of WFH, WFO, and Hybrid Work Conditions On Design Creativity

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## ABSTRACT
A person's creativity can be influenced by external aspects which derive from the surrounding environments both physically and socially. In this case, the creativity in question is the creativity of internship students in carrying out the design process during their practical work course. The students in question are UPH students majoring in interior design class 2018 who have done internships either by WFH, WFO, or hybrid. This study aims to determine whether the work environment influences creativity development. The method used is ethnography with an interpretive lens, while the qualitative data collected were measured and translated using quantitative tools. The research results showed that the physical and social environment of the office could affect creativity in the design process.

Keywords: environmental conditions, creativity, physical environment, social environment, internship

## INTRODUCTION
Human resources' creativity is a critical component in the success of a company or organization, also as the foundation of a creative company. Creativity is an individual competency that is needed by any organization (Sudarmanto, 2009:107). This writing focuses on creativity, which is an essential aspect of work, especially in terms of the design process. Creativity can be influenced by various things, such as the environment both physical and social, and the activities are undertaken to increase it.

With this background, the authors are interested in conducting an assessment of the working environment conditions of the Work From Home (WFH) system,

Work From Office (WFO) system, or hybrid systems, and how it affects creativity during the design process. In this case, the creativity in question is the creativity of internship students in carrying out the design process during their practical work course. The students in question are UPH students majoring in interior design class 2018 who have done internships either by WFH, WFO, or hybrid, categorized by their period of work: interns and short-term interns. Interns have a working period of about 10 (ten) months, while short-term interns have a shorter working period of about 4 (four) months.

## LITERATURE REVIEW

According to Sudarmanto in Widhiastana, Wardana, and Sudibya (2017:223-250), creativity is an individual competency needed by any organization. Creativity defined as the ability to create new and valuable ideas for the survival of the company or organization (Robbins and Judge, 2002:190; Poornima, 2011:316).
According to Munandar (2009), there are two main factors affecting creativity, internal factors and external factors. External factor indicators divided into two, the physical environment and the social environment factors.

### Physical environmental factors

(1) The first factor is office facilities that support work activities. According to Yazid (2019), facilities had an effect of 29.6% on someone's creativity, (2) The second factor is visual comfort. According to Aufizaha (2015), to achieve visual comfort, we need to notice the strength of the lighting in buildings based on natural daylight in buildings, (3) The third factor is thermal comfort. According to Rilatupa (2008), humans can't live in the modern era to rely solely on natural thermals, so they must use air conditioning as a supporting medium to achieve a minimum temperature of thermal comfort of 22.5 - 29 . (4) The last factor is acoustic comfort. According to Imran and Nini (2015), it is known that loud and continuous noise can cause interference in someone's ability to reach optimum results in their task.

### Social environmental factors

(1) The first factor is casual relations between coworkers and superiors, (2) The second one is the convenience of exchanging ideas with colleagues and superiors, (3) The third factor is good working conditions and fair work distribution in teams, (4) The fourth one is supports or training assistance provided from colleagues or superiors, and lastly (5) Challenging task or project conditions. Oktaviani et al. (2020) argued that there is a significant relationship between how superiors' and subordinates' bonds would affect work performance.

## METHODOLOGY

The method used is ethnography with an interpretive lens (Crouch and Pearce, 2012), while the qualitative data collected were measured and translated using quantitative tools (Neuman, 2014). These combined strategies required the author to conduct interviews with informants and collect data from the respondents via Google Forms using Likert Scale and essays. The Likert Scale used consists of 5 points, with 5 points meaning all parameters are working well, 4 means some are

working well, 3 means all are working, 2 means some aren't working, and 1 means all aren't working. The respondents are students from Pelita Harapan University's 2018 Interior Design Bachelor's program who participated in short-term and long-term internships during the pandemic using the Work From Home (WFH), Work From Office (WFO), and/or hybrid working system. These systems impact both the interns' and short-term interns' creativity levels during their internship course which were discussed during the interview.

## RESULTS AND DISCUSSION

### Physical environmental factors

#### (1) *Influence of Office Facilities on Creativity*

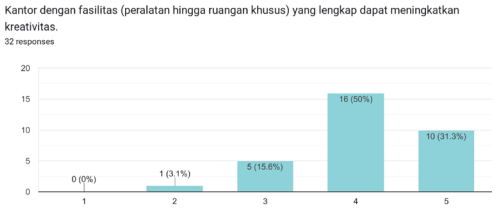


**Image 1. Influence of Office Facilities on Creativity (Res. Team, 2022)**

According to the survey, completeness of facilities has an impact on promoting creativity with half of the respondents (n=16/32, 50%) agreeing. The parameters are completeness of working equipment and facilities, and various functional rooms available. The quantitative results supported by the qualitative responses below:

*"Practicing WFH short-term internship, still requires comfort. To improve a productive atmosphere, work in a separate area from other potentially distracting activities, work with comfortable tables and chairs, and put on the diffuser"* (ML, Short-term intern, WFH)

*"Comfortable and ergonomic furniture can also aid concentration."* (CL, Intern, WFO)

#### (2) *Influence of Visual Comfort on Creativity*

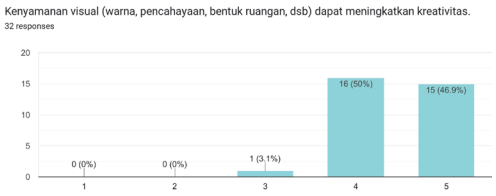


**Image 2. Influence of Visual Comfort on Creativity (Res. Team, 2022)**

The parameters used on visual comfort, includes color, lighting, and space form, which can considerably improve creativity, according to a large number of the respondents (n=16/32, 50%). The quantitative results supported by the qualitative responses below:

"*We tend to get fatigued more easily if the room conditions are not favorable (in terms of illumination, chair amenities, internet, lighting, and so on), which will affect work efficiency.*" (RR, Intern, hybrid)

"*...the use of bright colors helps in the growth of peaceful thinking*" (ST, Short-term intern, WFO)

### (3) *Influence of Thermal Comfort on Creativity*

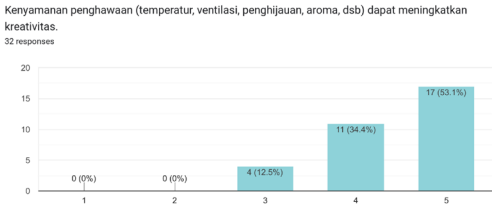


**Image 3. Influence of Thermal Comfort on Creativity (Res. Team, 2022)**

According to survey data on air comfort, the majority of the respondents (n=17/32, 53.1 %) strongly agree that it can boost creativity. Parameters used are temperature, ventilation, and aroma. The qualitative results followed:

"*Employees have been upset due to the scent of cigarettes in the workspace."* (AG, Intern, WFO)

"*I used to experience WFO at first, and if the room was a bit heated, it made me dizzy right away*." (EF, Short-term intern, hybrid)

### (4) *Influence of Acoustic Comfort on Creativity*

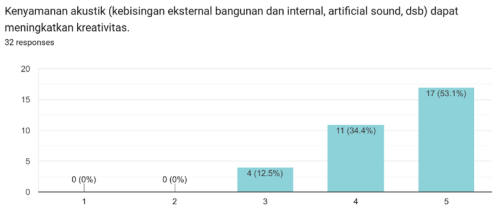


**Image 4. Influence of Acoustic Comfort on Creativity (Res. Team, 2022)**

Most respondents (n=17/32, 53.1 percent) strongly agree that acoustic comfort can increase creativity in the design process. The parameters are indoor acoustic and external acoustic. The qualitative results confirm:

"*The best room to work is on the second level, so there's no noise disturbance. It makes us more focused."* (ST, Short-term intern, WFO)
"*Employees have been bothered by the barking of the office dog,...*" (AG, Intern, WFO)

The results above showed that the workplace's physical environment could influence creativity and the design process There was no difference in the influence of workspace facilities in WFH, WFO, or hybrid system. However, there were significant similarities in the efforts made by workers to ensure that their work environment supports the creative process.

## Social Environmental Factors

### (1) *Influence of The Relationship Between Colleagues and Superiors on Creativity*


**Image 5. Influence of The Relationship Between Colleagues and Superiors on Creativity (Res. Team, 2022)**

Most respondents (n=15/32, 46.9%) strongly agree that relationships with colleagues and superiors might affect their creativity.The parameters are having good relations with coworkers and having good relations with superiors. The qualitative results validate:

"*Because the interaction with coworkers could be said to be extremely casual. I feel comfortable asking colleagues if there are problems or asking for input. Relationships can give thoughts from another point of view and can increase creativity in completing tasks.*" (BR, Short-term intern, WFO)

"*The interaction between designers has a big impact, especially if the office works in a team.*" (ST, Short-term intern, WFO)

**(2) *Influence of The Comfort Brainstorming Situation Between Colleagues on Creativity***


**Image 6. Influence of The Comfort Brainstorming Situation Between Colleagues on Creativity (Res. Team, 2022)**

Most respondents strongly agreed (n=19/32, 59.4%) that the ease of exchanging ideas in a comfortable brainstorming situation can significantly enhance creativity. The parameters are the intensity of brainstorming done in a week. The qualitative results affirmed it:

"*The vibes are VERY different outside and online. The hours are not set for WFH, but there is a work environment for WFO, so more questions are asked and the approach is easier.*" (DG, Short-term intern, hybrid)

*"The essential factor in improving creativity is having discussions with other design teams since sharing ideas or giving each other input would expose each other's flaws."* (CL, Intern, WFO).

**(3) *Influence of The Teamwork and Job Division Clarity on Creativity***


**Image 7. Influence of The Teamwork and Job Division Clarity on Creativity (Res. Team, 2022)**

Based on the survey results, most respondents (n=19/32, 59.4%) strongly agree that good working conditions in a team and a clear division of tasks can increase creativity. The parameters are quality of teamwork and division of roles. The quantitative results are supported by the qualitative responses below:

*"You don't need to be too close or talk constantly, the important thing is mutual respect, maintain good relations, and clear division of tasks."* (EF, Short-term Intern, WFH)

*"Our principle gives freedom to Short-term Internship Students to explore and provide opinions regarding the issues being discussed. So, the principal's mindset can be understood when making a design decision, and vice versa."* (DAC, Short-term Intern, hybrid)

### (4) *Influence of Support from Colleagues or Superiors on Creativity*

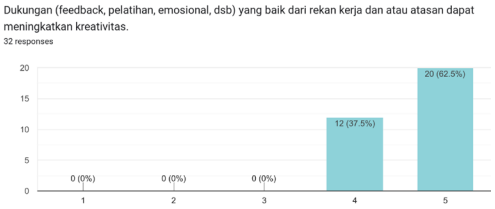


**Image 8. Influence of Support from Colleagues or Superiors on Creativity (Res. Team, 2022)**

Most respondents (n=20/32, 62.5%) stated that they had good support from colleagues or superiors, either from feedback, training and teaching, emotional support, etc., which that kind of support could significantly increase their creativity. The parameters are creativity improved significantly affected by supportive partners. It is verified by the qualitative results below:

*"If designers are rarely supported or appreciated for their work by the principal, sometimes they can be less motivated."* (AG, Intern, WFO)

*"All my coworkers are very friendly and always want to help me with support and provide feedback, the work being done becomes more active."* (DG, Short-term Intern, hybrid)

### (5) *Influence of Challenging Working Conditions or Projects on Creativity*


**Image 9. Influence of Challenging Working Conditions/Projects on Creativity (Res. Team, 2022)**

Most respondents (n=14/32, 43.8%) strongly agree that challenging working conditions or challenging projects will increase creativity. The parameters are rate of contentment by challenging tasks. Qualitative insights confirmed it:

*"...the differences in the projects given make them think more broadly."* (ST, Short-term Intern, WFO)

The social environment obviously can affect creativity and the design process. Students who undergo practical work or internships on the WFO system have closer relationships, more convenience in exchanging ideas, ease of getting support, etc. These things can affect the creativity and design process of students so that in a social environment, the WFO system is arguably better in increasing creativity.

## CONCLUSIONS & RECOMMENDATIONS

The research showed that both the physical and social environment of the office can affect creativity in carrying out the design process. These aspects were supported by important factors: the completeness of office facilities, visual comfort, thermal comfort, acoustic comfort, good relationship, convenience to exchange thoughts, good teamwork and clear division of tasks, good support, and challenging projects. The differences in the WFH, WFO, and hybrid systems can be more found in the social environment where interns with direct engagement or in a WFO system situation have the convenience of conversing, exchanging ideas, receiving support and evaluation from colleagues and superiors or principals, thus believed to enhance their creativity building in the design process. Whilst with the physical environment factors, the WFH, WFO, and hybrid system found similarities, whereas the creative thinking process needed support from the work environment situation.

Daikoku et al. (2021) stated that the comfort of the environment, both physical and social, provides space for the mind to focus on alternative solutions and thus, to solving a problem. In the absence of distraction from the outside environment, the mind can easily generate creative ideas in the unconscious or semi-conscious stage of the effort.

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# Social Design Adaptability in The Height of Pandemic Time

## Case Studies: 3 Projects of Design, Society and Environment Class, School of Design, UPH

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**ABSTRACT**
Interior Design Department, School of Design, Universitas Pelita Harapan developed a specific course named Design, Society and Environment (DSE) since 2014. The course aimed to produced social design for the community. Students and lecturers will experience research, design, and action in terms of serving the communities happened simultaneously in this class using specific methodology approach called Design as Generator (DAG). However, in the pandemic time, the class activities and the methodology were put to a test. Thus, the research paper will discuss the practice and adaptability of social design in the height of pandemic time, through 3 projects from the DSE class.

Keywords: Social Design, Design Society and Environment, Design as Generator, Pandemic

## INTRODUCTION

Interior Design Department, School of Design, Universitas Pelita Harapan developed a specific course named Design, Society and Environment (DSE) since 2014. The course aimed to produced social design for the community. Students and lecturers will experience research, design, and action in terms of serving the communities happened simultaneously in this class using specific methodology approach called Design as Generator (DAG) (Katoppo, 2017; Katoppo, 2018). However, in the pandemic time, the class activities and the methodology put to a test, as the class approach required direct engagement. Thus, the research paper will discuss the practice and adaptability of social design produced in the May – July 2021 DSE class while in the height of pandemic time using DAG methodology. It will be dissected through 3 design projects: NA NEXT 2021 a digital platform for raising the importance of conserving water awareness, *Ambreg* kampong youth festival and Ranca Kebo village identity design. Each of these design projects were chosen because of the different nature in their social engagement modality: NA NEXT was digital, *Ambreg* was blended and Ranca Kebo was mostly online.

## LITERATURE REVIEW

There are two approaches of Social Design, namely (Katoppo, 2021):

(1) Community Empowerment approach, where the social roles of empowerment through design are stronger and when it is intended to liberate and humanize everyone involved (Taggart, 2006; Mikkelsen, 2011; Berg and Lune, 2012; Reason and Bradbury, 2001). This approach requires conventional direct community engagement.

(2) Participatory Design approach (Simonsen and Robertson, 2013; Jenkins and Forsyth, 2010; Jones, et al, 2005; Greenbaum and Loi, 2012; Sanoff, 2000). This approach also intended to uphold equality and community participation as well empowerment, but the role of design remains clear, rather than blended with social matters. It is also interesting to see that participatory design first appeared in the form of software or digital designs, where designs produced by program designers were then tested to users to obtain feedback and refined continuously (Simonsen and Robertson, 2013).

These Social Design approaches showed the dynamic nature between direct and virtual engagement using technology within the interconnection of design and a social situation. Ahead long before the pandemic, Appadurai (1991) already tried to explore other possibilities in the world of ethnography, whereas conventional direct engagement with community usually necessitate. He argued that a community group is a community built based on an imagined community, so that the existing physical geographical, races, and genders boundaries are actually imaginative boundaries that can be exceeded. In this way the practice of ethnography can be in a global context. This is the base for the argument of how Social Design can worked in the pandemic time, pushing the physical boundaries by embedding technological innovation (Katoppo, 2021).

The relationship of technology and qualitative research such as in ethnographic research models, field research and others has long been discussed and continues

to grow today (Mann and Stewart, 2000; Salmons, 2015). The development of increasingly sophisticated technology makes qualitative research must synergize, especially because technology is able to expand the scope of participants and allows research to be carried out anytime and anywhere in relatively affordable research financing. The pandemic is accelerating all of it. Technology also connecting us with the millennial generation or generation Z who were born and intertwined with technology as digital natives (Jukes, et al., 2010).

## METHODOLOGY

Design as Generator (DAG) the specific methodology used in DSE Class because of its agility to move dynamically between research, design, and action activities (Katoppo, 2017). This made possible by combining Participatory Action Research (PAR) (Taggart, 2006) and Design Thinking (DT) (Brown, 2008; Brown and Katz, 2009) in a model of mixed methods research: Sequential Embedded Experimental Model (Creswell and Clark, 2007). It will allow participatory design action (qualitative) (Jones et. al, 2005; Simonsen and Robertson, 2013) and the experimental conduct of pre-test and post-test of the design intervention measurement (quantitative) proceed consecutively (Neuman, 2014). DAG methodology is also deemed capable to operates effectively during pandemic time (Katoppo, 2021; Katoppo et.al 2021).

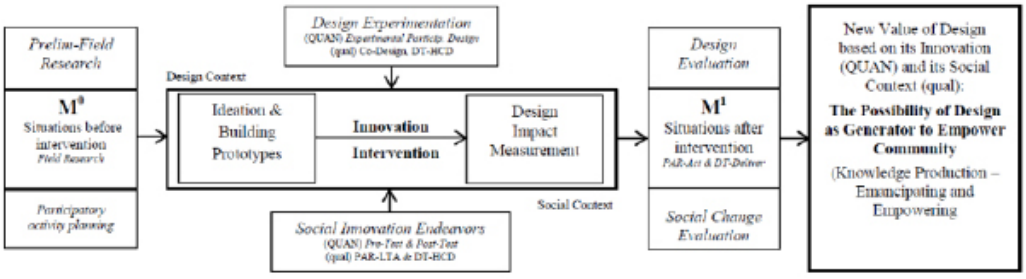


**Image 1 Design as Generator Methodology (Katoppo, 2017)**

## RESULT & DISCUSSION

In the beginning of pandemic on May-July 2020, the DSE class pilot-tested the course and the DAG methodology to be put into place. At that moment, there were 3 social design projects: *Ambreg* 2020 kampong creative youth festival that blended online and offline activities, a prototype of NA NEXT 2020 digital platform for raising the importance of conserving water awareness and, an innovative face-shield design for specific users (Katoppo, 2021; Katoppo et.al, 2021). The 3 social design projects showed: community empowerment approach (*Ambreg* festival), participatory design approach (innovative face-shield design) and participatory design approach with technology usage (NA NEXT digital platform).

**Image 2 DSE Class 2020: *Ambreg,* Face-shield Design, NA NEXT (Katoppo, 2021; Katoppo et.al, 2021)**

Following the positive results of the DSE class 2020, the class of 2021 continued the strategy handling 3 social design projects, in which two projects were the continuation of the previous ones, namely: *Ambreg* 2021 kampong youth creativity festival in southern Tangerang and NA NEXT 2021 digital platform. The last project was developing identity of Ranca Kebo village in Tangerang, a tourism village initiated by CSR. All the 3 social design projects were initiated and completed during May-July 2021 in the peak of C-19 Delta variant dispersion.

### *Ambreg* 2021 kampong youth creativity festival

*Ambreg* 2021 kampung youth creativity festival in southern Tangerang was the 5th festival, in which the 2nd time held in pandemic time. *Ambreg* festival was designed as a model of community empowerment that would drive social change through innovative, creative, and collaborative ways injected to the community member, especially the youth (Katoppo, 2018). The festival endured pandemic time in 2020 and even reached its highest degree of participation using the blended strategy (Lucky et. al., 2020, 2021). However, *Ambreg* 2021, though started with the same strategy, was then cut off short for the physical engagement strategy, amidst the increasing of C-19 Delta variant. The festival was prepared, planned, designed, and conducted mainly using digital approach using DAG methodology (Katoppo, 2017) and Design Thinking approach as well as workshop: Discover, Ideate and Prototype (Brown, 2008; Brown and Katz, 2009), that surprisingly was not affecting the enthusiasm. Optimizing technology, the team of students and lecturer from Interior Design, SoD, UPH, were able to build a good relationship with the kampong's youth that acted as on-site committee and with children and their parents as the festival participants. The physical engagement was limited to its necessities, performed only as sustaining the festival identity (Lucky et. al., 2020, 2021, Katoppo, 2021). The result was: 50 children along with their families from 5 RT participated in the creative competition largely done online and at home, 19 community members were active in the discussion about C-19 pandemic and new normal initiated in the digital room, +/- 20 youth community members involved organizing the festival in blended ways.


**Image 3 *Ambreg* 2021 kampung youth creativity festival (DSE Class, 2021)**

## NA NEXT 2021 water conservation awareness digital platform

NA NEXT 2021 water conservation awareness digital platform was the design and activity continuation of NA NEXT 2020 digital platform. The 2020 design was the 1st prototype where NA NEXT moved into digital platform, as previous activities was held onsite. NA which is a local language acronym for collecting water (*Nabung Aer*) were focusing on building community awareness on the importance of conserving water, which during 2015-2019 held onsite in various places in Jakarta and its surrounding area (*Jabodetabek*). Since 2019, as an evaluation of NA direct engagement with the community, the initiatives started to move to digital platform, as it is considered more effective in the scale of reach and the targeted young people as the future generation (Katoppo et. al., 2019). NA NEXT 2020 digital platform started to show these goals materialized, as it is reached more younger audiences and moves beyond *Jabodetabek* area towards places in Java regions (Gunawan et.al., 2021). NA NEXT 2021 aimed to push these digital potentials to its limit, broadening the scale of reach and the amount of the same targeted participants from the previous one. The process of gathering insights, engaged with similar communities, discussions with experts and developing the design and activities within the new NA NEXT 2021 digital platform were using the approach of participatory design (Simonsen & Robertson, 2013) and human centered design for social innovation (IDEO, 2013). The platform was designed to respond to the digital learner natives' fluencies, which are: solution, information, collaborative, creativity, and media, while at the same time fulfilling the digital natives needs to become a problem solver of real-world (social) situations (Jukes, et al., 2010). NA NEXT 2021 digital platform attracted 25 participants from 5 islands in Indonesia (Java, Sumatera, Sulawesi, Kalimantan, and Bali) for the conserve water action challenge competition; 2280 reached viewers and 165 re-shared for the Conserve Water Podcast published in NA NEXT 2021 IGTV; 79,442 impressions; 1,708 profile visits, 1,807 content interactions, 348 mini-quiz interactions, while still maintaining 43.4% 18-24 age group and 37.4% 25-34 age group targeted audiences.

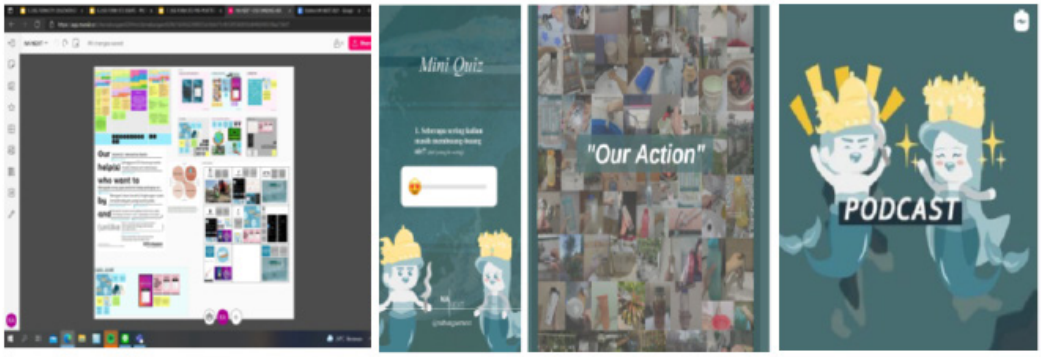


**Image 4 NA NEXT 2021 water conservation awareness digital platform (DSE Class, 2021)**

## Ranca Kebo village identity design

Ranca Kebo is a village in Tangerang that is supported by corporate social responsibility (CSR) to become an agrotourism village. However, the supports were more focusing on the physical intervention, such as the greenery and plantation garden prototype, but none on the how to build the initiatives become known to others nonetheless the entire community member. The team of Interior Design students and Visual Communication Design lecturer, SoD, UPH were coming to help the community precisely in this matter, in which helping Ranca Kebo village building their agrotourism identity through design. In a similar way to what had happened in *Ambreg* 2021 festival, the engagement process with the Ranca Kebo community members started in a direct manner. Nevertheless, the C-19 Delta variant hit hard, and the team switched strategy to almost completely online engagement. Though hard at the beginning, the team found solace from the kampong's youth group, called *Genrerak* (meaning influential and action-oriented generation). The youth group in an instance showed enthusiasm and did not have any difficulties engaging digitally, even in the process of designing the Ranca Kebo village identity. Thus, exploring the name of the village and the agrotourism potential the team with *Genrerak* creating '*RanBo the cow'* with digital promotion materials covering the knowledge about Ranca Kebo agrotourism village. The process showed that digital approach breaks the boundaries (Appadurai, 1991) and relate wonderfully with the digital natives and the current technological nature (Jukes, et al., 2010).


**Image 5 Ranca Kebo village identity design (DSE Class, 2021)**

## CONCLUSION

In the beginning, the paper aimed on showing the social design adaptability in the height of pandemic time. Nevertheless, from the results of the 3 social design projects in 2021 DSE class discussed above, we can argue that the results were not just able to answer the challenges in pandemic time as it is at its height, but also refining what had happened in 2020 DSE class, where DAG methodology put to a test for the first time in the pandemic situation. There at least 3 important findings:

(1) Social Design can adapt brilliantly during the pandemic time, with the help of technological innovation and the audacity to let the engagement operation beyond the limitation of physical barriers (Salmons, 2015; Appadurai, 1991).
(2) DAG research-design-action methodology effectively operated within the pandemic situation, as it can strategically moves blended between digital and physical activities (Katoppo, 2021).
(3) Social Design using DAG research-design-action methodology worked well alongside the digital learner and natives, especially the youth, as they visioned themselves as a generation that will become a problem solver of real-world (social) situations (Jukes, et al., 2010).

These findings should be considered as an evaluation of Social Design capability and how it should be improved continuously and elevated to the next level after the pandemic time, which are to expand its reach to become light for others without limitation and any boundaries (Katoppo, 2017, 2021).

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# Acoustic Assessment Through Reverberation Time
## Case Study: Pembangunan Jaya University Building B Auditorium

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**ABSTRACT**
Architectural acoustics is a branch of building science that examines sound quality within a building. Each type of space in a building has its own characteristics to create characteristics in harmony with the intended function. This research aims to identify the acoustic characteristics of architectural space with a conversational function which it can be examined based on reverberation time and Articulation loss of consonant (%ALcons) in the auditorium of building B, Universitas Pembangunan Jaya as the case study. The research utilizes software to examine reverberation time through Ecotec software that occurs in existing conditions to calculate %ALcons as a benchmark for speech intelligibility. The final step in this research is to improve the design for the acoustic. The required reverberation time in the built auditorium is 1.39 seconds which is too long for this type of purpose. As for the %ALcons is 9.27% which means it is quite good. It turns out that a design improvisation could improve the acoustic quality of this space by reducing the reverberation time close enough to a suggested number by SNI 03-6368-2000.

Keywords: Architectural Acoustic, Reverberation Time, Articulation Loss of Consonant, Pembangunan Jaya University Auditorium

**INTRODUCTION**
An Auditorium is a place for the audience to sit to watch and listen to a performer or orator (Latifah, 2015). When it comes to the auditorium we do not talk only about thermal comfort or visual comfort only, yet we also need to understand the importance of the acoustic of the auditorium. One of many functions of the auditorium is functionalized as a space to hold an oration that involves speech and dialogue. In general, the acoustic performance of an auditorium is measured through reverberation time. For a speech auditorium it is recommended that reverberation time does not exceed more than 80ms. Pembangunan Jaya University in Bintaro has two auditoriums in building A and Building B. in the first survey through a balloon popping method observer may hear a reflected sound separated from the original sound in which theese phenomena indicate that there is a sound signature that should not exist in speech auditorium. Thus this journal is has a focus to find the reverberation time of the built auditorium, calculation of the Articulation Loss of

Consonant (%ALcons), and to see what kind of design improvement can be done to increase the acoustic performance of the auditorium.

## LITERATURE REVIEW

### Reverberation Time

Reverberation time is the time needed by a sound to decay 60dB from its original sound pressure level. The first method to calculate reverberation time is based on Wallace Clement Sabin's formula as seen below:

$$Rt = \frac{0{,}16V}{A}$$

With RT: reverberation time (second); V: volume of the room ($m^3$) and; A: $\sum$ absorption area of the room

The second method used to calculate reverberation time is a method developed by Noris-Eyring with the formula below

$$Rt = \frac{0{,}161V}{-S\ ln\ (1-aAvg)}$$

Where S: total area of the boundary surface, $aAvg$: average coefficient absorption of the boundary surface, and: ln: normalize logarithm

In general, the reverberation time is very sensitive to the material. Different types of material with different acoustic properties may be resulting a different reverberation time.

| Jenis Hunian ---- | Tingkat Bunyi Yang Dianjurkan | | Waktu Dengung (T) Yang Dianjurkan |
|---|---|---|---|
| | Baik [dBA] | Maksimum [dBA] | [detik] |
| 1 | 2 | 3 | 4 |
| Ruang Kesehatan ( P3K ) | | | |
| Ruang praktek musik | 40 | 45 | 0,6 – 0,8 |
| Studio musik | 40 | 45 | 0,7 - 0,9 |
| Ruang kantor | 30 | 35 | Kurva 2 |
| Ruang administrasi | 40 | 45 | 0,4 |
| Ruang seminar | 35 | 40 | 0,6 –0,8 |

**Image 1. Room Classification (SNI 03-6368-2000, 2000)**

For a room functionalized as a speech or seminar function, SNI 03-6368-200 provides a recommendation that reverberation time span from 0,6s and should not exceed 0,8s.

### Articulation Loss of Consonant (%ALcons)

One of the measurements used to calculate the performance of the speech auditorium is analyzing the speech intelligibility, and one of them is Articulation Loss of Consonant (%ALcons). %ALcons is highly attached to reverberation time, which the formula as seen below:

$$\%AL_{cons} = \frac{200\ .\ D_2^2 RT_{60}^2 (1+n)}{VQM}$$

Where D2: closest distance to sound source with minimum of 2m, which recommended by ISO3382-1997; RT60: Reverberation time; V: room volume(m3); Q: Directivity factor; M: Sound modifier with assumption number of 1, and; n: the number of the sound sources.

The %ALcons score spans in percentage. Bellow 10%, it can be considered a room with very good performance. %Alcons 10%-15% considered as a good performers. Whereas %ALcons exceeding 15% are considered as a room with bad speech intelligibility (Baikhaqi, 2015). Usually, consonants take place at a frequencies from 500Hz to 4kHz (DPA Microphones, 2021)

## METHODOLOGY

The first method is to analyze reverberation time with the help of **Autodesk Ecotec**. Firstly we need to have the documentation of the dimension of the built auditorium. We also need to acknowledge the material in the built environment to apply the absorption coefficient of the material used in the built environment.

The third step is to measure the articulation loss of consonants (%ALcons). %ALcons is measured on 125Hz, 250Hz, 500Hz, 1kHz, 2kHz, 4kHz, and 8kHz. This is because humans may speak not only specific to a perticular frequency only.
The last step of the process is to apply design changes in terms of the auditorium form. We also used new material with a better sound absorption coefficient. Once we've done that, we repeat the first and the second step to see whether the improvement may affect the performance of the auditorium.

## RESULT & DISCUSSION

### Reverberation Time Calculation

Once we have the model of the built auditorium, we could proceed to calculate the reverberation time of the built auditorium. The formula used to analyze the Reverberation time in this research is based on the Norris-Eyring formula. ISO 3387-1997 stated that measurement for large volume room take the reference at 500Hz or 1kHz. For this research, we referred to the result within 500Hz

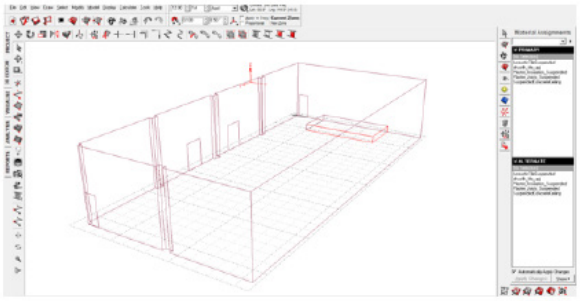
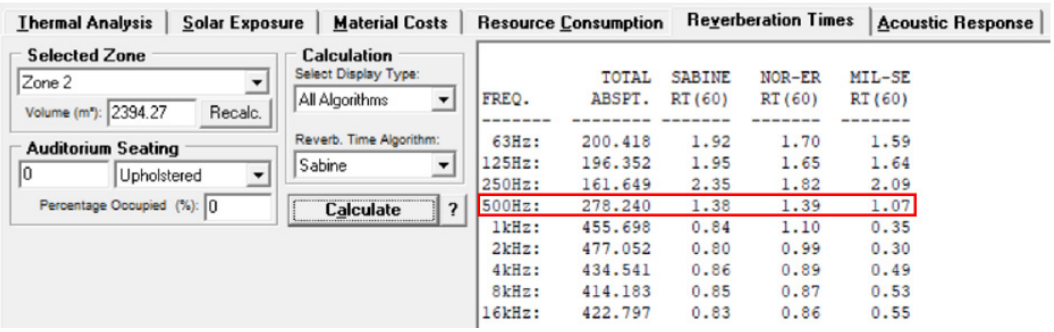


**Image 2. Model of the built auditorium (Rahardjo, 2022)**

**Table 1. Table of Absorption Coefficient In The Built Auditorium (Rahardjo, 2022)**

| Material | Absortioon Coefficient (Hz) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| Gypsum | 0,28 | 0,28 | 0,1 | 0,05 | 0,04 | 0,07 | 0,09 | 0,15 |
| Floor tile | 0,01 | 0,01 | 0,01 | 0,01 | 0,02 | 0,03 | 0,07 | 0,07 |
| Painted Concrete | 0,02 | 0,02 | 0,03 | 0,03 | 0,03 | 0,04 | 0,07 | 0,07 |
| Acoustic ceilling | 0.06 | 0.06 | 0.13 | 0.47 | 0.91 | 0.94 | 0.78 | 0.74 |
| Carpet on Wood | 0,07 | 0,11 | 0,24 | 0,5 | 0,68 | 0,75 | 0,79 | 0,78 |
| Curtain | 0,43 | 0.05 | 0.06 | 0.39 | 0.63 | 0.7 | 0.73 | 0.73 |
| Hollow wood Door | 0,44 | 0,41 | 0,35 | 0,25 | 0,20 | 0,15 | 0,14 | 0,13 |




| FREQ. | TOTAL ABSPT. | SABINE RT(60) | NOR-ER RT(60) | MIL-SE RT(60) |
|---|---|---|---|---|
| 63Hz: | 200.418 | 1.92 | 1.70 | 1.59 |
| 125Hz: | 196.352 | 1.95 | 1.65 | 1.64 |
| 250Hz: | 161.649 | 2.35 | 1.82 | 2.09 |
| 500Hz: | 278.240 | 1.38 | 1.39 | 1.07 |
| 1kHz: | 455.698 | 0.84 | 1.10 | 0.35 |
| 2kHz: | 477.052 | 0.80 | 0.99 | 0.30 |
| 4kHz: | 434.541 | 0.86 | 0.89 | 0.49 |
| 8kHz: | 414.183 | 0.85 | 0.87 | 0.53 |
| 16kHz: | 422.797 | 0.83 | 0.86 | 0.55 |

**Image 3. Reverberation Time of The Built Auditorium Result (Rahardjo, 2022)**

Within the data shown, we can see that it is still exceeds 0,8s which is suggested by SNI 03-6368-2000. Thus this reverberation characteristic is still far from the optimum number.

## Articulation Loss of Consonant (%ALcons)

The %ALcons is measured on the red spot with the distance of 5,338m from the yellow spot, which is the sound source. The %ALcons measurement uses the reverberation time on the previous step.

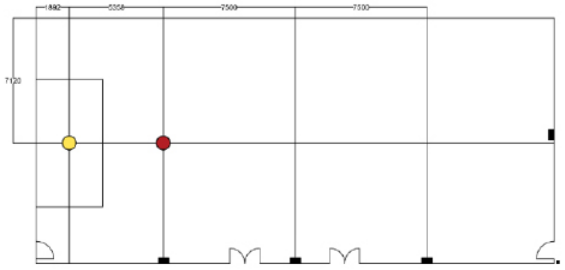


**Image 4. Location of The Measurement (Rahardjo, 2022)**

$$\%AL_{cons\ 125Hz} = \frac{200 \cdot 5.358m^2 1.65^2(1+1)}{2394.27\ (1)(1)} = 13{,}06\%$$

$$\%AL_{cons\ 250Hz} = \frac{200 \cdot 5.358m^2 1.82^2(1+1)}{2394.27\ (1)(1)} = 15.89\%$$

$$\%AL_{cons\ 500Hz} = \frac{200 \cdot 5.358m^2 1.39^2(1+1)}{2394.27\ (1)(1)} = 9{,}27\%$$

$$\%AL_{cons\ 1000Hz} = \frac{200 \cdot 5.358m^2 1.1^2(1+1)}{2394.27\ (1)(1)} = 5{,}80\%$$

$$\%AL_{cons\ 2000Hz} = \frac{200 \cdot 5.358m^2 0.99^2(1+1)}{2394.27\ (1)(1)} = 4{,}70\%$$

$$\%AL_{cons\ 4000Hz} = \frac{200 \cdot 5.358m^2 0.89^2(1+1)}{2394.27\ (1)(1)} = 3{,}78\%$$

$$\%AL_{cons\ 8000Hz} = \frac{200 \cdot 5.358m^2 0.87^2(1+1)}{2394.27\ (1)(1)} = 3{,}63\%$$

Within the frequency range of 500Hz-4kHz of humankind, the %ALcons can still be considered safe within a good range below 10%.

## Design Changes

The final step is to implement design changes that implement reflector ceiling and changes of material that could be seen below:

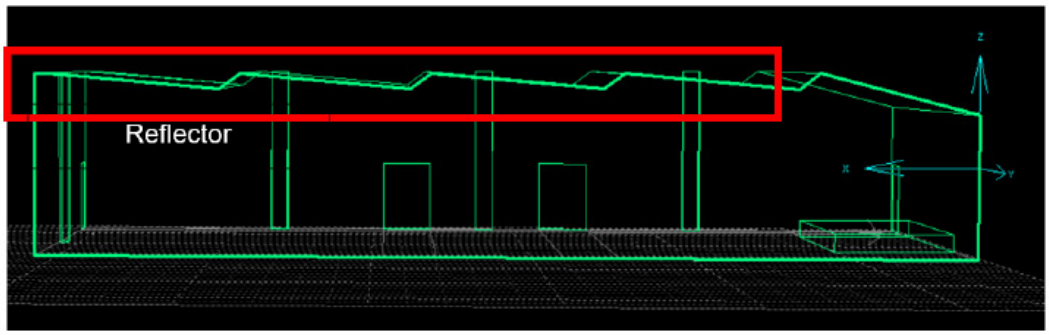



**Image 5. Design Changes (Rahardjo, 2022)**

**Table 2. New Material Used On Auditorium With Design Improvement**

| Material | Absorption Coefficient (Hz) | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 63 | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
| Perforated Gypsum | 0,28 | 0,3 | 0,69 | 1 | 0,81 | 0,66 | 0,62 | 0,09 |
| Cotton Carpet | 0,07 | 0,07 | 0,31 | 0,49 | 0,89 | 0,66 | 0,54 | 0,48 |
| Painted Concrete | 0,02 | 0,02 | 0,03 | 0,03 | 0,03 | 0,04 | 0,07 | 0,07 |
| Acoustic Ceilling | 0.06 | 0.06 | 0.13 | 0.47 | 0.91 | 0.94 | 0.78 | 0.74 |
| Reflector plasterboard | 0,06 | 0,2 | 0,15 | 0,1 | 0,08 | 0,04 | 0,02 | |
| Carpet on Wood | 0,07 | 0,11 | 0,24 | 0,5 | 0,68 | 0,75 | 0,79 | 0,78 |
| Curtain | 0,43 | 0.05 | 0.06 | 0.39 | 0.63 | 0.7 | 0.73 | 0.73 |
| Solid Wood Door | 0,44 | 0,41 | 0,35 | 0,25 | 0,20 | 0,15 | 0,14 | 0,13 |

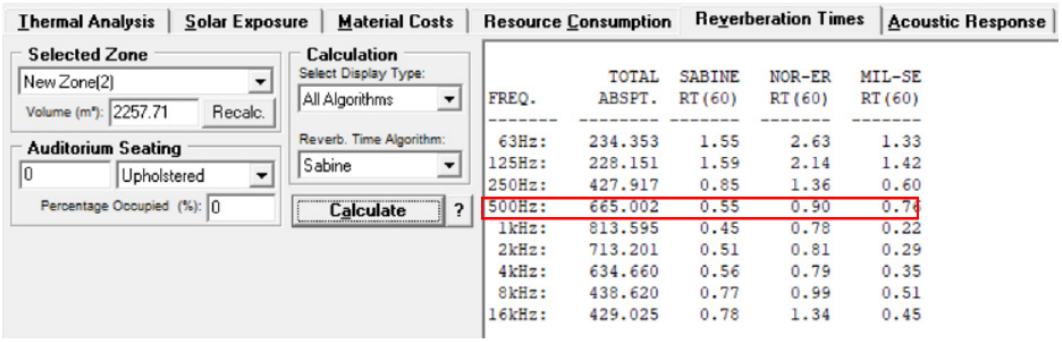



**Image 6. Reverberation Time Result of The Improved Auditorium Design**

Like the previous calculation, this reverberation calculation is also oriented on the Norris-Eyring formula on a frequency of 500Hz. The resulted reverberation time from design improvement is 0,9s which is reduced by 0,49s from the original auditorium state. From the data above, we could say that with the implementation of the reflector on the ceiling and material changes, we've shortened the the reverberation time close enough to the reverberation time suggested by the SNI 03-6368-2000, which suggested that for the seminar-type room should have reverberation time with the span from 0,6s to 0,8s.

With the improvement of the reverberation time, we also encountered an improvement on %ALcons as well which could be seen below:

$$\%AL_{cons\ 125Hz} = \frac{200\ .\ 5.358m^2 2.14^2(1+1)}{2257.71\ (1)(1)} = 23.29\%$$

$$\%AL_{cons\ 250Hz} = \frac{200\ .\ 5.358m^2 1.36^2(1+1)}{2257.71\ (1)(1)} = 9.41\%$$

$$\%AL_{cons\ 500Hz} = \frac{200\ .\ 5.358m^2 0.9^2(1+1)}{2257.71(1)(1)} = 4.12\%$$

$$\%AL_{cons\ 1000Hz} = \frac{200\ .\ 5.358m^2 0.78^2(1+1)}{2257.71\ (1)(1)} = 3.10\%$$

$$\%AL_{cons\ 2000Hz} = \frac{200\ .\ 5.358m^2 0.81^2(1+1)}{2257.71\ (1)(1)} = 3.34\%$$

$$\%AL_{cons\ 4000Hz} = \frac{200\ .\ 5.358m^2 0.79^2(1+1)}{2257.71\ (1)(1)} = 3.17\%$$

$$\%AL_{cons\ 8000Hz} = \frac{200\ .\ 5.358m^2 0.99^2(1+1)}{2257.71(1)(1)} = 4.98\%$$

## CONCLUSION

From the data resulting from the reverberation time of the built auditorium, the result from the Autodesk Ecotec is 1,39s, a deviation of 0,59s from the suggested number by SNI 03-6368-2000 that shall not exceed 0,8s. Hence, the built auditorium still doesn't have the characteristic of the seminar auditorium.

As for speech intelligibility measured through articulation loss of consonant, we see a different conclusion. Within the speech region between 500Hz to 4kHz we could say the built auditorium perform quite well where the result are below 10%. When we implement the design improvement by changing the form and some of the material used with better acoustic properties, we can conclude that design improvement indeed could produce a better acoustic performance. With the design improvement, we can reduce the reverberation time to 0,9s, or only 0,1s slower than the suggested number by SNI's. Since we see reduction in overall reverberation time number, it also reduced the articulation loss of consonant at 500Hz reduced from 9,27% all the way to just 4,12%.

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# DISCUSSION ON THE FUTURE OF SID 1: THE NEW ERA OF DESIGN: DESIGN AS STRATEGY

# Comparison of Designer's Productivity in Online and Offline Working Systems

## The Optimal Productivity Working System in Post-Pandemic for Interior Designers

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**ABSTRACT**
The covid-19 pandemic has forced changes in human behavior in activities, including the interior design studio work system. Online communication media that continues to develop as the pandemic progress affects designers' daily workflow and their productivity in carrying out responsibilities in the office. It is essential to adjust the communication process between apprentices of design studios' work systems. This paper discusses the optimal application of WFO and WFH in a complex design process, in which achieving optimal productivity requires a hybrid work system. The direction of the design world's work system development during the pandemic becomes the focal point of the discussion. The analysis was carried out through the interpretive lens method, ethnography, in which the data were collected through interviewing Interior Design Scholars as outsider participant observers, as well as having semi-structured interviews with informants to obtain in-depth data while keeping the topic on track.

Keywords: Internship, Communication, Productivity, Online, Offline.

## INTRODUCTION

As the COVID-19 pandemic progressed, many offices in various fields underwent adjustments in the implementation of the work system to WFH, due to the Imposition of Restrictions on Community Activities, including interior offices. Design firms and designers have adapted to this condition and discovered a convenient way to work, which provides flexibility to uncover their creativity. However, there were

doubts about when the pandemic conditions had begun to improve. Will it return to WFO or carry on WFH? Which is the most effective and efficient work system to go through a complex interior design process? To find a way, we have to learn how the workers can be productive in every design stage. So that interior offices can operate optimally and bring the best output in the post-pandemic era.

## LITERATURE REVIEW

The changes in WFO and WFH office atmosphere are directly related to the work system implemented by the office. According to Miller (2021), there are three core experiences to support the work needs of office employees. This was found after surveying 19000 workers. [1] Community Socialization, communication between co-workers or divisions that form a social relationship for collaboration, mentoring, or just brainstorming together, spurs workers to build a connection to collaborate between workers. Communication that can be done expressively at WFO must change to non-verbal communication at WFH. The presence of community socialization will give workers an instinct for the vision and mission of the design firm. [2] Team Collaboration, a media or space for workers to collaborate on a project, encourages workers to interact and where spontaneous response occurs, produces a more effective and efficient work system for the flow of data. [3] Individual Focus, which is the space and time that workers have to be able to think deeply, explore creative ideas, or have an area to rest, restore energy to workers to do work that affects productivity.

An environment that maximizes workers' capabilities to achieve goals indicates productivity. With the work-life balance, it is expected that employee productivity can increase to support the purposes of the office. In pinpointing offices with good productivity, the company must have an excellent and smooth work and communication system. But not limited to the communication aspect, Adiputra (2021), states that there are certain comparisons in the transition from WFO (work from the office) to WFH (work from home) that are reflected in various pros and cons, including aspects of (4) flexibility, where the biggest challenge is in determining the right time to leave work for the day, for there is no physical cue at WFO. (5) Productivity, where a person can create a more personalized work environment at WFH, supporting productivity.

Thus, it is interesting for the author to understand how the five aspects adjusted of the two different systems affect the productivity of office workers. The formulation of the problem in this research are: (i) What are the differences in the implementation of online and offline work systems in the design office? (ii) What is the most optimal work system during this Covid-19 pandemic?

## METHODOLOGY

This writing is achieved through an interpretive approach, ethnography. Understanding, researching, and interpreting work culture and subject, understanding their respective office work systems, through detailed descriptions (Geertz, 1973). In collecting data, the author acts as an 'outsider researcher' who

does not participate in activities at the intern's office location, taking a step back to observe and obtain data. Data collection was obtained qualitatively. This method is combined with the Non-Standardized Online Interview (Mann and Stewart, 2000), where the questions are conducted online and are not too structured, conducted face-to-face via Zoom, to build relationships to understand and obtain better details of the information that the informant wants to disclose.

Six key Informants participated in this research, with a background as a scholar undergoing internship program in interior design firms for nine months, since June 2021. All went through the WFH phase and some chose to carry on the system. Based on the vision of this research and the experience of the informant, topics that are carried out in the interview are ramifications of the 5 main points that are mentioned in the literature review.

How do you analyse your data?

## RESULTS AND DISCUSSION

### 1. Community Socialization

Communication or social relations is an essential aspect of the office work system, as it determines the culture as a productive work environment and job satisfaction. It determines the productivity of new employees. Workers who are in the same office can get acquainted and make direct interactions in explaining work habits. Workers will adapt to a new work environment where acceptance will allow them to recognize and align the design firm's goals.

"When I went offline for the first time, the workers were very welcoming, they didn't mind being asked questions." - Informant AG (22)

When conducted online, workers will have blurry ideas about work ethics, work environment, and the office culture, which would potentially cause them to be reluctant to communicate with co-workers, for there is no connection created by spontaneous interactions. Some informants who are fresh graduates admitted to having the excitement to learn while guided by senior designers. This will affect the efficiency of task execution time.

"In this pandemic, we use Whatsapp to communicate, and work assignments are unclear. Every time I ask, the answer comes after 3-5 hours." - MH informant (22)

It took informant MH several weeks to be able to communicate comfortably in his daily work, affecting her work productivity. In the success of the design stages, Community Socialization also plays a vital role in how workers can expressively use facial expressions, intonation, and body movements to convey design goals. Expressive communication will be easier to understand, thus, the execution of design stages will be more precise. During online conditions where demonstrative communication cannot be fulfilled, chances of failure for both parties to interpret the message fully are increased. It will take more effort to align their thought

processes and be on the same page. Face-to-face communication can reveal characters and personalities, interlocutors may adjust their speaking style for a more fluid conversation, affecting the process of subsequent communication that is more effective, efficient, and intimate.

"WFH causes a lot of miscommunication, where what they try to convey to me is not the same as what I understand. ... In the WFO system, I can always just ask directly, 'Is this correct?' - Informant FH (22)

"The people in the office are relaxed. At WFO, we like to chat in the evening and the principal has even asked, "Have you had a girlfriend yet?" - Informant FH (22)

Karimi (2014) said that community socialization is parallel to productivity. The more workers that have social construction in the work environment, the more work performance will improve, especially in work that requires collaboration between divisions. This aspect shows the crucial role of community socialization presented in the offline work system, which affects workers in psychological factors, social construction, effectiveness, and design stage efficiency for optimal work productivity.

**2. Team Collaboration**

Most interior design firms work as a team, especially on large projects, with individual workers based on their scope of work, designers, drafters, visualization, and so on. Good team collaboration is crucial. In WFO, workers easily interact and respond spontaneously to the joint project being worked on. Employees can easily understand the opinions, criticisms, and suggestions of other colleagues on what they do. Especially for workers who still need a lot of input and adjustments to the standards and design style of the firms. When working online, the interaction between co-workers and spontaneous responses are reduced. In addition to the time wasted waiting to get replies on messaging apps.

"Because it took a lot of time, sometimes I have to wait for the answer before I can revise it" - Informant FH (22)

During the design process, an interior designer must collaborate with various divisions to build the design. Clients, Lighting consultants, contractors, material vendors, architects, and ventilation are among them. At WFO, each party can express their aspirations clearly and spontaneously respond to the opinions of other parties, so that the best decisions can be taken together with more certainty. "If something goes wrong, it can be corrected immediately after being reminded at WFO. In WFH; the workflow is I must finish the task first and assist after." - FE Informant (22)

Team collaboration also acts as a psychological boost for the workers. In a healthy work environment, each individual would feel the team's energy, possibly keeping them motivated. At WFH, where designers work individually, workers are aware that no one is watching over them, hence the absence of enthusiasm and performance

guidance, which possibly reduces their productivity. Yang (2022) strengthens this discussion with his research, where companies that choose to change their work system to 100% online are badly impacted. In this case, it is difficult for workers to collaborate, which hinders the flow of information exchange.

"it's risky at home, where there is no one to supervise us. I was once distracted by another task, so I spent 3 hours on other work assignments" - MH Informant (22)

**3) Individual Focus.**
The productivity of a worker depends on their ability to focus on design processes. Balance is vital in the smooth running and success of employees as human resources (Saleem & Abbasi, 2015). The balance between personal life and career may let workers avoid stress and have good work performance. Scheduling at WFO is relatively rigid where working hours and working space are standardized. In contrast to WFH, which is more flexible and comfortable, increasing productivity. The system allows workers to work according to their respective productive hours. However, communication in the work context is likely to continue outside of working hours at WFH, blending the worker's personal life with his work life. With this, work-life balance will be more difficult to keep.

A quiet workspace is essential to achieve individual focus during exploring ideas. The Gensler Survey (2019) has stated that an office work environment where most of the area is open but provides a lot of on-demand private space, has the highest effectiveness and experience score. Everyone has their way of exploring ideas and has different preferences for spaces that can support them in that regard. Some informants said that they needed to go out to get inspiration from the outside world. Some need their own space, some are not bothered by the atmosphere in the process of looking for ideas so that a crowded place doesn't affect focus.

"If you are prioritizing the work environment, and like to work with friends, working in an office can give ideas, where there can be input from other colleagues." - Informant AG (22)

In an offline work system, to support Individual focus, the office should be able to provide facilities to maximize the performance of the design office, for example, by providing private space for workers who need it while exploring designs. On the other hand, in the online work system, a worker can be freer to arrange his work area based on his preferences so that it can support the productivity of each office worker.

**4) Flexibility.**
According to Klindzic (2019), an organization's performance is higher in offices with employee-driven Flexible Work Arrangements (FWA), where work from home has been positively related to various performance indicators. Supporting this theory, an informant stated that she has benefited from the application of FWA because he tends to be productive at night, outside office hours. The disguised physical cue at WFH allows workers to be more flexible in doing office work, where work schedules are adjustable in their respective homes.

"I feel that the working hours are more flexible, I can work from day to night, and I think, I am more productive working at home." - JL informant (22)

However, not all workers feel the positive impact. At WFO, activities carried out by workers at certain hours can give workers signals, whereas fixed office hours will also affect the daily schedule of workers. This includes time to wake up, time of arrival at the office, lunchtime, and time to go home. The loss of physical cues during WFO has caused a problem for Informant JL. One of the challenges of WFH is when workers have to determine the right time to leave work, where responsibilities are likely to be neglected.

"It's more productive if the timeframe is clearer." - MH Informant (22)

Physical cue in the work environment helps workers in regularity in activities in the office. It's as simple as the signal when workers sit down in the morning to get ready to start working and get out of their chairs to eat at noon. Similar cues indirectly give workers clarity of time through physical signs in carrying out daily responsibilities. However, some informants stated that they were required to be more proactive at WFH, both in completing ongoing tasks and in asking for new ones.

"at home, you can work while eating, you can work in the family room, dining room, you can go anywhere..." - FH informant (22)

It can be concluded that physical cues do not guarantee workers' productivity, but can serve as a time signal for those who carry out WFO.

**5) Productivity**

Allowing workers to set up and organize the work environment at home opens up the possibility of increasing their productivity. Some of the informants admitted that the adjustable working environment provides comfort for interior designers. Productivity will increase if workers feel facilitated while doing work.

"... at the office, the iron backrest isn't comfortable, and the room temperature might be too hot or too cold, but we can't adjust it." - Informant AG (22)

"WFH is more suitable for me, especially during the rendering process where I can rest on my bed." Informant JL (22)

Ideal environmental effectiveness cannot be generalized across all design stages. The stages of design are varied and may require workers to have physical discussions. At WFH, workers are likely to be more physically comfortable because of the adjustable working space. This applies as long as the design stage can still be passed through online communication. Design stages that can be completed individually, such as making mood boards, and others, are still possible to be maximized in the WFH system. These workers can develop ideas at their own pace, in their preferred environment. However, the accessibility of certain facilities

and resources is a concern in WFH, where physical references, such as catalogs and material samples, may not be available to those who need them at certain design stages. Fowell (2022) has stated that the flexibility offered by the hybrid work system allows workers to determine the most optimal location to support the type of work they are going through, thereby increasing productivity.

"In making layout, mood board, 3d, rendering, I prefer to do WFH because I can do those according to my mood. But the material selection process would be easier to do at the office, to look at the material catalog, some people prefer to work from the office so they can be productive, but some are comfortable with WFH, but yes, it depends on the design stage, too." - Informant JL (22).

## RESULT AND DISCUSSION

**Table 1.1 Comparison Table of Offline and Online Work Systems (Source: Personal Fieldnotes, 2022)**

| | Community Socialization | Team Collaboration | Individual Focus | Flexibility | Productivity |
|---|---|---|---|---|---|
| OFFLINE | A. Expressive Communication<br>B. Creating Social Construction<br>C. Effectively synchronizes the thinking and communicating pages | D. Activeness and practicality in collaborating<br>E. Spontaneous communication<br>F. Efficient data flow | G. Clear scheduling system<br>H. Require workers to adjust office hours<br>I. Limited to the facilities/space in the office | J. An evident physical cue helps the workers' time order<br>K. Time and facilities fixated by office provision | L. Workers must adapt to the physical office environment<br>M. Facilitate the discussion of the progress of the design stages<br>N. Availability of specific facilities (materials)<br>O. A more rigid daily schedule according to the office |
| ONLINE | A. Communication is limited to verbal<br>B. Does not create social construction<br>C. Difficulties in synchronizing the thinking page | D. Collaboration has limited to media<br>E. Non- Spontaneous Communication<br>F. Inefficient Flow of data | G. Bias of scheduling and time limit<br>H. Allows workers to work according to their respective productive times<br>I. Can form a focus space according to individual needs/preferences | J. The absence of physical cue increases the possibility of delaying tasks<br>K. Flexibility in time and workplace arrangements, mainly supporting the process of finding ideas that cannot be forced | L. Adjustable working environment<br>M. Limited online communication media<br>N. Incomplete personal facilities<br>O. Personalized schedule based on each worker's productive time |

: Advantages : Disadvantages

With the passage of the pandemic, design offices have been conditioned to implement two different work systems, WFO and WFH. However, it can be concluded that the hybrid work system is the more optimal system option, especially for interior designers. With the implementation of a hybrid system, interior designers can adjust which work system is the most optimal to be applied at certain design stages. Design processes that require color proofing, such as material selection, detailed data discussion, collaborative projects that require regular communication, and the final design process, will require better supervision and thus must be carried out on a WFO basis. WFO allows designers to exchange ideas spontaneously, expressively, accurately, and efficiently. On the other hand, the design stage requires individual concentration and creativity, such as design development, mood board, layout, and 3D rendering, subjectively requiring a more flexible, comfortable environment for their workers to focus on. WFH work system gives the freedom for workers to manage their work environment and working time.

## CONCLUSION

In conclusion to the discussion of the five aspects, considering the needs of each design process, a mix of online and offline work systems is needed to accommodate complex interior design processes and stages. Based on the research ~~done,~~ it is recommended for an office to take on a hybrid working system for further practice, combining all of the advantages of online and offline working systems simultaneously. It will allow workers to work with optimal productivity, as the possibility of flexibility in different design stages as mentioned in research findings. WFO is applied during the team collaboration stage,

compiling material, and assisting design progress, while WFH is applied to stages that need creativity, post-production, brainstorming, mood board, and analyzing client's data. For further research, it is necessary to be aware of different designers' work performance in each work system, understanding in detail which system results in higher productivity at specific design stages. That way, the ideal ratio of the online system compared with the offline will keep on being perfect, based on broad and proven research.

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# Social Housing for Social Design in Indonesia
## (A Case of Dupak Bangunrejo, Surabaya)

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**ABSTRACT**
A social housing addresses informal settlements for low-income households in urban areas. This study aims to analyze social housing related to social design theories in order to determine the products and services. In addition, this study establishes social problems which are trying to be solved by social housing as a social design. Dupak Bangunrejo, a three-story, was selected as the research subject. A qualitative descriptive method was conducted to observe and analyze the social design for products and services. Products are determined as units, public spaces (outdoor and indoor), balconies, communal showers, and kitchens. Services are clean water, electricity, waste management, and security system. Furthermore, this study establishes that social housing was built due to the growth of informal settlements in urban areas and ultimately affects the environment, such as urban sprawl, waste disposal, water and air pollution, and public diseases. In conclusion, Dupak Bangunrejo social housing as a social design product was built to address the social problems and to support occupants' behavior alteration.

Keywords: social housing, social design, social problems, product and services, behavior change.

**INTRODUCTION**
According to statistical data, Surabaya population was 2.87 million in 2020, and the population density was 8,798 people/km2 in an area of 326.81 km2 (BPS Kota Surabaya, 2020). Based on the data, Surabaya's population density is triggered by the high of urbanization from rural area to cities. This causes social problems such as informal settlements in Surabaya. The number of informal settlements causes the impact of social problems that are increasingly widespread (Indahri, 2017; Silas, 2019). Thus, the government is trying to provide settlements to overcome the emergence of new informal settlements in Surabaya. Therefore, since 1985, Surabaya government has built social housing, to meet the housing needs (Silas, 1990).

A study from the Laboratory of Housing and Human Settlement, Institut Teknologi Sepuluh Nopember Surabaya (ITS), explained the purposes of social housing as transitory housing (ITS, 2015). This means that social housing is a place for occupants to proceed of achieving stability, be able to follow the development of a city and keep up with the development of technology.

Furthermore, several studies on social housing talk about space, facilities, and occupant satisfaction living in the unit (Aryani & Jen-Tu, 2020; Kisnarini, 2015; Kisnarini et al., 2012, 2015; Warouw et al., 2010). However, the relationship between social housing as a social design is not discussed related to the social

problems in Surabaya. In fact, social housing was built in order to overcome the problem due to population density, which means it is intended for the needs of many people or one community/social.

The social design has a broad and varied definition that has been defined based on several theories and research (Margolin & Margolin, 2002; Papanek & Fuller, 1972; Whiteley, 1993). In addition, a review based on the journal states that social design is thinking about building a community (Chen et al., 2016).

Hence, a designer thinks about how to build community capacity and how the resulting design can be in accordance with community leadership (Yee & White, 2016). Meanwhile, a research report classifies social design in social entrepreneurship, which must prioritize socially responsible design and design activism (Armstrong et al., 2014)

Moreover, a social design is created in order to influence human behavior. Accordingly, social design in its creation can influence human behavior, both in the form of products and services (Tromp, 2013). Consequently, the definition of the 'can influence human behavior' can be related to a built environment which is social housing.

According to the Collins English Dictionary, a product is something that is produced in large quantities or a result of a manufacturing process and service defines as something that the public needs as 'service' which is facilities and infrastructure that support the products (Hanks, 1979).

This study is conducted based on the above description of social housing and social design theories and evaluates the products and services in a social housing building.

The aims of this study are developed based on research questions as follows:

1. What are the products and services in social housing related to social design?
2. What are the social problems that can be solved by social housing as a social design?

## LITERATURE REVIEW

### 2.1. Social housing in Surabaya

Social housing is an affordable housing and is built to overcome the emergence of slum settlements and meet the housing needs for low-income households in urban areas (ITS, 2015). Therefore, Surabaya has been building many social housings in order to overcome the problem of increased high demands for housing due to population density (Rachmawati et al., 2015).

Furthermore, urbanization and the increasing population have made social housing a major need in Surabaya (Aryani & Jen-Tu, 2020; Kisnarini, 2015). Research on social problems in Surabaya explains some of the problems caused by urbanization. This problem leads to the unavailability of proper housing in Surabaya. Thus, many

informal settlements grow along with the growth of other social problems. Hence, it needs to have a solution in order to provide a livable city for the citizens.

### 2.2. Social Design

It is stated in a book that design is every activity carried out by human beings. Hence, by definition, design is translated into the basis of every human activity (Papanek & Fuller, 1972). It means, every human activity, whether it is done consciously or not, is a design activity. In argue, a Chinese philosopher, Lao Tse in Papanek & Fuller, stated that design is a conscious sacrifice to do meaningful work (Papanek & Fuller, 1972). Hence, whatever humans do in the context of designing is an activity that will consciously produce 'something' with benefits.

It is further explained that a design must be ecologically responsible and socially responsive. This means the design must provide goodness to the environment and eventually, the design must be able to think and have a good impact on environmental sustainability (Pearce, 1980).

Different statements are discussed in the thesis report that the implications of social design activities are 'tools' and a designer is an expert who can solve social problems, develop products or services in serving the community, and be socially aware of taking responsibility for the possible social consequences of a design (Tromp, 2013). Thus, it can be further concluded that social design focuses on developing products and services to address social problems (Tromp & Hekkert, 2018). Hence, it is necessary to explain in cases, what social problems have been able to be solved by social design.

### 2.3. Products and Services of Housing Design

In a review of the relationship between housing design and social theory, a social activist states several important things that form the basis for the design of social housing. Based on the review, the designers should concern and focus on the social structure desire and how to use design to get it.

There is the need for people, design for social fabric (creating a sense of togetherness among occupants), design for social structure, and paying attention to the physical design of the building floor, lobbies, concierge, site design, playground, the needs of the mother, children, and teenagers (Wood, 1961). In addition, the reviews emphasize the basic needs that are the main needs of every occupant in social housing. Thus, it can be concluded that products are the physical result of housing design, while services are services that are provided together with the building.

### 2.4. Social design to solve social problems and support behavior change

Reviews of housing design are described by stating that housing design must take into account the needs of the community, or in this case the users (Wood, 1961). The report of the thesis describes that design is social; this is because a product in the design must have a social impact on users and everyday life (Vial, 2014). However, social design has various meanings and it does not discuss specifically

on certain scientific bases. This is because the design has a very broad discussion. Therefore, it is necessary to give boundaries to focus more on the results of the discussion in order to find out what problems can be solved in social design.

It was further explained in order to meet the needs of the community, the social design considers products and services. These products and services are intended to help the community behave better which benefits the community itself (Tromp, 2013). Therefore, referring to the results of a design that must provide goodness and benefits for the user, a designer must think responsibly towards other living creatures or the environment (Antonelli, 2013).

## METHODOLOGY

This study uses a qualitative method which presents the social world, in terms of concepts, problems and behavior regarding the human being studied (Moleong, 2007). Furthermore, it focuses on the social changes of occupants after living in social housing buildings.

### 3.1. Research Subject

One building in a complex of Dupak Bangunrejo social housing, a three-story, was selected as a research subject. The first floor has nine units with a private shower in each unit and a communal kitchen. On the second and third floors, there are eight units facilitated by a balcony, communal shower and kitchen.

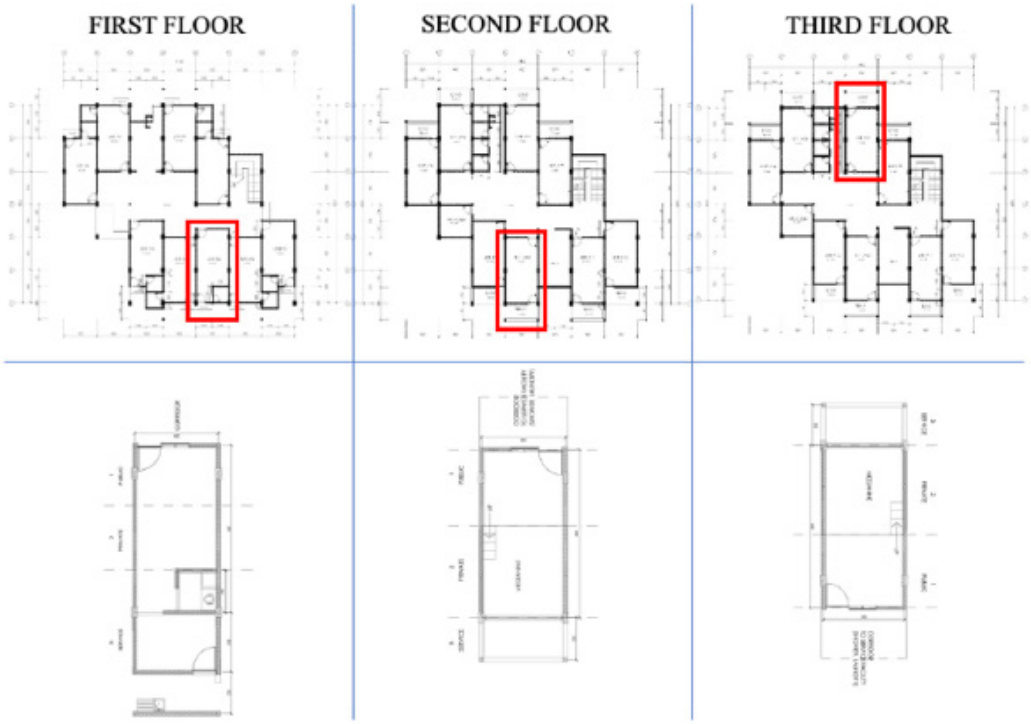


**Image 1 Layout Plans and Units on First, Second, and Third Floor (Source: Aryani, 2022)**

### 3.2. Data Collection and Analysis Method

All data were obtained from local government's documentations and literatures. The analysis was conducted based on field observation and interview.

**Table 1 Research Question, Research Subject, Method, Result. (Source: Aryani, 2022)**

| Research Question | Research Subject | Method | Result |
|---|---|---|---|
| Products and services at social housing (Q1) | Block B, three floors of social housing. | Documentation, observation | Units, public space (outdoor-indoor), balcony, communal shower-kitchen, clean water, electricity, waste management, security system. |
| Social problems to be solved (Q2) | Units, public space (outdoor-indoor), balcony, communal shower-kitchen, clean water, electricity, waste management, security system. | Documentation, observation, informal interview | Informal settlements (urban sprawl, over population, waste disposal, water pollution, air pollution, public diseases). |

## RESULT & DISCUSSION

### 4.1. Products and services at social housing

A. Based on the understanding of the product, 'something that can be measured physically', are:

a. first, the unit as a place for occupants to live and carry out their daily activities. The unit is the main part of the social housing building.
b. second, public spaces, corridor (indoor) and public aisle (outdoor) within the building.
c. third, the balconies. Each unit on the second and third floors has a balcony that occupants can use to interact directly with the outdoor.
d. fourth, a communal area for shower and kitchen to hold services activities such as shower, laundry, cooking, etc.

B. Service is the system that support the products, as follows:
a. clean water, electricity, waste management, and security system.

Furthermore, regarding products and services in housing design, in-depth research needs to be carried out to find the feasible process between products and services. Another study should be held on how products and services are made to be able to change human behavior.

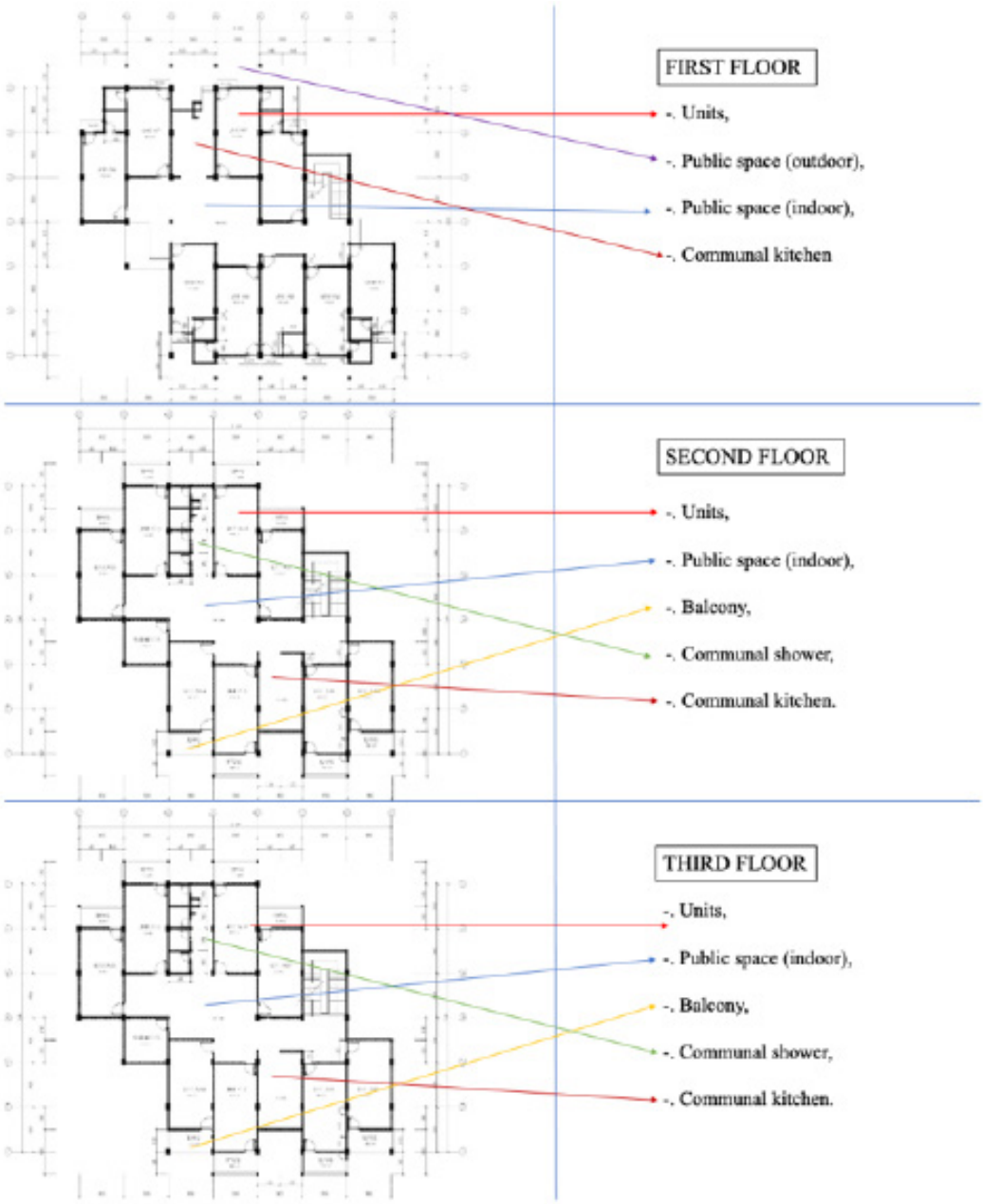


**Image 2 Products in Social Housing on First, Second, and Third Floor. (Source: Aryani, 2022)**

**Table 2 Social Design, Products, Services. (Source: Aryani, 2022)**

| Social Design | Products | Services |
|---|---|---|
| First floor | Units<br>Public spaces (outdoor)<br>Public spaces (indoor)<br>Communal kitchen | Clean water<br>Electricity<br>Waste management<br>Security system |
| Second floor | Units<br>Public spaces (indoor)<br>Balcony<br>Communal shower<br>Communal kitchen | Clean water<br>Electricity<br>Waste management<br>Security system<br>- |
| Third floor | Units<br>Public spaces (indoor)<br>Balcony<br>Communal shower<br>Communal kitchen | Clean water<br>Electricity<br>Waste management<br>Security system<br>- |

### 4.2. Social housing and social design are for social problems

Previously, occupants lived in impermanent and irregular housing that was informal settlements. The houses were made of non-permanent (semi-permanent) materials. In addition, there was no adequate facilities and infrastructure to support the daily activities.

Social housing gives a more suitable place to live in the form of units, which are built with permanent materials. Moreover, the residence has certain facilities, such as clean water, electricity, a sewage system, and also environmental security. Hence, social housing requires changes in occupants' habits in their behavior.

Social design has a huge definition in general based on studies and research. Some the researchers determine the meaning to be more 'social' within the design. Therefore, further research can be done in order to investigate the relationship between social design and the environment, especially to support environmental sustainability.

**Table 3 Initial Design, Social Design, Floor, Behavior Change.**
**(Source: Aryani, 2022)**

| Initial Design | | Social Design | | Floor | Behavior Change |
|---|---|---|---|---|---|
| Products | Huts, landed | Products | Units, three story | First, Second, Third | √ |
| | Small alley | | Public spaces (outdoor) | First | √ |
| | Small alley | | Public spaces (indoor) | Second, Third | √ |
| | None | | Balcony | Second, Third | √ |
| | Bath in the river | | Communal shower | Second, Third | √ |
| | Cook in alley | | Communal kitchen | First, Second, Third | √ |
| Services | None | Services | Clean water | All Floors, outdoor | √ |
| | None | | Electricity | All Floors, outdoor | √ |
| | None | | Waste management | All Floors, outdoor | √ |
| | None | | Security system | All Floors, outdoor | √ |

## CONCLUSION

This study determines products as the outcome of design that can be enjoyed physically and can be measured, namely units, public spaces (outdoor and indoor), balconies, and communal showers and kitchens. Meanwhile, services include clean water, electricity, waste management, and security facilities.

In addition, this study establishes that social housing overcomes social problems such as the growth of informal settlements in urban areas and ultimately affects the environment, such as urban sprawl, waste disposal, water and air pollution, and public diseases.

In conclusion, social housing is a social design that is built to overcome social problems occur and support behavior change.

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# Aging is just Another Word of Living
## Redesign for Overt and Covert Behavior at Pojok Indah Elderly Home

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**ABSTRACT**
Old age comes with declining health, limitations in daily activities, and feelings of loneliness and depression. Presumptions of “aging in place”; the understanding that they can live in homes not primarily built as architectural designs for the elderly sometimes worsen their physical and psychological health conditions. The relationship between elderly needs and their living space is closely related to conducting a behavioral architecture. This study aims to redesign elderly homes existing through a behavioral architecture approach, analysis of overt-covert behavior, and elderly-friendly design visualization. Aging is another word of living, which is presented in this design to realize an elderly-friendly home where the elderly have physical and psychological health and good quality of life.

**Keywords:** Behavioral Architecture, Elderly-friendly Design, physical and psychological health

**INTRODUCTION**
Entering old age, the elderly need support in various aspects of life, including social and economic factors. The elderly have a variety of psychological experience (Heine and Browning, 2004) and physical, including problems with physical activity, navigation, and spatial orientation (Haanes et al., 2014); deterioration in conditions and abilities that are influenced by age factors decrease makes the ability of the elderly tend to depend on the others to carry out their daily activities. Therefore, social and economic support from families, communities, and the government is needed to improve the welfare and quality of life of the elderly. Presumptions of “aging in place”; the understanding that they can live in homes not primarily built as architectural designs for the elderly sometimes worsen their physical and mental health conditions. Moreover, the elderly have significant behavior that affects their physical and psychological responses.

Current design practices do not fully support the potential of elderly home for building up physical and psychological for their social interaction, inclusion, and care. Aging is just Another Word of Living, in which the quality of life of the elderly residents will be considered and supported by social interaction, inclusion, and care design. This

study aims to redesign elderly home existing through a behavioral architecture approach, analysis of overt-covert behavior, and try to visualization for new elderly home becomes a place to live with special attention, that has two crucial aspects that are very close to the feeling of security and comfort of an older person, namely an elderly-friendly designs.

## LITERATURE REVIEW

### Behavioral Architecture Approach

The relationship between elderly needs and their living space is closely related to conducting a behavioral architecture. Furthermore, the behavior itself refers to any action an organism uses to adjust to the environment, and there are two types mainly factors to knowing about behavioral architecture: overt and covert behavior.

**Table 1 Overt and Covert Behavior. (Source: Shrestha, 2017)**

| | Overt Behavior | Covert Behavior |
|---|---|---|
| Meaning | It can be defined as observable behavior or responses, whether that performance is visible and audible. | It can be defined as unobservable behavior which leads to specific actions or performance that is mental, invisible, cognitive, etc. |
| Behavioral Activities | Behaviors such as speaking, walking, running, working, etc. | Behaviors such as thinking, dreaming, reasoning, etc. |
| Cause and Effect | Observable behaviors are caused by the unobservable mental process that takes place in the brain. | Unobservable behaviors are mental processes that create a response. |
| Example | When a man is walking, it can be observed. | when we try to understand the purpose of walking. |

In particular, the overt and covert behavior influenced by the environment presented on the presentation side, which communicates the visible aspects and the representational side to communicate with facility users to understand. As for the meaning of responsive, acting for leading to action, such as affective feelings, when it was first visited, evaluative, which communicates a level of preference, and prescriptive, which directs the user to act (Atthawuttikul, 2016). That architecture is a behavioral subsystem that involves presentational values, such as façade, color, shape, etc. In its course a subsystem is responded to by the user through needs, wants, and demands of course with a specific time vulnerability obtained by in-depth study, resulting in a response that has an impact on the architecture itself, for example, the user's color preferences to be applied, building materials that must be replaced, etc. By exploring similar building**,** we can learn about how behavioral subsystem works or not and moreover, we can explore through the behavioral schemata.

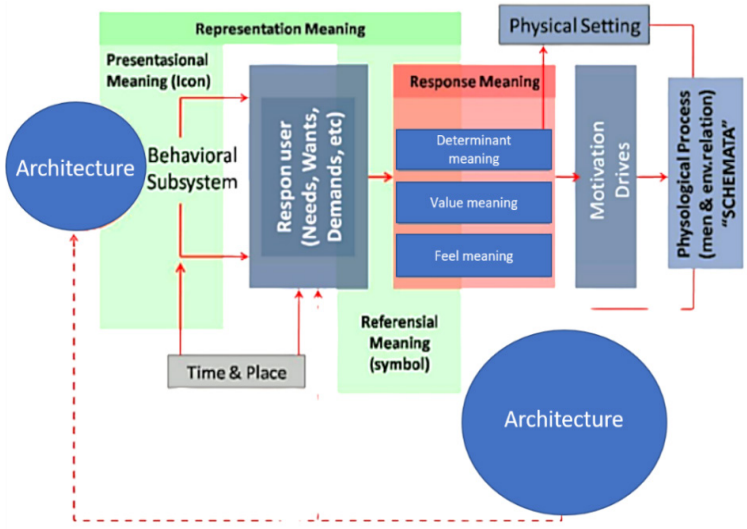



**Image 1 Schemata of the behavioral subsystem. (Source: Author, 2022)**

## Elderly-friendly

Old age comes with declining health, limitations in daily activities, and feelings of loneliness and depression. Psychologically, it is the average family background and economic conditions that differentiate the case personally. We found that the absence of a partner, presence, and role of children became unmet emotional needs. More frequent interactions with close and like-minded people make it possible to suppress unmet emotional needs (Savu, 2016). Elderly-friendly design means a design that is modified and designed to be comfortable and suitable to be applied to an elderly (Pandelaki, 2014). There are several aspects of design criteria to be called an elderly-friendly design, including apply some details such as anti-slip floor materials, railings and grab bars, accessible storage, adjustable and rounded furniture, sliding doors, and contrast color between furniture, and other surfaces. Including quantity and distribution of daylight and comparing additional artificial lighting from ceilings (horizontal lighting) and walls (vertical lighting), found that vertical lighting was more advantageous in terms of uniformity and energy efficiency for creating a safely lighting for elderly visual comfort (Yaodong, 2021).

## METHODOLOGY

The applied research method used is primarily the stage of exploration that gives an evaluation of the elderly home existing, analysis, and visualization as design solutions (Ariyanto, 2019) through behavioral architecture. These methods used at each stage are reviewed by overt and covert behavior needed as a control value.

## Evaluation

The data collection process is carried out by coming to the site location directly to meet the existing conditions, end-user, and ambiance in the area. Bag (2012) described that the walkway method seems to be the most fundamental aspect of the architectural space, not only to investigate the movement in the building but also to explore, discover, and generally learn about architectural settings; that is the point of view of the spatial programming.

### Analysis

Armed with a literature review and based on the distinction between overt and covert behavior, an intense discussion was carried out, connecting physical data with overt behavior and psychological needs with covert behavior. We are mapping the problem of the product forms and visual elements in the field. This stage is carried out by studying more deeply the character and potential of the study object as parameters.

### Visualization

Proposed ideas and realize them into the form of a design so that they can represent the results of the analysis that has been carried out.

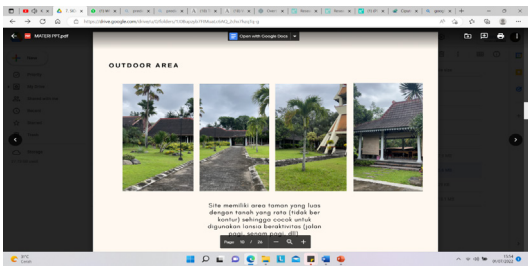
## RESULT & DISCUSSION

Aging is another word for living, inspires a discussion of the psychological and physical needs of the elderly by considering the assessment in the behavior architecture (overt and covert behavior). This assessment is translated into a retreat design project that will be converted into an elderly home in an area that has the highest level of care for the elderly.

### Evaluation

An observations process began to review existing buildings of elderly homes as overt behavior representation through the end-user physical response. Likewise, covert behavior is carried out by direct interviews with end-users as a form of psychological overflow that they feel and its impact. Then the determination of the area that becomes the context to be evaluated will be adjusted to the urgency of fulfilling the elderly psychological and physical, among which the highlights are the public space, private space, and the garden area as a support for the living environment (Saenko, 2022).

**Table 2 Site Existing overt and Covert Behavior. (Source: Author, 2022)**

| | Overt Behavior (Observation) | Covert Behavior (Interview) |
|---|---|---|
|  Landscape | It looks pretty secure for the elderly to walk, because the contours of the land are relatively flat. | It has no specific purpose, and doesn't have the influence to support mental satisfaction, especially for healing. |

| | | |
|---|---|---|
|   Public Facilities (Dining Room) | The furniture setting and selection do not pay attention to the end-user. | unfriendly for the elderly, uncomfortable, narrowly distance, and harmful furniture. |
| Private Room   | Rooms are wide but have poor indoor air quality, dimly lit, and uncomforted for circulation. | feels insecure, dimly lit, and does not bring tranquility. |

**Analysis**

From those observations (overt behavior) and interviews (covert behavior), the elderly tend to be uncomfortable with the physical conditions and atmosphere of elderly homes existing. The following analysis is to compare it with the physical and psychological needs of the elderly according to the literature (elderly-friendly).

**Table 3 Analyzing Elderly Home Through Overt and Covert Behavior. (Source: Author, 2022)**

| | Overt Behavior (Observation) | Covert Behavior (Interview) |
|---|---|---|
| Landscape | • anti-slip floor materials,<br>• railings & grab bars for pathway,<br>• contrast color for pathway surfaces | • Adding pines tree around the site<br>• Reflexology walk stone<br>• fountain<br>• eucalyptus beside pathway (aromatic treatment) |
| Public Facilities (Dining Room) | • anti-slip floor materials,<br>• railings & grab bars for pathway,<br>• contrast color surfaces,<br>• adjustable & rounded furniture,<br>• sliding doors | • warm and calm color ambiance, but have one side for accent<br>• simple ornament ceiling, furniture's etc. |
| Private Room | • anti-slip floor materials,<br>• railings & grab bars for pathway,<br>• contrast color surfaces,<br>• adjustable & rounded furniture,<br>• sliding doors | • calm color ambiance<br>• need natural ambiance<br>• simple ornament ceiling, furniture's.<br>• no direct lamp for minimizing glare |

**Visualization**

In the elaboration of proposed ideas in the evaluation and analysis stages, a design proposal is obtained as a three-dimensional image representing overt and covert behavior in the three selected areas.

**Image 2 Landscape Design. (Source: Author, 2022)**

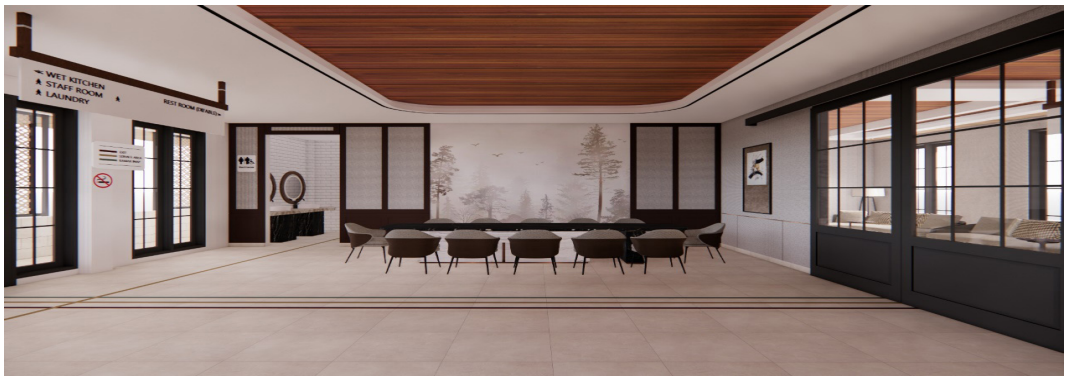



**Image 3 Public Facility (Dining Room) Design. (Source: Author, 2022)**

**Image 4 Private Room (Bedroom) Design. (Source: Author, 2022)**

## CONCLUSION

Aging is another word of living, presented in this design to realize an elderly-friendly home where the elderly feel safe and comfortable and have a good Quality of Life. The behavioral architecture approach has evaluated overt and covert behavior for the elderly activities and answered problems from highlights are the shared space (social interaction), private space (privacy), and the garden area (landscape) as living environment support. From the evaluation stage, data were collected through observation to respond to overt behavior and interviews to respond to covert behavior. It is elaborated by considering the elderly physical and psychological needs, including the elderly-friendly, so that detailed needs are obtained for each discussion area. In the final stage, a three-dimensional display can represent the needs of the elderly in the field with behavioral architecture as an approach.

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# Visual Identity and Package Redesign for Duomeco
## An Eco-Fashion Brand from Central Java, Indonesia

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**ABSTRACT**
Considering the importance of identity and package design for the success of a brand, it is highly necessary for a brand to put careful thought into them. These days, people's trust and loyalty to a product or service rely on the brand's consistency both in the quality of its product/service, and the way the brand presents themselves. One way to achieve it is through visual identity, something that can be seen or the look of a brand. Duomeco is an eco-fashion brand from Indonesia that sells clothing items and accessories inspired by nature. For several years, Duomeco did not have a consistent visual identity and packaging design, thus it needs to be redone so it is in line with the goal of the brand and increases brand awareness. At the end of this project, this has been achieved and approved by Duomeco's owner, and the results are produced with the help of some funding from the BEDA'KAN program.

Keywords: visual identity, package design, eco-fashion brand

**INTRODUCTION**
According to Indonesia's Ministry of Cooperatives and Small and Medium Enterprises (2019), 99.9% of businesses in the country are categorized as UMKM (Usaha Mikro, Kecil, dan Menengah, which means micro, small, and medium enterprises), comprising 65.47 million business units, while there are only 5,637 units of large-scale industries (KemenkopUKM, 2019). The Government of Indonesia (GoI) considers UMKM as the backbone of the country's economy with large potential of growth, and made various programs and policies to boost it, such as economic recovery program in the form of credit interest subsidies, credit restructuring, working capital loan guarantee, and tax incentives (Sasongko, 2020).

In relation to it, The Indonesian Ministry of Tourism and Creative Economy has held various forms of support for UMKM in the tourism and creative economy sectors. One of them is BEDA'KAN (*Bedah Desain Kemasan*) which approximately translates to 'package design review'. This program was first conducted in 2020 in collaboration with ADGI (*Asosiasi Desain Grafis Indonesia*) to provide better package design

solutions for UMKM in the culinary subsector. But later on, it also includes the fashion and craft subsectors. Package design is deemed very important in adding value to the product and increasing their competitiveness in both the local and global market. The project discussed in this paper is done within the BEDA'KAN 2022 batch 9: Borobudur, in collaboration with ASPRODI DKV (*Asosiasi Program Studi Desain Komunikasi Visual Indonesia*). Teams of visual communication design lecturers and students from various universities participate to improve the design the package (and sometimes the logo as well) for 25 brands that got selected by the committee. The resulting design will then be produced using the allocated fund.

This project's scope includes the logo and package redesign for an eco-fashion brand named Duomeco. The logo redesign was necessary because during the first discussion, it was decided that the brand needed a name change: from Alfarizq (that were very common in Indonesia, hence lacking differentiation and recognition), to Duomeco. The brand was established in 2020, when the owner—Ibu Reni Irawati—lost her job and saw a business opportunity through the environmental problem that happened in her area, particularly one caused by synthetic dyes. She then started this fashion brand that aims to produce sustainable garment that is eco-friendly, by only using natural fibers cloths, natural coloring and waste management that minimizes negative impact on the environment.

## LITERATURE REVIEW

### Brand Identity Design

The visual identity of one enterprise needs to be ideal and proper as it plays an important role to generate brand identity that delivers the right message to its customers (Levanier, 2020). According to Levanier, visual identity consists of graphic information that represents the entity of a company and differs it from others. This visual identity can be seen directly by the audience and will help build their perception towards the company. Hence, the visual identity needs to be strong, so it is easily remembered and leave a good impression (Levanier, 2020).

The visual identity needs to be easily remembered as the audience's strong memory of the brand will make the brand more recognizable and widely known. This will have an impact on increasing awareness of the existence of the company, which will lead to a better corporate image with a consistent visual identity (Harker, 2021). In addition to forming a brand identity, visual identity plays a role in formulating corporate strategy. Visual identity can help build the emotional level of customers and is persuasive, so it can be a powerful means of communication (Levanier, 2020).

### Packaging Design

Packaging design is an essential element of product branding; it is the process of designing a container that protects and presents both the product and its brand attractively to its target market through the use of text, images, and other communication devices so that it can position the product within the consumer's mind and ultimately differentiate it from its competitors (Ambrose & Harris, 2011).

## METHODOLOGY

This project used the theory based on Robin Landa from her book, "Graphic Design Solution" which divides the design process into five stages (Landa, 2011) as follows.

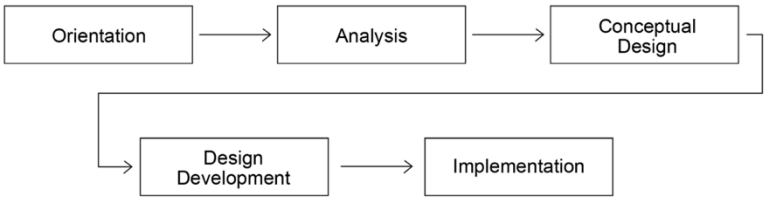


**Image 1 Five Stages of the Design Process. (Source: Landa, 2011)**

The process began with Orientation stage, which is done by collecting some materials related to the object of the design (Landa, 2011). In this project, the materials in the form of brand and product information were obtained through an interview with the owner of the brand Duomeco, Mrs. Reni. This information will be used in the next stage, the Analysis or Strategy stage to analyze the information by making a design brief in the form of conclusions (Landa, 2011). Duomeco's brand and product information were then concluded in a design brief that will guide the design concepting process.

The next stage is Conceptual Design, in which the designer begins to make visual concepts based on the main points that have been derived from the design brief (Landa, 2011). The brief that had been made previously was used to produce the idea and solution for the Duomeco's concept branding. Brainstorming by making mood board and sketches were done in this stage to develop the branding idea. Some design alternatives were produced, then one was selected by Duomeco's owner to proceed to the next stage. The fourth stage of this design process is Design Development, where the design concept is further developed and finalized visually (Landa, 2011). The design alternative that had been selected was later developed more comprehensively and produced the brand guideline. The last stage is the Implementation stage, where the design has been done completely and implemented into various design media (Landa, 2011). After the brand guideline has been finalized previously, the design will be applied in other media, such as packaging design.

## RESULT & DISCUSSION

Duomeco's visual identity design began with establishing branding concept based on the brief about the brand and the product information. This brief will be the reference and directed to the most suitable visual concept that corresponds to the image that the brand wants to show or communicate. Duomeco is all about simplicity, natural, but still has the elegant feel that shows Duomeco as a fashion brand. These three approaches are the image that Duomeco wants to build according to the core of the brand and its product. This concept was later poured into a mood board, which includes visual references.


**Image 2 Duomeco Concept Moodboard. (Source: Yosephin, 2022)**

This mood board will later be a guide and reference visually and ideally in designing the brand identity for Duomeco. From this mood board, the designer starts to design the logo and the graphic element which is part of the brand identity and must be consistent. The tone and manner for this logo is elegant, which reflects the classiness with addition of delicacy that shows the modern simplicity. The typography used for the logo is a serif typeface, the classy but sleek letters were written in Playfair Display typeface. The letters were modified with Duomeco's personal touch of naturality with earthy tones color. The graphic element was inspired from the pattern of Duomeco's product, which is dyed leaf fabrics so it's more personalized and has the Duomeco's strong signature.


**Image 3 Duomeco Finalized Logo Design. (Source: Yosephin, 2022)**

**Image 4 Duomeco Graphic Element. (Source: Yosephin, 2022)**

After the visual identity or the brand guideline for Duomeco was established, the designer moved on to apply this identity to design media, which is packaging for Duomeco's products. There were requests made upon by the owner that the packaging needs to be made with brown or craft paper material, printed in limited colored ink, which is the color white. Those requests were made with the hope that there would be less waste and support the eco-friendly movement. The packaging design used graphic elements with explorative layouts for the alternatives. The owner later chose the middle alternative as the main packaging.


**Image 5 Duomeco Main Packaging Alternatives. (Source: Yosephin, 2022)**

In addition to the main packaging, there are hang tag and paper bag which were designed in the same tone and manner as the main packaging. These packaging designs use minimalistic and natural approaches, but the modest yet elegant look and feel is still apparent, keeping in mind that the products in more in the upper level according to their quality and prices. The packaging design also came with the business and thank you card as a sign of gratitude from the owner. Duomeco has this creative approach in encouraging customers by indicating the advantages for the customer. When the customer bought the product, it means that the customer itself had helped maintain the environment and support the eco-friendly movement.


**Image 6 Duomeco Hang Tag and Paper bag Design. (Source: Yosephin, 2022)**


**Image 7 Duomeco Cards Designs. (Source: Yosephin, 2022)**

Here are the comparisons between the old and the newest Duomeco brand identity and packaging design. The old Duomeco logo did not show a more fashionable look and feel, and the packaging also did not show the natural and did not have the main characteristics or the signature of Duomeco's identity. With this redesign of Duomeco's brand identity, it is more able to highlight the modest side but still fashionable and classy with all the simplicity that Duomeco offers.


**Image 8 Duomeco Before and After Visual Identity and Packaging Design.**
**(Source: Yosephin, 2022)**

## CONCLUSION

Visual identity has a big impact on how a brand really wants to communicate with its target audience. If the visual identity fails in communicating the image that the brand wants to convey, the target audience can't understand, and the brand fails to form a strong image in the eyes of the audience and may lose brand loyalty from its customer. Packaging design is one of the applications of visual identity which is no less important than the visual identity itself. This is because the packaging design participates in reflecting the brand image and becomes a part that can be directly felt by the customer. Without a packaging design with strong visual identity, there can be a reduction of the customers' sense of trust and loyalty.

The objective of this project is to build a strong image of Duomeco as an environmentally friendly brand, but still be able to compete in the fashion world. Duomeco initially did not yet have a right name that represents the brand's vision and mission strongly and the visual branding was still quite weak, so it became a problem where the visual identity did not touch the customer personally. Designing identity that represents the brand strongly, and also raising the awareness of environmental issues, will be the specialty of Duomeco. It is hoped that it can increase mutual awareness of the environment through clothing items that are sustainable, but also fashionable and classy.

The objective of this study is said to be successful. By paying attention to the overall concern of Duomeco and observing its products and the target, it can be very helpful in designing a visual identity that's appropriate and corresponds to what the brand wants to project and show. The suggestion from this project that can be considered in the future is to first know the background of the brand, how the brand runs its business according to its vision and mission and what the products and target audience are. Without knowing these, the visual identity design is not able to obtain and build a strong brand image.

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# Multilayer Product Value Model as Design Intervention Approach Strategy: Innovation Concept Development Analysis of Bamboo Soundproof Cubicle

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## ABSTRACT

Today's society lives with limited space. Generally, people have houses with a small building area (limited space), high productivity, and multifunctional space. Through this limited space, the development of a product requires innovations for saving space that can be accepted by people from various circles and function properly. That can be produced at the small-industry level. Products that are needed by the community, especially new products that will continue to be needed due to the COVID-19 pandemic. This study analyzes the design concept of a portable soundproofing panel product produced with the Society 5.0 industrial concept approach that is sustainable for small industries (SDGs). Essential aspects of the design need to be adapted to market need in the online era and affordable for the general public, like portable soundproofing panel products for people working on online activities that save space. They have adapted to the production skills of the artisans, including the availability of tools and talent from selected materials. The research method uses descriptive analytics by examining design strategies that small industries in the furniture sector can apply. The implementation of collaboration must pay attention to the best potential of the collaborators. The results of this research are in the form of design strategies through design principles that can be applied to small industries with a layered design (MPV Model) as a design intervention approach. This MPV model relives the crafter skills in line with the design principles to develop a product diffusion concept.

Keywords: Society 5.0, Soundproof Portable Panel, Small Industry, Design Intervention, Innovation.

## INTRODUCTION

Society 5.0 is referred to as the Super Smart Society (Ferreira & Serpa, 2018; Harayama, 2017); this community has diverse needs that must be met and has high quality due to technological innovation at every level of society (Harayama, 2017). Modern society in recent years has many product needs, but on the other hand, they have limitations. These limitations include limited physical space, high productivity, and varied and fast-paced activities. In the last two years, the Covid-19 pandemic, which did all work online at home, increased technological innovations, especially those related to online needs. However, on the other hand, the problem of these limitations is increasingly visible in the scope of residences and offices. The Education, Industry and Business sectors working online using online platforms can present voice problems in a limited space. In this case, portable soundproofing panel products are essential for people working online, so productivity does not decrease through concentration on online activities. At this time, a product design does not only pursue the provision of design needs but also needs to consider the impacts arising from the process of realizing the product design. Generally, small industries do not have many machines and do not use advanced technologies (Bharadwaj et al., 2018).

However, small industries have a higher level of sustainability than large industries. "Building global innovation ecosystems by connecting industries, academic institutions and other related stakeholders" (Zengin, Yunus et al., 2021, p.4). The MPV model built the connection between small industries and academic institutions/designers as a design intervention approach. This strategy is for developing a sustainable product diffusion concept from the preliminary design. Therefore, this study chose to collaborate with small bamboo handicraft industries (Sendari, Yogyakarta) in testing design strategies to realize collaboration between academics/designers and the industry in developing the product diffusion concept that supports SDGs in Society 5.0 (SDG 12-Responsible Consumption and Production).

## LITERATURE REVIEW

### Product Innovation in Small Industries

A small industry is an industry that has the entire production process on a small scale. The production process includes manufacturing to servicing (Small Scale Industries: Definition, Characteristics, Objectives, Examples, n.d.). Small industries have an essential role in this modern economy regarding flexibility and innovation ability, even though they have limited resources (Venugopal, 2015). Flexibility here can be seen in the products that are easy to adapt to the specific needs of consumers (Ellitan, 2018). Problems and limitations in small industries related to product design (Bharadwaj et al., 2018; Ellitan, 2018) include: (1.) Limited ability of workers, (2.) The resulting products have characters and crafts that do not last long, (3.) Does not have a fixed production price due to rising material prices and availability, (4.) Lack of Quality Control, and (5.) Machine malfunction. Although there are limitations, small industries have the opportunity to advance their business. Small industries are considered capable of innovating related to the modern lifestyle needed by buyers for the convenience of their lives.

## Product Design for Industrial Sector

In creating a product that can be produced in the industrial sector, the designer requires several stages of activities to be carried out. The stages of the product development process include the recognition stage, product mock-ups, product prototypes, promising product prototypes, optimum product prototypes, final product prototypes, product specifications, marketing strategy, and financial analysis (Product Design and Process Development, n.d.). Design Methods used in product design can be seen in the following diagram.

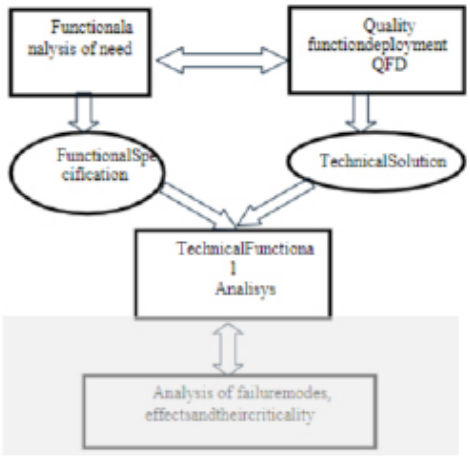


**Image 1. Design Methods (Source: Ghimisi)**

## *Bamboo* as a Natural Material

*Bamboo* is a natural, recyclable, and renewable resource. Not only in India, but *bamboo* is also widely used in Nigeria because of its abundant availability, affordability, strength, flexibility, and environmental friendliness (Muizz O. Sanni-Anibire et al., 2022). “Bamboo seems to be a good solution, because it can grow in areas which are non-productive at this moment (e.g. eroded slopes), it is a fast growing material (it has a high yield), and its root structure stays intact after harvesting, generating new shoots” (Vogtländer et al., 2010, p.1263 ). However, the design with bamboo needs to be designed properly so that the distribution system for long distances does not eliminate its sustainability in supporting the SDGs system (SDG 12).

## MPV Model as Design Intervention Approach

The intended use of the Design Intervention is “to generate innovative products in a structured way with a team of designers, focussing on maximum customer perceived value. The method has four levels: project strategic level, concept development level, design implementation level and product diffusion level.” (Ana Mestre & Joost Vogtlander, 2013, p.101). The MPV Model are used to develop product diffusion concept analysis. Image 2 describes the plot of the design intervention approach.

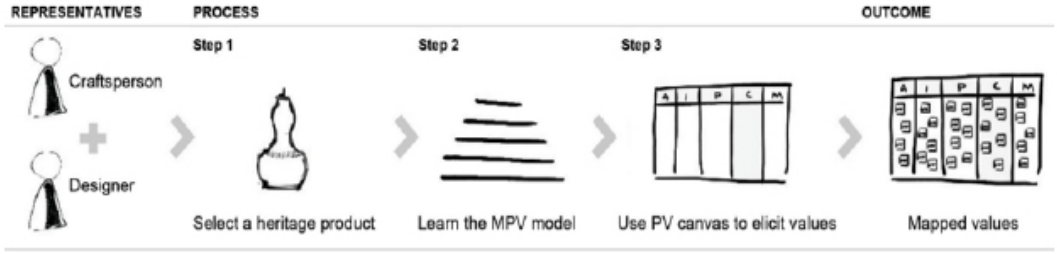


**Image 2. Operationalization of Design Intervention (Source: Suib, Engelen, & Crul, 2020)**

The design intervention approach was chosen because it is appropriate for collaborating craftspeople with designers (academics). The process begins with selecting a heritage product, namely *bamboo*, which is then developed with an MPV model to obtain an outcome map.

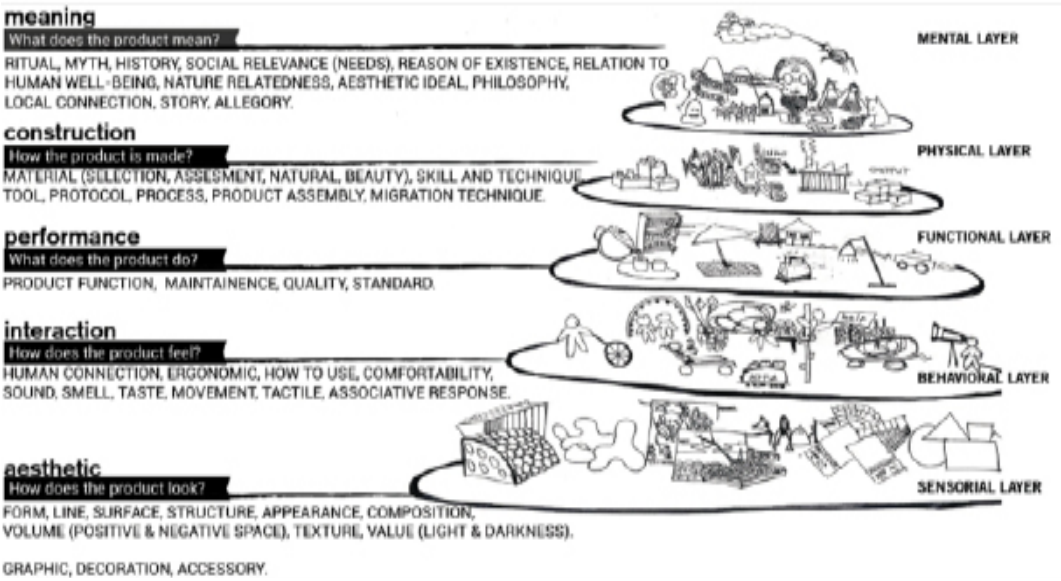


**Image 3. The Multilayer Product Value Model (Source: Suib, Engelen, & Crul, 2020)**

This MPV model considers five elements divided into two-focus: small industries and academics/designers. These elements help the designers/academics get the product diffusion concept based on the design needs and the *bamboo* small industries' production skills. The soundproof portable concept comes from a physical layer that is supported by several elements, not only derived from academics/designers: including aesthetics, interaction, and performance, but also from small industries: construction and meaning.

## METHODOLOGY

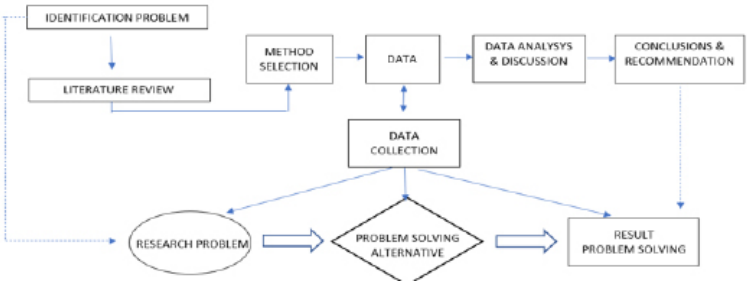


**Image 4. Research Flow Chart (Source: Author, 2022)**

The research was carried out using a descriptive analysis method oriented to problem-solving, focusing on developing a sustainable product diffusion concept from the preliminary design so that small industries can produce it. It begins with identifying problems related to the needs during the pandemic that is found in society and then proceeds with a literature study to gather theoretical foundations, after which the method in data processing is selected. The data is collected based on the research problem guarantee from problem identification, and then several alternative problem-solving are formulated to produce problem-solving. The data is processed and analyzed with an intervention design approach and MPV model to obtain conclusions for the final design.

## RESULT & DISCUSSION

The findings in this study are the challenges in realizing Bamboo Soundproof Construction. Technical Functional Analysis in Bamboo Soundproof Construction Space Saving includes local crafts from bamboo artisans in Sendari, Yogyakarta. They are usually making bamboo furniture and construction in big sizes. A soundproof Bamboo cubicle is a kind of furniture that they can make. The preliminary design is figured in image 5.

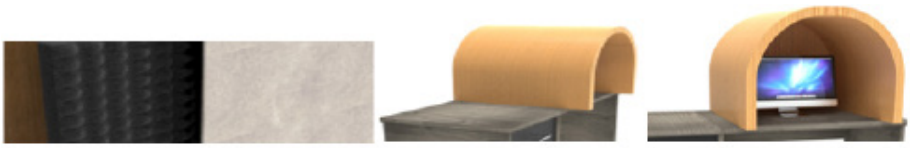

**Image 5. Design Concept of Soundproof Portable (Author, 2021)**

The curved shape will be realized even though there is almost no bamboo material that bamboo furniture artisans in Sendari usually process. The challenge for crafters (small-scale industries) is the limited tools to process Materials and a mindset that is already fixed on the skills that are usually done. In the process of the MPV model done by Suib, Engelen, and Crul (2020) collaborated with artisans on the live session, but in this research, there is no live session. This study uses the MPV Layer (product value canvas) by including the consideration of the small industries' potential skills in the design process (outcome).

**Table 1. Product Values based on MPV Layers (Author, 2022)**

| **A**esthetic | **I**nteraction | **P**erformance | **C**onstruction | **M**eaning |
|---|---|---|---|---|
| Academics/Designers | | | Small Industries | |
| *style-composition & physical aspect* | *user interaction* | *product features* | *design aspect, material, & production process* | *local practice* |
| Natural<br>Curved Shape | Folded<br>Portable | Space Saving<br>Soundproof | Bamboo *bilah*<br>Bamboo *iratan*<br>Knockdown | Craft Technique<br>Hands Tools |

MPV model as a design intervention approach contributes to decision-making for the final design (image 6).

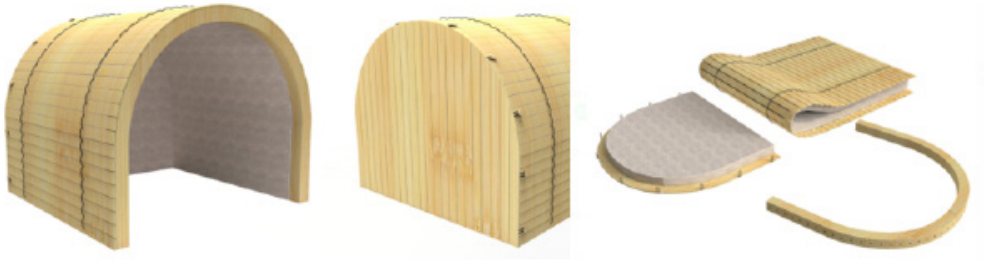

**Image 6. Final Design Concept of Bamboo Soundproof Construction (Author, 2022)**

The final design was decided to use a laminate of bamboo iratan and bamboo bilah. The material is connected to sound-absorbing material, and the construction is knockdown and can be folded to obtain space savings when not in use. It is hoped that the design can support Society 5.0 (SDGs) and solve the small space problem.

## CONCLUSION

The design intervention is used to bring new design ideas to small industries. Then the design need is assimilated (product diffusion concept) to be produced by following the artisan's skill. The need that has arisen as a result of online activities during the COVID-19 pandemic and will continue to be is online meetings. This activity is a potential factor for developing portable soundproofing products for artisans in small-scale industries. The small industries selected in the collaboration are bamboo furniture artisans, where bamboo and craftsman skills are the primary considerations in developing the product. The challenge for small industries in realizing the design concept is getting out of the routine they usually do. Design concepts that are different from the products they usually work with are often an obstacle for the small industry to develop. Therefore, this design intervention approach is needed, especially the designer's role in intervening in the design concept so that it is adjusted to the craftsman's ability. The findings when implementing MPV Layer as a design intervention model are that designers need to continue to have the ability to translate the potential skills of the crafter into product values to obtain outcomes. Further research should practice the embodiment.

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# Exploration of Natural Dye from Indonesia Plants on Children's Clothing Design

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## ABSTRACT
This design uses Indonesian plants to process into natural dyes for fabrics. This design is based on the concept of eco-design for children's fashion products. The use of synthetic dyes pollutes not only the environment but also living organisms. The waste produced is liquid waste from the coloring process due to the use of chemicals. This is not only in the adult fashion world but also in the children's fashion world. The fashion industry, show that children's fashion products have a large target market, and it shows that children's fashion product has opportunities in the development of the fashion industry. The use of natural dyes, which are not yet widely found in the world of children's fashion, with the development of the use of natural dyes becoming a new development in the world of children fashion. The use of natural dyes can alternatively become a means of decreasing the use of chemical dyes. Natural dye has the potential to produce a variety of new colors that are applied to children's clothing.

Keywords: Natural Dyes, Indonesia, Children.

## INTRODUCTION
Textile consumption around the world is calculated to be over 100 million tons. However, the rate of recycling is relatively low: Barely 13% of the total material input is in some way recycled after usage. Of this recycled 13%, a minuscule part is used to produce new clothing—less than 1% (BurçinÜtebay, PinarÇelik, and AhmetÇay, 2020). Textile industry waste directly discharged into rivers causes pollution in the form of: discoloration, smell, and taste in water; inhibition and loss of aquatic biological activity; pollution of soil and groundwater; and physical changes in plants, animals, and humans by chemicals (Laksono, 2012).

The fashion industry uses a more significant amount of water than other sectors to emit chemical waste containing toxins, and a lot of energy, which makes the fashion industry a significant contribution to global warming (Jennifer and Fiona, 2020). Therefore, the sale of Indonesian fashion and textile products needs to be updated in production to improve and solve problems in the fashion industry. The application of the eco-fashion product label is often found in children's fashion products, but the application still uses synthetic dyes. The application of natural dyes that are less explored for children's clothing, while the nature of children's clothing color is essential. Taking the potential to

produce color variations in natural dyes, to be developed in children's fashion so that it is more attractive and by the concept of eco-design.

Batik producing regions in Indonesia; Solo, Pekalongan, Jogja, Cirebon, Bali, Madura, etc (Cekaja, 2020). MSMEs business in Indonesia is generally carried out by a community of artisans who live in one place and are carried out in groups. With COVID-19, many artisan businesses have had an impact, which has had to close their businesses and lose their jobs. Covid-19 did not just bring an impact to the health side but also brought an impact on the MSMEs communities in Indonesia. The COVID-19 outbreak has also affected the country's economy, one of which is Micro, Small, and Medium Enterprises (MSMEs) where there are 1,785 cooperatives and 163,713 MSME people in Indonesia affected by the coronavirus pandemic (Kontan.co.id, 2020).

The issue is faced in the creative industry, with the impact on the fashion industry being very toxic. In Indonesia, the traditional craft industry is based on culture and the expertise of the region. This research aims to encourage the era of sustainable fashion by improving design strategies in encouraging social innovation. There is a need for further research in exploring the possibilities of strategy in design. Develop a design innovation strategy with material exploration used in influencing artisans in their business in the global industrial market era. In the development of the strategy, it is necessary to have a new strategy related to the concept of sustainability.

## LITERATURE REVIEW

### Natural Dye History

The art of color application has been known to man from time immemorial, around 3500 BC, and has used natural coloring agents extracted from vegetables, fruits, flowers, and insects. The use of natural dyes in Indonesia is related to the existence of batik in Indonesia. During the Kasunanan period and the Sultanate period, the batik industry flourished. After the end of the 18th and 19th centuries, the development of batik in Java was relatively rapid, and more and more people were interested in batik (Nurainun, 2008: 124). In 1856, synthetic (chemical) dyestuffs were discovered by William Henry Perkin. These synthetic dyestuffs had advantages compared to natural dyes. Synthetic dyes were considered more practical and stable in terms of color in relatively long storage. During the colonial period, the Dutch government (1800–1922) introduced it to the Indonesian country as well as utilized it as a means of controlling the Indonesian nation. The use and development of natural dyestuffs were supervised and not given a chance by the Dutch government, becoming a way for the Dutch, as colonizers at that time, to control the trading in Indonesia (Rahmadyanti, 2017).

### Batik Artisan Community in Indonesia

The batik industry is also one of the sectors that have been making a significant contribution to the national economy. The batik industry is dominated by small and medium-sized industries (MSME) and is a sector that creates many jobs, especially for women. There are more than 400 batik artisan business communities in Indonesia

that registered in the Indonesian Ministry of Industry in 2021 (Kemenparekraf, 2021). Batik art in each region has its characteristics, such as batik artisan in Solo making batik with classic motifs like waves. Furthermore, artisans who make batik also use different colors, such as Lasem batik which is made by artisans in Central Java with light colors.

### Synthetic Dye

Synthetic dyes have a negative impact in the short and long term. Because of the pollution from industrial waste, the quality of the environment decreases in the presence of harmful substances produced in the atmosphere (soil, water, air). The textile industry dumps toxic chemicals into the atmosphere, uses enormous energy, and is one of the most significant contributors to global warming. Waste from textile dyes is in the form of liquid industrial waste, whose high chemical content results in reduced oxygen content in the water, so it can result in the death of living organisms in the water and create odors in the water.

## METHODOLOGY

The research was done by applying design thinking methods (Discovery, Interpretation, Ideation, Experimentation) begins by understanding problems in the fashion industry through literature review, observation, and interview. Then, the author does a questionnaire to study market attention to sustainable fashion and natural dye. The result of the analysis used for creating the design. The study is in the form of personal experiments, where the author uses the aqueous extraction method to get the dye extract. After that, the author does the exploration of aesthetics, and the author does material testing (faded, washed, and others). After the step of the exploration, the author analyzes which is best for fabric, and the result be evaluated through an online survey.

## RESULT & DISCUSSION

### Color Exploration

There are a few processes in natural dyeing, in the first author tested the fabric material by burning the fabric. The synthetic fabric after being burned the fabric and smell will such as melted plastic.

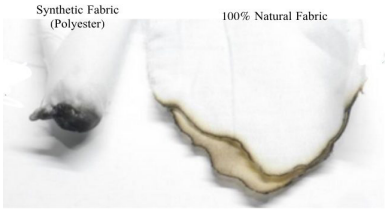


**Figure 1 Testing Fabric Material (Effendy, 2021)**

In this study, the author explored the method of:

- Scouring (washing) is done by soaking a cloth of 5 gr/liter and 1 liter for every 1 meter of fabric, boiled for 1 hour on low heat, then set aside for 1 hour to be able to remove dirt, oil, and chemical compounds that are in the fabric.
- Mordanting (gluing) is done with alum of 10 gr/liter, and 1 liter per 1 meter

boiled for 1 hour over low heat and let stand for 12 hours.
- Color Extraction: is done with a ratio of 1:10, 3:10, boiled with water, and fabric soaked in extraction dye.
- Fixation (locking) to lock the color using alum, limestone, and Ferro Sulfat with 5 gr/250 ml of water, in 15 minutes.

**Figure 2 Fixation Process (Ferro Sulfat (Tujung), Limestone (Kapur), Alum (Tawas) ) (Effendy, 2021)**

The influence of the amount of dyeing extracts and the time of the dyeing process was tested in this study; the effect of fixation on fabric colors; the color resistance of fabrics in the washing process; and developed aesthetic results from natural dyes to be able to be applied as a natural dye process for textiles. The author made a dyeing color extracts experiment from eleven plants (Turmeric, Tengeran Wood, Coffee, Cloves, Jelawe Fruit, Mahogany Wood, Mengkudu Wood, Telang Flower, Tingi Wood, Secang Wood, Black Tea), and the author tested on the five different natural textile (cotton fabric, mori fabric, linen fabric, sari fabric, and paris fabric), with a ratio of 1:10 for 30 minutes, 1 hour, 4 hours, 12 hours, 1 day, and 3:1 for 4 hours.

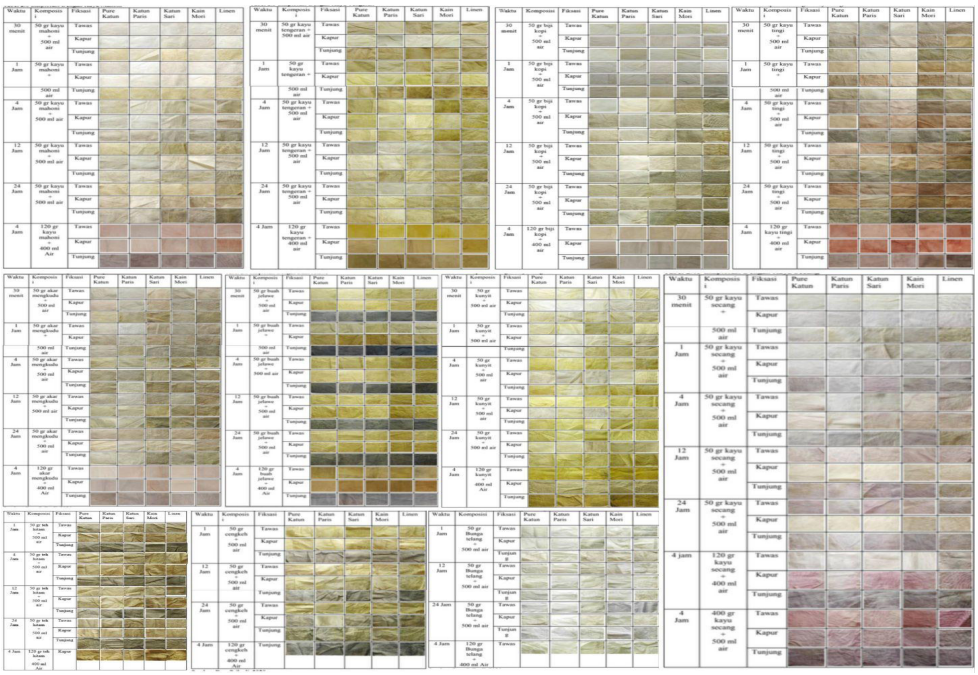

**Figure 3 Color Exploration (Effendy, 2021)**

From the research, the author found that the color tone result is variations that lead to yellow, brown, earth tones, and gray. Natural dyes cannot survive with fixed color

consistency. The color consistency will gradually decrease in the washing process. Based on the exploration, the use of cotton, linen, and mori fabrics and natural dyes from Jelawe fruit and Tinggi provide more intense color results. Furthermore, the use of Ferro Sulfat fixation to lock the color gives the strongest color results to produce the darkest color, and the color resistance also tends to be more durable.

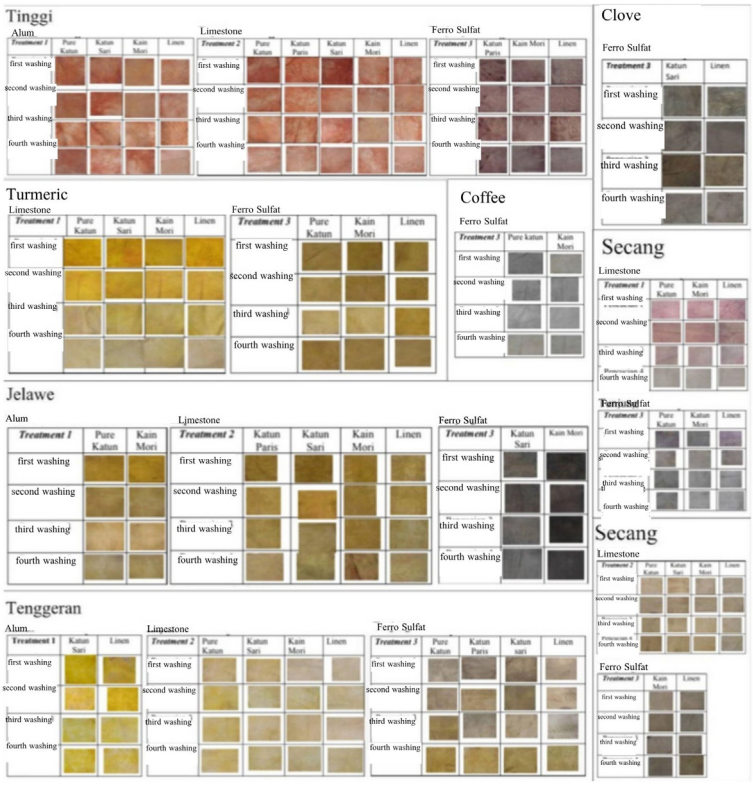


**Figure 4 Color Resistance Test Results (Effendy, 2021)**

In addition, researchers also conducted research on aesthetic studies of natural dyes using eco-print and tie-dye techniques. Besides that, researchers also used iron rust materials in aesthetic studies.

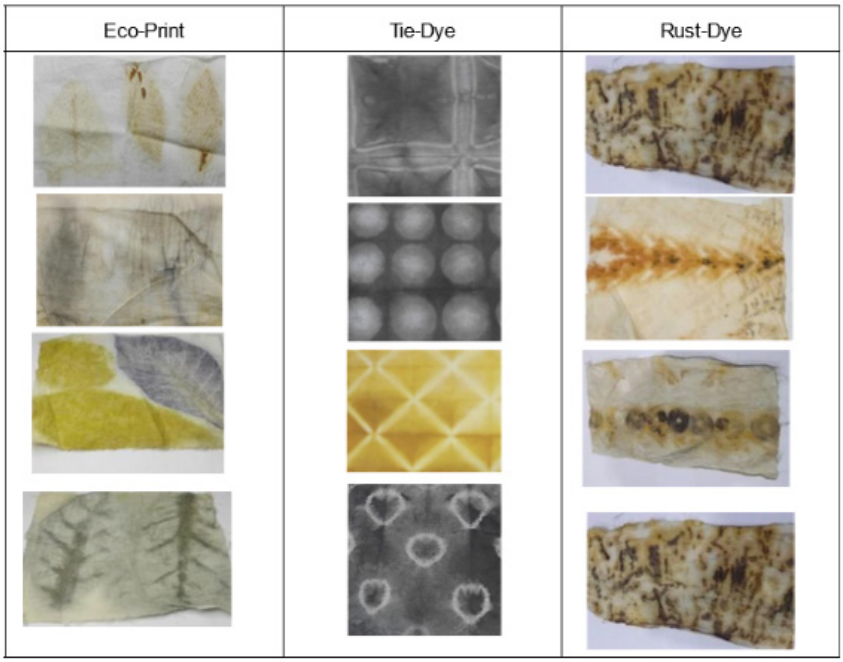


**Figure 5 Aesthetic Exploration Results (Effendy, 2021)**

## Designing Proses

Using natural dyes from Indonesian plants is an alternative that is still rarely developed in creating and developing eco fashion, especially in the children's fashion industry. The idea of designing children's fashion products with the principle of a sustainable culture, with adaptation from Surjan clothes and Kutubaru, a traditional culture clothes from Central Java. It not only aims at product design but also has ecological value and cultural preservation in its design. In this design, the author thought of an opportunity to produce an eco-fashion product to be a part of the slow fashion movement in Indonesia. This also will be a medium for kids to learn about the culture.

**Figure 6 Surjan and Kebaya Kutubaru Design Sketches (Effendy, 2021)**

**Figure 7 Final Prototype (Effendy, 2021)**

The author researched the responses of parents who have children to find out their answers and interest in natural dyes, sustainable fashion, and the development of traditional clothing. Reviews are conducted online, with respondents looking at photos and videos to be able to explain the product more clearly. The review was conducted by 11 people with a rating system from 1(less) to 4 (excellent). Overall, the result of the use review was good with score in 3 and 4.

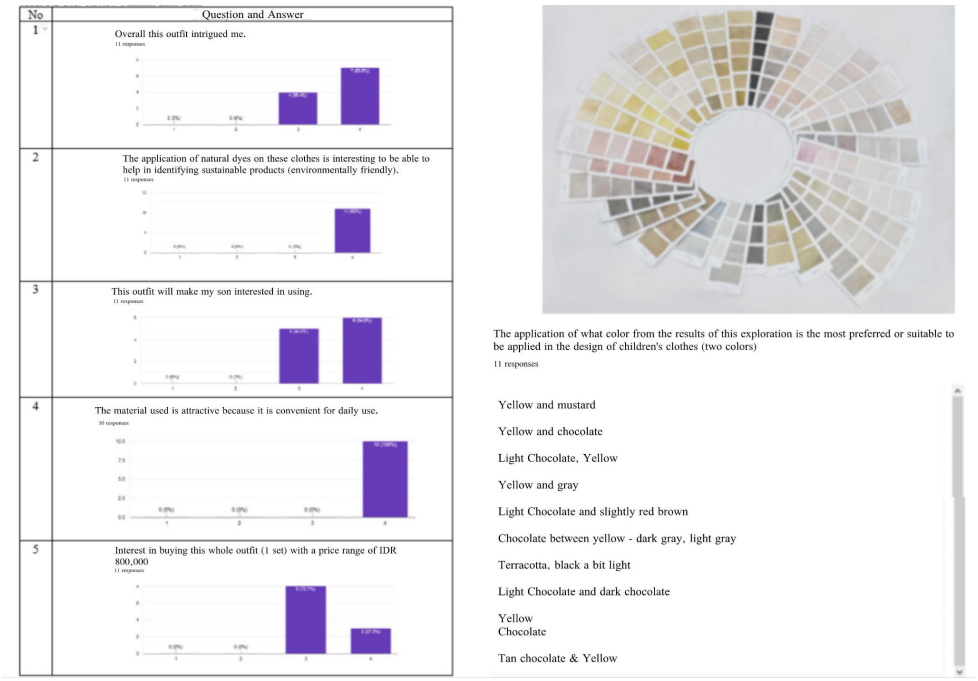


**Figure 8 User Review (Effendy, 2021)**

## CONCLUSION

From the research carried out, several things can be further improved and can be a topic for further study.

- Explore other color extraction methods, by mixing more varied color extractions.
- Trying other natural material sources, such as kitchen waste, will be an opportunity for applying to material sustainability.

- Explore other techniques in applying natural dyes, and make developments in aesthetic studies.
- Cooperate with groups, organizations, restaurants, and other communities to collect materials.

Furthermore, this research gives a valuable approach not just for designers but also for local artisans or the local community.

- To help local artisans to give new methods, analyses, and alternative solutions in developing material exploration and natural dye.
- Become an influence to introduce sustainable fashion in advancing the innovation and business opportunities of Indonesian artisan.
- Rebuilding opportunities of the artisan business after the covid 19 pandemic in the global market with Indonesia's sustainable product.
- Give artisans opportunities in joining partnerships with Indonesian brands to produce sustainable textile products, this will increase job opportunities for artisans.
- Innovative strategies for further design in using materials from local resources.

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# Synergy Between Interior Expression and Architectural Concept During Design Development in The New Design Era

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## ABSTRACT
COVID-19 pandemic has pushed changes and new ideas in the design world to survive in the new design era. The research subject is Axial Studio, where the principal believes that Axial Studio's design development process cannot be separated from their architectural concept. This statement became a relevant topic for the researcher/author to discover how Axial Studio could create synergy between architectural concept and interior expression during design development phase. In order to do that, the methodology is qualitative ethnographic research and instrumental case study as the method as the research's result is based on the analysis of three rooms in one of Axial Studio's project which is De Maja project. The research discovered that the pre-condition and five points of synergy, which are very relevant and valuable for the new design era. This research concluded that the five points synergy complements each other and plays a significant role because the harmonic relationship between interior and architecture is strongly needed in the new design era. Moreover, the result reminds designers about the fundamental attitude that all designers should have, which is open-mindedness and sensitivity.

Keywords: Architectural Concept, Interior Expression, Synergy, New Design Era, Design Development

## INTRODUCTION
COVID-19 pandemic has pushed changes in the design world where designers are challenged to adapt and self-reflect to survive in the new design era. The new design era discussed in this research is the era after the pandemic. The researcher put special attention in the interrelationship between architecture and interior, where the harmonious cooperation between both fields/sectors should exist from the previous design era until the new design era. The research's purpose is to discover how the architectural concepts and interior design expression could create synergy during the design development in a design firm so that the research's result about this synergy could be one of design strategies to adapt in the new design era, including the changes in needs. The discovery became relevant because the various needs of architectural concepts and interior expressions that were caused by different client's expressions still became a challenge for designers in today's design world.

For that reason, the researcher chose Axial Studio (from now on will be called Axial) as the research subject, which is an architecture interior design firm established since 2017. Axial became the right subject for this research as its principal (FT) claimed that Axial's interior design cannot escape from the Axial's concept and architectural layout (FT,2021). Axial has a solid and consistent architectural concept, however, their interior design admittedly also contributed significantly in the design process so that the synergy between interior and architecture could create a quality design for the client according Axial's vision. Synergy, according to KBBI is joint activities or operations. Synergy implies that every party with their differences could work together and complement each other without damaging anyone (Dewi, 2017). The research's question is how Axial's architectural concept and interior expression create synergy during the design development phase leading to design strategies that could be implemented in the new design era.

The researcher had gone through several analyses until finally was able to solve the research's main problem about synergy and made a conclusion for this paper. First of all, the synergy between the architectural concept and interior expression in Axial was analyzed with one of the design processes mentioned in a book written by Cindy Coleman (2002). The book stated that in the design development phase, designers would think creatively and work together to design space in a specific project. With the three steps of design development written in the book, the researcher could systematically and coherently explain the three rooms analysis from De Maja Project.

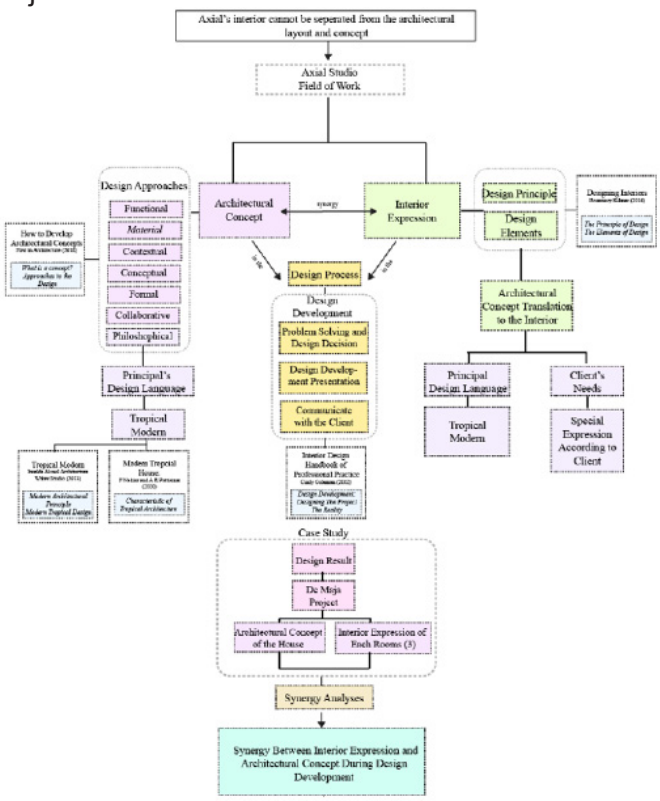


**Image 1: Research Framework (Source: Gunawan, 2021)**

## LITERATURE REVIEW

A concept is an abstract idea, a theory, or a notion (First in Architecture, 2018). In architecture, concept can be described as "an approach" to design. The approaches to design theory can be categorized into seven aspects, which are: functional, material, contextual, conceptual, formal, collaborative, and philosophical (First in Architecture, 2018). These approaches can also be supported by a journal written by Mojtaba Parsaee (2015) about interactive architectural approach, which is explaining about the fundamental or basic model of architectural design process including flexibility, exclusive views, contextualism, balance among all factors and many more. Axial has a philosophical approach that is based on the principal's design language which is an architectural concept with modern tropical approach. Therefore, this research used modern tropical theory to support the analysis. Modern tropical architecture applies two strategies in its design. The first strategy is to look out for elements and architectural shapes/forms in the surrounding area near the existing site. The second strategy is to take consideration of the climate, landscape, and culture of the area. With the awareness of climate and surrounding condition, designers can provide comfort for the user (Nadiar and Pattisinai, 2020).

Expression is used by interior designers (as the executor) to communicate or reveal themselves to the client/user (as the appreciator) through the design (result). This expression is realized from the creative process. The appreciator will catch and comprehend the design result so that there is mutual understanding between the executor and the appreciator (Kusumarini, 2014). Interior expression in this paper was analyzed with design composition theory according to a book written by Rosemary Kilmer (2014) which consists of two aspects: design elements and design principles. Design elements are categorized into space, line, shape, form, texture, time, and color and light. On the other hand, design principle is categorized into balance, rhythm, emphasis, proportion, scale, unity and harmony, and variety.

Synergy was analyzed during design development which is a process where designers make decisions and design implementation to get approval from the client. Design development is divided into three steps: problem-solving and design decision, design development presentation, and communicate with the client (Coleman, 2002). During problem-solving and design decision, the design concept approved by the client and designer will be converted into design solution that is capable of solving client's problem. After that, the design process will continue to the next step which is design development presentation, where the designer will show their design progress to the client in the form of visual presentation whether its 2D drawings or 3D model. Lastly, during the problem-solving and design decision step, client will give input so that the designer can make revisions and eventually get the approval from client which leads to the design process moving on to the next phase.

## METHODOLOGY

The research's methodology used by the researcher in this paper is qualitative research with ethnographic approach combined with case study research (Crouch

and Pearce, 2013). Ethnography itself is an approach where the author as the researcher directly observes and records the phenomenon that occurs in the research's location in a certain period (Neuman, 2014). In this case, the researcher worked as an intern at Axial for at least eight months while observing to collect data for this research. The research data also came from semi-structured interview where the researcher gave freedom to the informant (Axial's designers and principal) to answer and give opinions, but at the same time the researcher also led the informant to stay focus and keep the interview on the right track according to the interview's purpose (Crouch and Pearce, 2013). Instrumental case study is also used, in which the researcher will learn one or several cases considered as a medium or instrument that can increase understanding and image of the issue or phenomenon (Crouch and Pearce, 2013).

## RESULT & DISCUSSION

The De Maja project is located in BSD, Serpong, South Tangerang. All its architecture and interior are designed by Axial. This project is handled by three designers, one of them is the principal of Axial (FT). In its design process, FT was involved a lot in the concept making and architectural layout process as well as giving inputs for interior. The researcher chose three rooms of De Maja Project which are the living room and pantry, master bedroom, and entertainment and music room. This decision was based on the potential of every room that according to the researcher can be analyzed further and resulting in an exciting discovery. The potential meant by the researcher is when there are various design elements that can be analyzed also, the relations between architecture and interior exists and important in the room. Before explaining about the analysis of each room, the researcher listed the architectural concept analysis into four approaches: functional, contextual, conceptual, and philosophical. These four approaches were found after processing interview results from the principal about the architectural concept of De Maja project. The interior expression of the three rooms was analyzed from their design elements and design principles. After that, the researcher discovered their relations and synergy between design interior implementation (design element and principle) with the four architectural approaches mentioned before. The analysis strategy is explained further from the diagram below:

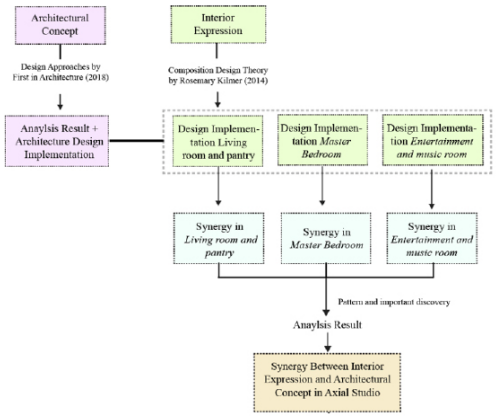


**Image 2: Synergy Research Analysis Strategy (Source: Gunawan, 2021)**

**Synergy in the living room and pantry:** the architectural concept and the interior expression look unified as the designer created a thin line that blends both rooms. The continuity is increasingly visible because of the common threads of the design elements such as: materials (textures), colors, and shapes that are connected between architectural and interior concepts. The close relationship between the two spaces is emphasized by the visualization that shows the perspective of the interior and the surrounding environment in one image. The interesting thing about the room is when there is a shift in the design following to the client's wishes unexpectedly added value to the architectural elements and also benefited the aesthetic value of the interior.

**Image 3: Living Room and Pantry Perspective (Source: Axial, 2021)**

**Synergy in the master bedroom:** Design elements such as variety of lines in the room are designer's solution in order to show the best potential of the room's layout which was slightly too wide. Even though the interior expression tried to present a common thread to keep its consistency with the architectural concept, variety as one of the design principle was present in the design where the design implementation could create contrast or even dynamic experience for the purpose of the room itself. Secondary skin that overlays the opening of the room has anticipated and gives opportunity in case there are changes in color as it is able to keep the consistency of its exterior/façade according to its architectural concept.

**Image 4: Master Bedroom Perspective (Source: Axial, 2021)**

**Synergy in the entertainment and music room**: The design interior has a higher need of self-expression as there are special activities and style (industrial client) from

the client. The variety of its design implementation kept increasing but the designer's effort to stay consistent in maintaining Axial's principle and value are still evident in the room. Challenges from the architectural elements became an opportunity for the designers in order to make a creative design solution that could benefits both fields.

**Image 5: Entertainment and Music Room Perspective (Source: Axial, 2021)**

The analysis of three rooms of De Maja project results in five points about how architectural concept creates synergy between interior expression in the design development that answer this research's question/problems. Those five points are contrast, repetition, optimalization, hierarchy expression, and synchronization. The five points mentioned above are important keywords concluded by the researcher after looking at the pattern and interesting points of every synergy in the chosen rooms. Every analysis came from the researcher's own view as well as the thoughts of principal and designers, which makes the results valid. These points are further explained in the following paragraphs. These points are also supported by composition design strategy theory from a book written by Timothy Samara (2007), where it gives knowledge on how to create a well-composed design. There are several sub-topics in the book such as: enforcing unity, compositional contrast, visual hierarchy, and composition as foundation for meaning, which are suitable to support the result of this research.

**Contrast**: Synergy happens when there is contrast/difference between design interior implementation with its architecture design. Contrast appears if there's a need in expression that is required to be emphasized. The researcher found out that the effectiveness of a design implementation can improve when there is contrast.

**Repetition:** Synergy between architectural concept and interior expression is created when there is a common thread that connects both fields so that every room unite as a whole. Repetition can be one of the strategies that can show Axial's characteristics and its principal's design language.

**Optimalization:** Synergy happens when interior implementation or architecture did an alternation/adaptation to optimize value, aesthetic, and potential of each other. Design solution created from those both fields influence and support each other for the sake of user.

**Expression Hierarchy:** The researcher found three different kinds of needs for a room which are: communal space without particular expression, private space without special expression but specific function, and a space with particular expression. These different needs can influence how the synergy between architecture and interior appear in the design according to each one's needs.

**Synchronization:** The design result is the result of the discussion and agreement between three party so that it could continue to the building phase. With a synchronized idea between designer, principal, and its user, therefore, the impact of its synergy can be realized for the sake of the user.

## CONCLUSION

The research results from Axial's case study succeeded in finding five points of synergy along with their impact on client and designers. These results will be beneficial to designers that wish to present architectural and interior synergies in a design. The researcher believes that awareness is very crucial in fact, it acts as a pre-condition for creating synergy. This means that every designer must be aware of client's problems and how their design choices impact the clients. Moreover, they must realize the interrelationship of architecture and interior design, which must be one of the main consideration for designers during the design development. In the realization of synergy, all five points are not required to be implemented because the appearance of one point already indicates the existence of synergy. This is because synergy in the research is talking about how architecture and interior can work together with same intention, which is creating a quality design. There are no rules of how much synergy that can be implemented in a design. The researcher also does not rule out the possibility of further research or changing the research subjects that result in the addition of other synergy points other than the five points that have been found.

Not only the discovery of five points synergy, the researcher also found the relation between those five points. From the diagram below this paragraph, expression hierarchy becomes the main purpose that influences the other synergy points. Contrast and repetition are the execution/ design implementation which application should adjust the different needs/expression of every room. The end goal of synergy is optimalization where designers will optimize value, aesthetic, and potential of their design. Furthermore, the researcher discovered the pre-condition to achieve optimalization which is synchronization. These relations prove that Axial Studio is a design firm that's aware of the needs of expression either from client or the designer itself. This will encourage architecture and interior to work together and achieve the most optimal result. However, the researcher is open to the possibilities of the emergence of another relations in case there is an addition to the points of synergy or shifting to another research subject following this research.

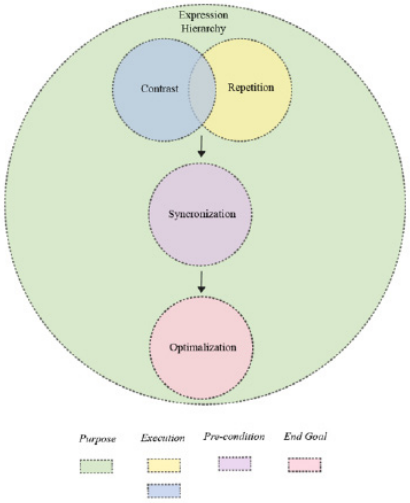


**Image 6: The Relations of Five Points Synergy (Source: Gunawan, 2021)**

The discovery of the five synergies and its relations remind us of the fundamentals that could complement a professional designer. Two things can be learned from this discovery are the importance of open-mindedness and sensitivity of a designer in a design process. Designers must also be open and respect differences of opinion so that architecture and interiors can find common ground that treats the client and the designer by considering both of their needs of expression. These two attitudes must exist, especially in the new design era because this era gives challenges in which the psychological and physical impact to space/users must be the primary concern, not only that, the design must also be sustainable and durable. This is because people spend more time at home during the pandemic which refers to the increasing demand/preferences to design mainly residential design. Therefore, the author can conclude that the discovery of these five points of synergy can complement each other and also become an essential design strategy in the new design era as it turns out that the harmonious relationship between architecture and interior can trigger impactful and innovative ideas for the design world in the future.

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# Interiority on Spatial Sonata's Design Process

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## ABSTRACT
Interior as a discipline is often associated with Architecture. This raises the question, where and how is the position of Interior towards Architecture. Does the Interior's process come after Architecture? or go hand in hand with the Architectural process? In Spatial Sonata, as design consultant for Interior and Architecture, the Principals do not segregate areas as Interior or Architecture. They assume that Interior and Architecture are interconnected. Thus, only consider areas divided into Interior (inside) and Exterior (outside) areas. Between the Interior and the Exterior, there must be continuity and relation since they are seen as a single unit, known as Interiority. The Principals have a perspective from inside to outside, arguing that the area that will be lived in is the inside, not outside. This indicates that even in Architecture's design process, Interior is present through being considered as an approach to achieve Interiority. This research intends to explore the influence and strategy of interiority on the design process done by Spatial Sonata. As qualitative research with ethnographic methods, this research aims to understand the system of interiority that is applied and become a learning reference for students, practitioners, and others that interior is not limited by space and comes after Architecture. Analysis shows how Interiority influenced the design process, hence concludes that in Spatial Sonata, Interiority is not only a perspective, but as a design approach that has strategies and parameters.

Keywords: Interior, Architecture, Interiority, Design Process, Strategy

## INTRODUCTION
In history, Architecture as a discipline perceives the Interior as separate and dissimilar. It is usually thought of as temporary and additional makes Interior vulnerable. There some Interiors are built together with Architecture, but there are also Interiors that are easy to move or adjust, thus creating ambiguity as to what interior means.

Ionescu (2018) assumes that Interior Design is more than just the arrangement of space or a collection of objects, but is a form of acceptance and response to the cultural significance of the building. The Interior used as a medium between tectonic structures in 'talking' with its users. McCarter (2016) reveals an Interior that builds according to its location and has a maximum attachment to its environment and enriches the space experience for its users is what makes the Architecture last.

McCarter (2016) explained further how the Interior is included as a consideration in the Architectural design process so it transforms into a composition. Interior is an essential part because it can make space in architecture into a habitable room (Verschaffel in Ionescu, 2018). However, the inside view also needs to be complemented by an awareness of the outside area and its position towards the outside. Through these views it is known that, in the Architectural design process, the Interior aspect needs to be considered as a way that connects the Architecture with the user. On the other hand, the Interior must not forget about Architecture because the Interior serves as a medium to continue the message Architecture wants to give to its users, also so that the Interior is not isolated. This makes Architecture and Interior interconnected by having the same primary focus, user's experience. This view is known as interiority. Keane (2002) states that the interiority or quality of an interior space is the concept of limitations (boundedness) and openness both physically and culturally. Physically, interiority is a product of boundaries whereas culturally, interiority expresses the presence of the other side or the exterior that creates conditions for the interior.

As the design industry is growing, many new design firms or consultants are emerging. One of those is Spatial Sonata. Even though the design consultant is relatively new, founded in 2020, both EE (Interior Designer) and IJ (Architect) as the Principals have already been in the field for around 5 up to 8 years. In order to succeed, they combined their experience, specialities and preferences and synchronized it into principles to be able to move further as a team and identify their market. Amongst new design consultants, SS seems to have consistent aesthetic values.

The Principal of Spatial Sonata (later referred to as SS), EE said that Interior and Architecture are interconnected. Although, in practice the Architecture design process comes first and interior later to fill in the space, EE has an entirely different view. According to EE, rather than looking from the 'outside' (Architecture) to the 'inside' (Interior), EE prefers to look from the 'inside' to the 'outside' because, the space that will be enjoyed and lived in is the Interior. Hence, EE believes that architectural design processes have to include interior design as consideration and how components in architecture such as geographical location, environment, point of views, etc.

## LITERATURE REVIEW

According to Atmodiwirjo & Yatmo (2018), the view of interiority as a relational construct that connects the user and his environment should be the main basis for design practitioners. Interiority intended to explore various forms of relational construction that unite the interaction between space and users as a form of spatial design practice to identify challenges that may face.

A. Users (Material)

   The quality of the space to live is defined by the relationship between subjective responses (experience) and the physical material of space and its elements (Atmodiwirjo & Yatmo, 2018). Rather than seen as passive recipients of their environment, users are seen as active entities, related reciprocally with interior spaces and architecture. Reciprocal relationships could happen as if users

have the intention to participate in commands and forming, not just occupy the space (Tuan, 1997; 35, in Atmodiwirjo Yatmo, 2018).

Interiority in everyday life is not only defined through occupation but also through materiality. Ordinary space becomes a place for spatial practice through occupation and materiality, which are always present in dialogue. Apart from being innovated and gives form, researchers also say that materials translate physical and psychological conditions of space (structure, finishing, and content) as expressions of functional and aesthetic systems that reflect solutions for the interior environment (Pile, 2008 and Kilmer & Kilmer, 1992 inAlawad & Malek, 2018).

B. Interior

Coleman (2001), interiority or quality of interior space is the concept of boundedness and openness, both physically and culturally. Physically, interiority is a product or result of boundaries. Culturally there is an exterior presence that creates conditions in the interior. The company of the exterior demands a relationship between the inside and the outside.

Wright (in Coleman, 2001:94) argues that the 'inside' should integrate with the 'outside'. According to Wright, how the soul of a building is perceived as a collection that works to form one thing, so it is impossible to think of a building as a single unit with different finishing, setting and environment. Similar to how the exterior can affect the Interior, the Interior can also affect the exterior and even stand alone.

Leblois (in Coleman 2001; 95) writes the main point is Architecture (interior) is a spirit (spirit) and a way to feel, see and live so that what needs to be emphasized is not about the interior and exterior but everything that is in between.

C. Architecture

Wright (in McCarter, 2012:14) says the Architect is to build 'space' (The room, the simple room) which is referred to as 'The Space Within'. Wright (in McCarter, 2012) explained that interior space is the reality of a building so that architecture will not be present if it is not through the room because architecture is not just a 'form following function' but contains the enclosed space. In interior the reality of a building can be seen.

Many of the leading contemporary Architects emphasize the superiority of interior spaces both in design and experience. Steven Holl (in McCarter, 2012) said that when you already have a concept and strategy, work from the interior of the core space towards the outside of the building because the inside is always more important than the outside. Wright (in McCarter 2012: 29) states that architecture should be define as a provider of 'a room to live in'. According to Wright (in McCarter, 2012), Architecture is involved in providing usability and convenience for users.

## METHODOLOGY

This paper collected data using a qualitative method, with an ethnographic approach, full-participant type. Through qualitative research, authors are more likely to obtain data about phenomena or obstacles that occur daily (Denzin & Lincoln, 1994). The ethnographic method chosen by Autors is considered the most appropriate. After all, Authors can approach and mingle with the research subject and see firsthand the phenomena daily within 8 (eight) months of internship. By conducting research with a full-participant type, Authors can obtain data directly and better understand the design process, as Authors get involved and become the subject itself. This experience became Autors opportunity to collect data through observation, discussion sessions and interviews with related parties.

To get deeper understanding about Interiority as applied design strategies, 2 (Two) recent Residential projects; GGT House (Architecture and Interior) and Wungkal House (Interior only) used as design precedents. Residential projects are settled as it has a personal and closer connection to its users than other types of projects. With different scope of work, GGT House as precedent is aimed to understand, arrange, and clarify ideals value of Interiority whereas Wungkal House is determined to know SS ability to apply Interiority in relation with Architecture.

## RESULT & DISCUSSION

In order to understand SS application of Interiority, this study is divided into each design process conducted by SS. This way, readers can carefully grasp how interiority is applied as strategies and influenced each of the design process.

A. Design Brief
   When giving the design brief, the client wants a bright house with single materiality. This is because the place they live in at the moment is dark and too 'crowded' visually. Apart from that, the client also had a scenario where they watched the sunset across the golf course while having tea or coffee. Through these two briefs, it seems the client has an awareness of what they want and need. The scenario also worked as it helped the client to elaborate their wants whilst it helped designers to compose and form the space.

B. Brainstorming
   Before entering the design phase, the Principal designer makes rough drawing (sketches). Principal Designer uses sketches to imagine the potential ambiance/ atmosphere that could be applied in the design. This phase is aimed to pour out all the ideas or potential that can be used later on.

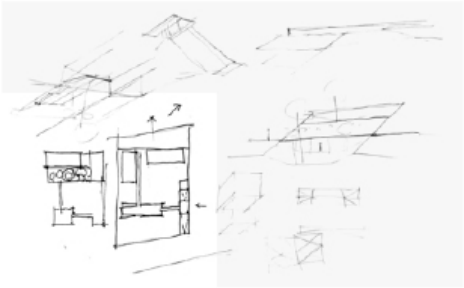

**Image 1. Rough drawing (sketches)**
**Source : Document of SS (2021)**

For example, the drawing above (Image 1) captured how the Principal tried to imagine the space and create an ambiance by shaping a sequence from the entrance through the inside. Although only as a study, the drawing showed Principal consideration about users' experience by creating sequences and setting the point of view. View and opening is important as it can enhance user experience by giving a sense of relation to the environment hence showing the influence of Interiority.

C. Concept

If the concept usually comes from a narrative or problem, on this precedent, it comes from the material. The Principals said that when the clients said they wanted to use single materiality, they were immediately interested. For the materials, the designer offers lapitec or marble materials as those have pretty easy maintenance, are durable, and can be applied at outdoor areas. To know whether in the concept design stage, there is an influence of interiority, Authors analyze through materialistic objects that make up the material, such as; color, texture, surface, thermal conductivity, density, and finishing. The designer chose beige to support the formation of a bright space because it can transmit light, not absorb hence allowing more light into the room. The lapitec or marble material used has a flat and smooth surface as Gesimondo, Nancy & Postell (2011) said smooth texture could give a calm feeling. Located in a tropical country, Lapitec and Marmer application as material seems appropriate, as those provide a cool sensation while touched and can lower the temperature.

D. Layout

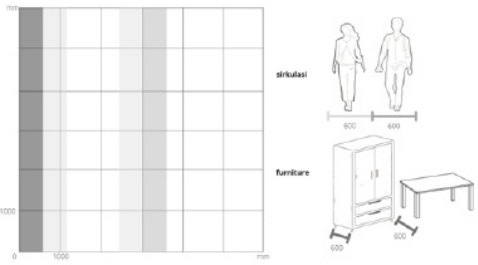


**Image 2. Circulation & Furniture on *Grid* 1000x1000mm**
**Source: Private Document (2022)**

To design the floor plan, SS used a 600x600mm grid. Based on the theory from Sully (2015), designers must use grids that respect human circulation and user requirements. According to that, the 600x600mm grid used by SS is suitable as it serves its function. For example, a 1000x1000mm grid is easier to divide or multiply, but it is not ideal as it will leave space when placing the furniture as it is common to make credenza or cabinets with 600mm depth hence making grids usage becomes useless.


**Image 3. Ground floor layout,** *GGT House*
**Source: Document of SS (2021)**

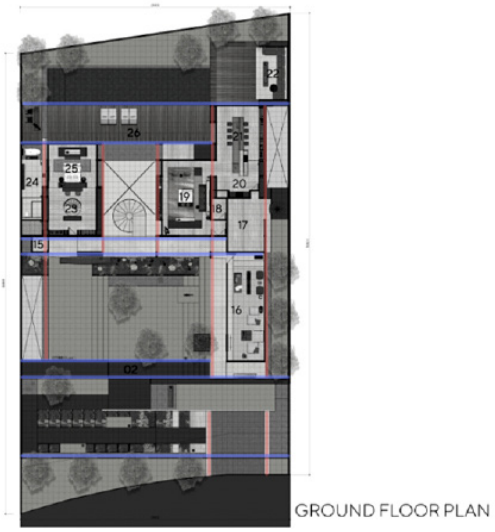


**Image 4. Axis on the layout, GGT House**
**Source: Private documents (2022)**

In addition to the grid, there were axes found in the GGT House plan(Image 4). The Axis is created by placing walls and furniture in line, so it gives perception of continuity and interconnectedness between the interior and the exterior.

E. 3D Modeling

**Image 5. Facade, GGT House**
**Source: Document of SS (2021)**

**Image 6. Entrance area (foyer), GGT House**
**Source: Document of SS (2021)**

**Image 7. View from the Foyer, GGT House**
**Source: Document of SS (2021)**

In the 3D Modeling phase analysis, Authors found there are 3 (three) things such as similarity, continuity and combination of materials. Material similarity is when the materials used are different but have some of the same materialistic objects so that although they are different, there is a shared 'language' such as color, texture, conductivity, or finishing (Image 5). Continuity is when the material used is continued to other areas so that the boundaries between areas become blurred and the room looks unified (Image 6). The combination of materials provide depth to the design so that the space does not look like 2D because it is very plain, and has no flair (Image 7).

## F. Working Drawing

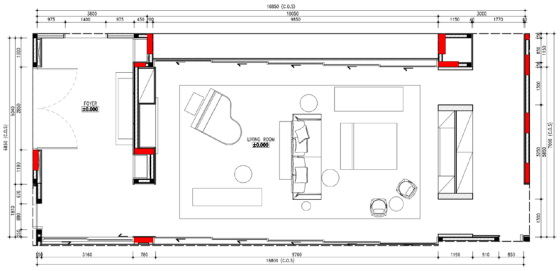

**Image 8. Layout of foyer & living room, Wungkal House**
**Source: Document of SS (2021)**

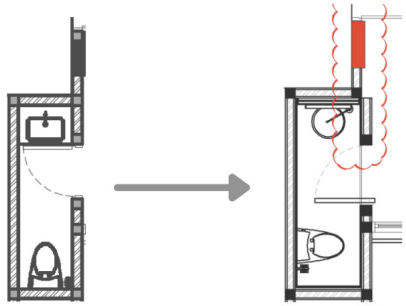

**Image 9. Before and after wall shifting on the powder room, Wungkal House**
**Source: Document of SS (2021)**

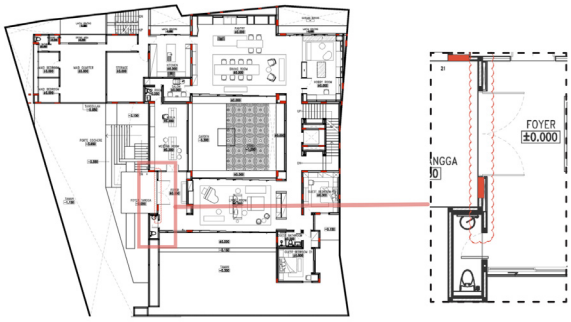


**Image 10. Solution for the wall shifting, Wungkal House**
**Source: Document of SS (2021)**

Different projects used as another precedent to complete the last design process. In this precedent, the Architecture design process has already finished, and the construction stage has already begun. As the interior design will be placed later, it's essential to ensure the Interior is adjusted, and suitable for the provided area. In the middle of producing the working drawings, there was information from the construction field that the powder room wall shifted by 150mm due to the circulation of the sanitary ware (Image 9). Hence, it created a problem since SS has serious matters with things being in line to show continuity and respect for the exterior. As the solution, additional panels were added to fill in the space (Image 10). This is seen as an attempt by the Interior to connect with Architecture (exterior) to achieve an integrated design.

## CONCLUSION

Based on the analysis, it is known that although the wall can physically become a barrier, the wall can be seen not only as a barrier but as a design object to developed, in following the assumption of Leblois (in Coleman, 2001: 95) ,which says that there is no 'interior' architecture or 'exterior' architecture. What is important is not about the interior and exterior but everything between both areas.

McCarter (2016) says that timeless Architecture is what includes the Interior in the process. However, this research proves this is not a significant requirement. Considering there is awareness, urge, and effort from the Interior to adapt with Architecture, Interiority still can be pursued, and applied.

The relationship and dynamics between the Interior and the Exterior show Interiority is not only a view in seeing the reality of the building but also as an approach in design that can be applied in design.

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# Social Innovation Design as Strategy
## The Story of Community Action Plan from 4 Slums Area in North Jakarta

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**ABSTRACT**
In 2021, while still in the middle of COVID-19 pandemic, School of Design, Universitas Pelita Harapan (SoD-UPH) was collaborating with North Jakarta City Government of Public Housing and Settlement Area to develop Community Action Plan (CAP). The CAP initiative is the program of DKI Jakarta Governor to upgrade the city slums settlement. There were 4 urban kampongs: RW 01, 02, 10 Sukapura and RW 10 Semper Timur, in North Jakarta, which were identified as slums and needed to develop their own CAP. The program aimed to have a participatory and collaborative development where all stakeholders are actively involved, especially the communities that dwell in the area as the main actor. SoD, UPH used a specific methodology called Design as Generator (DAG), as an empowerment tools by design, which combine research, design and action activities that runs simultaneously. The methodology can be use within the pandemic situation. This paper is a story on how design can be a strategy to drive social innovation to be transpired in these 4 North Jakarta's slums area, in the form of CAP as the communities started to empower themselves.

Keywords: Community Action Plan, Social Innovation, Design as Generator, Design as Strategy

**INTRODUCTION**
School of Design, Universitas Pelita Harapan (SoD-UPH) was asked to collaborate and help the North Jakarta City Government of Public Housing and Settlement Area to develop Community Action Plan (CAP) in the middle of 2021 COVID 19 pandemic. The CAP initiative is the program of DKI Jakarta Governor to upgrade the city slums settlement with a bottom-up approach, where the initial plans to arise from impoverished situation are coming from and for the community itself. There were 4 urban kampongs in North Jakarta that identified as slums: RW 01, 02, 10 Sukapura and RW 10 Semper Timur. It needed to develop their own

CAP to upgrade their settlements. The CAP initiatives then will be followed up by *Collaborative implementation Program* (CIP) in the next year, where what has been planned in CAP will be implemented and build by the City Government alongside the community and other stakeholders. Thus, CAP-CIP initiatives aimed to have a participatory and collaborative development where all stakeholders are actively involved, especially the communities that dwell in the area as the main actor (Healey, 2006). Translating these noble endeavor, SoD-UPH CAP Team then used a specific methodology called Design as Generator (DAG), where design will empower through a combination of research, design and action activities that runs simultaneously (Katoppo, 2017). The methodology is also deemed effective when it is use within the pandemic situation (Katoppo, 2021a). This paper is a story on how design can be a strategy to drive social innovation to be transpired in these 4 North Jakarta's slums area, in the form of CAP as the communities started to empower themselves.

## LITERATURE REVIEW

The Jakarta Provincial Government has identified 5 slum generating issues, namely: Inappropriate Land Use, Inadequate Quality of Infrastructure, Conditions of the Socio-Cultural situation in the community which are still relatively low in meaningful engagement, Conditions of a Powerless Economic situation, and an Inadequate Good Governance System (Jakarta City Regulation, 2020). These issues resonate with the 11th goal of the 2030 Sustainable Development Goals (SDGs), which is: Achieved Sustainable Cities and Settlements, wherein goal 11.1 states: the accessibility for everyone to adequate, safe, and affordable housing, including the improvement of city slums area, as well as access to basic urban services (Sustainable Development Goals, 2015).

Parnell (Day & Parnell, 2003) argued that participatory development is the only way to achieve sustainable cities with sustainable communities. City development needs to be carried out collaboratively (Healey) and ensure that the process is socially just (Hubert and Theocharopoulou, 2013). Petrescu (2005) said that participatory space will encourages discussion and the freedom of speech. Hence, the design practice that exists within the participatory space is the practice of design action which is always inclusive and accessible. It will occur as an interventionist design, that chooses a political position and becomes a catalyst in social innovation processes. In this case design becomes a generator and it will create a live space, a public space that is 'close to its citizen' (public space of proximity), always be the 'other' space and becomes a catalyst that must be created and interpreted continuously by the community. Furthermore, Till (2005) places the role of architects and society as equal citizens with specific alternating expertise roles (the expert-citizen/citizen-expert). These role's understanding of each, will allow a transformative participation process that occurs in a negotiating space for hope. Lefebvre (1998) then offered everyday life as a festival (*la fête*) presented as the city oeuvre, a city space where the citizens creatively live their daily lives in a meaningful way.

Therefore, the creation of a creative and meaningful city space for its citizen, where participative and collaborative living space for negotiation every hope of its community emerged, is the essence of the community-based city planning (Community Action Plan).

## METHODOLOGY

The activity of developing Community Action Plan (CAP) with the 4 slums area's communities and the North Jakarta City Government of Public Housing and Settlement Area was carried out using the Design as Generator (DAG) research methodology (Katoppo, et al., 2017; Katoppo, 2017; Katoppo, 2018). The specific methodology of Design as a Generator (DAG) was built with the spirit of creating a creative live space that is also able to become a negotiation space for every hope of the communities to have an appropriate dwelling space. This methodology is a combination of Participatory Action Research (PAR) (Taggart, 2006) and Design Thinking for Social Innovation (Brown and Wyatt, 2010; IDEO, 2013). It will enable everyone involved to move dynamically between research and design activities as well as facilitating actions that encourage social innovation and knowledge production to occur within all stakeholders, thus ensuring community empowerment will start to emerge (Katoppo et al., 2017; Katoppo, 2018). The DAG methodology operates using 3 stages of Design Thinking for Social Innovation: Discover, Ideate and Prototype (Brown and Wyatt, 2010; IDEO, 2013).

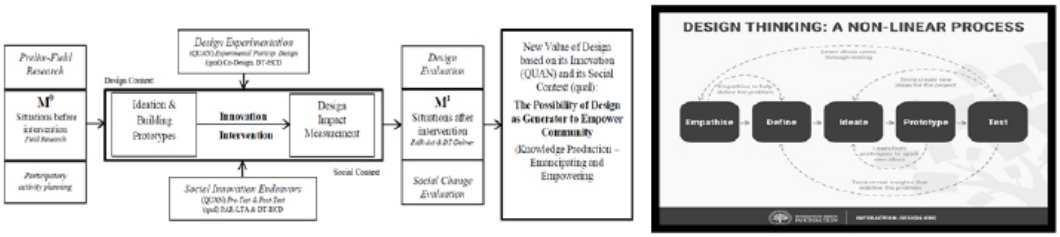


**Image 1 Design as Generator Methodology & Operation**
**(Katoppo, 2017; Interaction-Design.org)**

## RESULT & DISCUSSION

### Discover Phase

In the Discover phase (Brown and Wyatt, 2010; IDEO, 2013; Stringer, 1999; Creswell; 2008; Berg and Lune, 2012), the SoD-UPH CAP Team collected data in 4 stages: community engagement, talk to experts, immerse in context and analogous research (seeking inspiration from other situations). In addition, the team also collected data on the physical condition of the 4 slums area using 11 parameters from Statistics Center Bureau (BPS, 2017), such as: Population Data, Building Density Data, Dwelling, Environmental, Infrastructure and Waste Management Conditions. The brief results can be seen in image 2 (below).

### Ideate Phase

In the Ideate phase, all the stakeholders: the SoD-UPH CAP Team, the 4 slums area communities, the experts especially from North Jakarta City Government, conducted an online Design Thinking workshop to formulate problem statements

or *'How Might We Question…?'* using all data obtained from the Discover stage (Brown and Wyatt, 2010; IDEO, 2013), as problems that were deemed necessary to the community to be solved collaboratively. The results shown that the communities aware that handling non-physical problems (i.e.: community cohesiveness, shared goals, and purpose, economic situation etc.) are equally as important as solving physical problems (i.e.: bad infrastructure, building condition, etc.). The results can be seen in the image 3 (below).

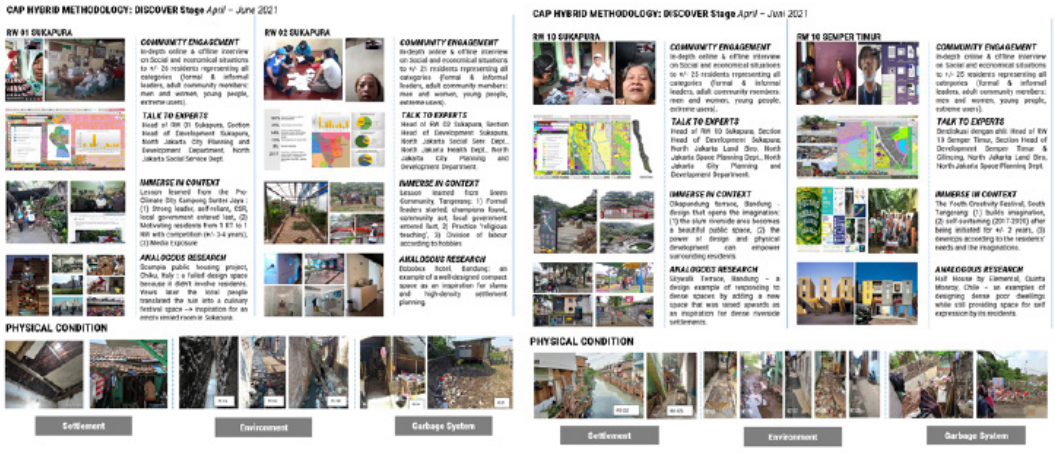


**Image 2 Discover phase (SoD-UPH CAP Team, 2021)**


**Image 3 Ideate phase (SoD-UPH CAP Team, 2021)**

## Prototype Phase

### *Crafting Solution*

In the Prototype stage (Sanoff, 2000; Jones, et al., 2005; Jenkins and Forsyth, 2010; Brown and Wyatt, 2010; IDEO, 2013), the SoD-UPH CAP Team started building solutions to answer the formulated problem statements, collaboratively with

the residents of the 4 slums area, alongside the North Jakarta City Government. The solutions were completed with user experience map and value propositions (Osterwalder and Pigneur, 2012; Osterwalder, et al., 2014). The results can be seen in the image 4 (below):

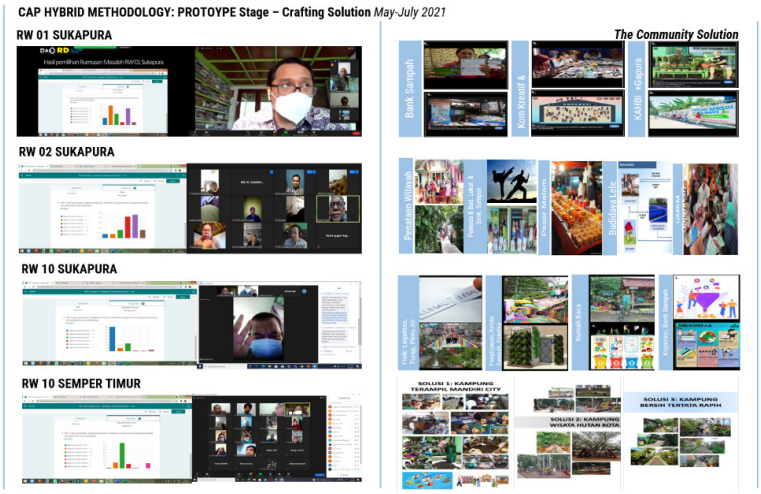


**Image 4 Prototype phase: Crafting Solutions (SoD-UPH CAP Team, 2021)**

## *Establishing Community Organization*

After the solutions crafted, the residents established community organization in which the structure of the organization was in accordance to each solutions crafted, hence every member were involved and held responsible. The organization then developed short, mid-, and long-term plans for each assigned solutions, where they presented it to the north jakarta city government as their initial community action plan (image 5). This is the first indication that the community started to empower themselves and began their knowledge production process (stringer, 1999; taggart, 2006). This also showed that the community started to build their space as negotiation of hopes (till, 2005).


**Image 5 Prototype phase: RW 01 & 02 Community Org. & Action Plan (SoD-UPH CAP Team, 2021)**

### *Design Refinement, Economic and Socio-Cultural Action Plan*

At the same time, the SoD-UPH CAP Team, consisted of design, socio-cultural and economic experts, translated the communities' solutions into design refinements and action plans, co-created with all the 4 slums area residents and the North Jakarta City Government. The design experts team produced schematic designs, infrastructure construction and technical options suitable with the high-density area, consideration on water, flood, waste, and fire prevention managements, etc. Concurrently, the socio-cultural and economic experts, built together with the community members an action plan to improve their community cohesiveness and resilience, while mapped out the community economic potentials to build a strong economic activity supported by the communities' network itself.


**Image 6 Prot. phase: Design Ref., Economic & Socio-Cultural Action Plan (SoD-UPH CAP Team, 2021)**

## CONCLUSION

The completion of the prototype phase, where the residents of 4 slums area already formed community organization together with finished CAP documents (design, socio-cultural and economic action plan) marked the end of the CAP process. However, DAG methodology worked beyond the design and action plan documents towards initiating community action as a demonstration on how the community is empowered (Katoppo, 2017, 2018, 2021b, 2022). Due to the very good relationship and bonding between all stakeholders: the 4 slums areas' community member, the SoD-UPH CAP Team and the North Jakarta City Government initiating a series of community action to improve their dwellings, socio-cultural and economic activities (i.e.: RW 01 Sukapura made greenery and murals, RW 02 Sukapura made 'colorful' Kampong and fish farming combined with productive planting, RW 10 Sukapura voluntarily disassemble their home 3m wide apart from the river banks, RW 10 Semper Timur refine their local products, etc.). It culminated in a 'Creative Collaboration of Empowered Community Festival' held by the community, inviting all the stakeholders (Image 7 below).

The festival presented the creation of a creative and meaningful space for this 4 slums area community member (Lefebvre, 1998), and the emergence of participative and collaborative living space (Petrescu, 2005) for negotiation their hopes (Till, 2005). Consequently, the continuation of this activation needs to be responded by

all stakeholders besides the community member, which are the government, the private sectors, and the academics as well. Creative collaboration will be the key to instill continuous social innovation and changes towards developing a city that is collaborative, sustainable and socially just (Katoppo, 2017).

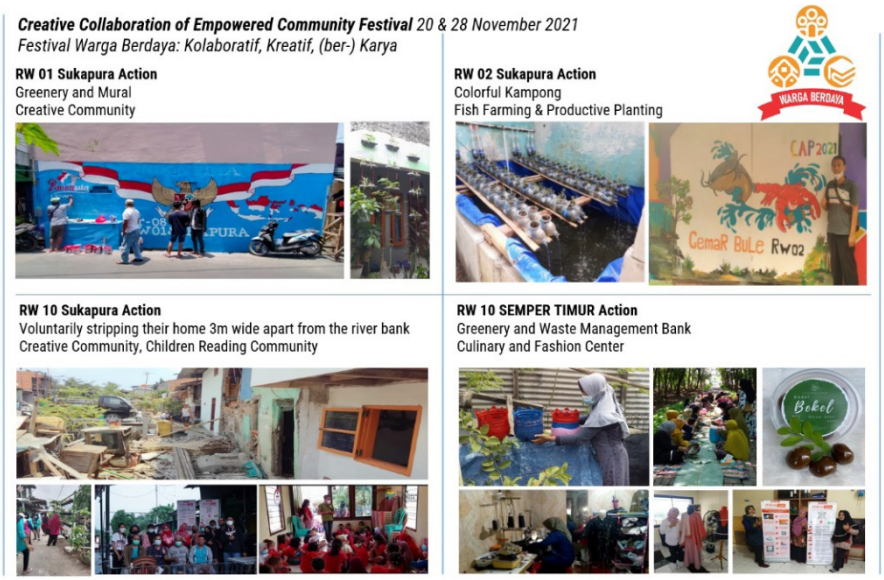


**Image 7 Creative Collaboration of Empowered Community Festival (SoD-UPH CAP Team, 2021)**

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# Rethinking Learning & Teaching, The Blended Ways
## New Classroom Design for Universitas Pelita Harapan

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**ABSTRACT**
In the past two years, the COVID-19 pandemic has abruptly changed many things, consequently in the academic field as well. It questioned on how educational institutions should conduct teaching and learning. Universitas Pelita Harapan (UPH) had been strategizing on these issues since the beginning, starting from developing an academic approach for significant learning called M-Flex, to the design of physical aspects. Blended Learning comes as one the best option that synergize significant learning model and the designed physical space. This paper will discuss on how UPH strategizing in these matters. The methods will combine quantitative research for collecting data and qualitative research for gaining insights from UPH community and translating it into physical design for the new classroom that adapt significant learning and the new normal condition. Thus, this paper will show UPH's new classroom design as well as the research behind it as answers to the new ways of teaching and learning, in which are the blended ways.

Keywords: Significant Learning, M-Flex, Blended Learning, Combined Methods, New Classroom Design.

## INTRODUCTION

In the past two years, the COVID-19 pandemic has abruptly changed many things, consequently in the academic field as well. The perplexing situation, even after 2 years and though many said that we already entered new normal, befuddled the very essence on how educational institutions should conduct teaching and learning. Universitas Pelita Harapan (UPH) had been strategizing on these issues since the beginning, starting from developing M-Flex (Sommers, 2021), an academic approach for significant learning to the design of physical aspects that accommodate the M-Flex. Blended Learning (https://www.blendedlearning.org/models/) comes as one the best option that synergize M-Flex significant learning model and the designed physical space that will give the best teaching and learning experience for the students as well as for the lecturers. This paper will discuss on how UPH strategizing in these matters. The methods used in this research combine quantitative research for collecting data and qualitative research (Creswell and Clark, 2007) for gaining insights from UPH community, and translating it into physical design for the new classroom that adapt to M-Flex significant learning and the new normal condition (Niemeyer, 2002; Lang and Witty, 2022). Thus, this paper will show UPH's new classroom design as well as the research behind it as answers to the new ways of teaching and learning, in which are the blended ways.

## LITERATURE REVIEW

The terms significant learning derived from Fink (2013), where Fink described it as an intersection between 6 aspects of learning: foundational knowledge, application, integration, human dimension, caring and learning how to learn (see the details below):


**Image 1 Fink Learning Taxonomies and Significant Learning (Fink, 2013)**

Universitas Pelita Harapan translated Fink significant learning into Multi Flexible Learning (M-Flex) (Sommers, 2021), in which describe as follows: 1) Utilizing resources to increase **active teaching strategies** when interacting with students; 2) Maintain **flexibility** in the teaching and learning process and, 3) Promote **significant learning**.

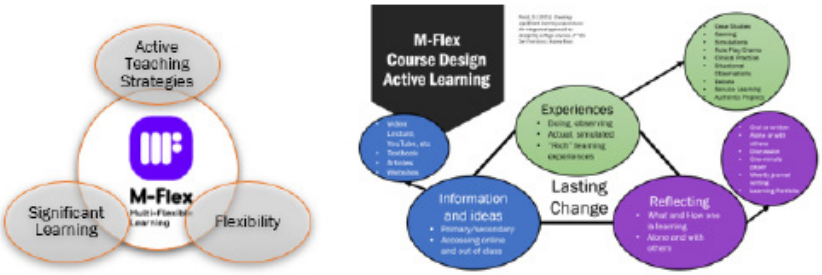



**Image 2 UPH Multi Flexible Learning (M-Flex)**
**(Sommers, 2021 inspired by Fink, 2013)**

M-Flex would operate well with blended learning approach. Blended learning itself has many definitions, however, in this research it will use the definitions from Blended Learning Universe (BLU) (https://www.blendedlearning.org/models/), which is: a formal education program in which student learns in part online, with some element of control over time, place, path or pace of their own learning, in part in a physical space away from home and along the learning path it will use all modalities (i.e.: technology, educational tools, etc.) to provide an integrated and significant learning experience. There are at least 5 model of blended learning, namely:

1) Station Rotation, which allows students to rotate through stations on a fixed schedule, where at least one of the stations is an online learning station.
2) Individual Rotation, which allows students to rotate through stations, but on individual schedules set by a teacher or software algorithm.
3) Flipped Classroom, which flips the traditional relationship between class time and homework. Students learn at home via online coursework and lectures, while teachers use class time for fruitful discussion or guided projects.
4) Flex, in which this model lets students move on fluid schedules among learning activities according to their needs, using online learning as its core. Teachers provide support and instruction on a flexible, as-needed basis while students work through course curriculum and content. Thus, students have a high degree of control over their own learning.
5) Enriched virtual, in which allows students to complete most of the coursework by online at home or outside of school, and occasionally attend face-to-face learning sessions scheduled.

## METHODOLOGY

The methods used in this research combine quantitative research for collecting data and qualitative research (Creswell and Clark, 2007) for gaining insights from UPH community. These combined approaches will give comprehensive insights to the design team when the team interpreting the data into physical design for the new classroom. The classroom should be able to respond to what M-Flex learning aimed, in which: active teaching strategies, flexibility and promote significant learning (Sommers, 2021). Thus, the design methods used by the team are in accordance with Niemeyer (2002) argumentation that students needed more than just a simple space to learn, in which it had to be smart and interactive classroom with hi-tech equipment to stimulate the learning experience. The design should

also grasp the blended learning models, especially the potentials to transcend beyond the traditional physical space, according to Lang and Witty, 2022).

**Data Collection**

The data collection was gathered using questionnaire with 13 Faculty in UPH (i.e.: School of Design, Faculty of Nursing, Conservatory of Music, Faculty of Liberal Arts, Faculty of Applied Science and Technology, School of Business, etc.) and 298 respondents, mainly lecturer participated. The questionnaire was designed to measured existing and future conditions using the 4 measurements in design thinking prototype making: problems, potentials, interaction and hopes (Brown, 2008; Brown and Katz, 2009). The existing conditions measured the difficulties and potentials or advantages conducting online or blended learning during almost 2 years' time of pandemic. The future conditions measured what type of class that faculty members are going to conduct after the pandemic (onsite, hybrid or blended), what blended type that faculty members are going to opt (station rotation, individual rotation, flipped classroom, flex or enriched virtual) (https://www.blendedlearning.org/models/), what aspects that faculty members deemed most important for conducting blended learning and, what faculty members think can achieved in conducting blended learning.

## RESULT & DISCUSSION

From the existing conditions we could see that 55% theory class with 45% other classes model (studio, laboratory, others) were conducted 54.6% full online. Interaction (73.8%), student enthusiasm (69.1%) and network (67.7%) were 3 main problems facing by the lecturers, while on the other hand, there were online class advantages: space flexibility (79.8%), everything can be recorded (73.8%) and time flexibility (51.6%). The measurement of future needs shown 83.6% lecturers prefer to have blended learning (combination online and offline) with flipped classroom approach (45.6%) and technology that can enhanced interaction (71.8%) with great network connection (76.8%). In terms of what Blended learning can achieved, the lecturers saw mostly from the time (77.2%) and space (60.7%) flexibility, while it can also increase partnership and intake.

Several important insight statements recorded from lecturers and staffs are gathered qualitatively from the questionnaire were:

*'Students are conditioned to actively study before, during and after lectures' (most Faculty in UPH)*

*'Meetings can be more effective in distributing things that are not understood yet by the students or lecture materials that need to be validated' (Teacher's College)*

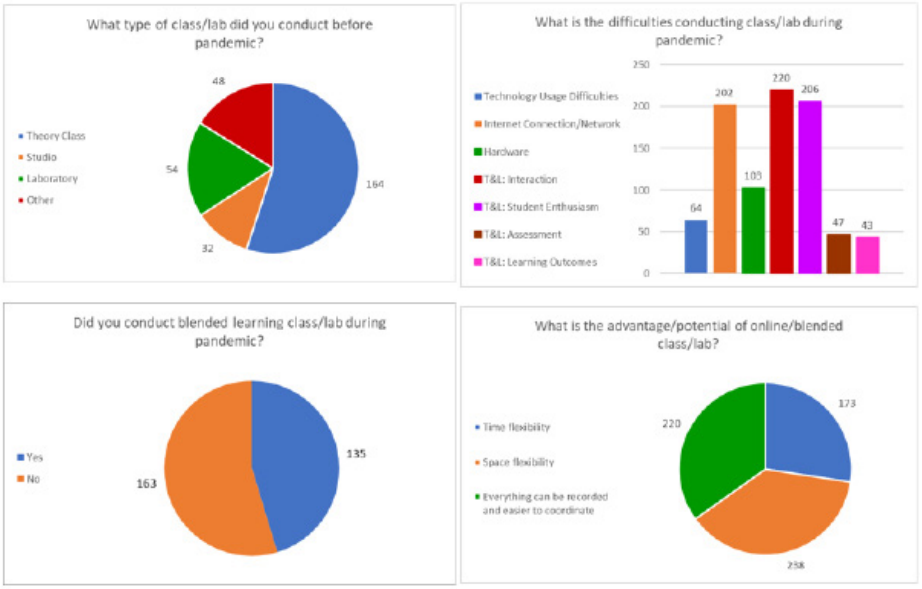
'*Technology will help to reach and wider scale of partnership' (Faculty of Economic and Business)*

*'Blended Learning can make learning more fun, interactive, and meaningful. In the long term, students will remember that this BL course conducted is useful for everything they do, both academically and professionally, as the materials can always be accessed anytime and anywhere, even after they have graduated'*

*(Faculty of Liberal Arts)*

The insight statements collected from all the lecturers and staffs, then was dissected from its repetitiveness to mold the key findings. Some of the key findings are optimum learning time, expanding the scale of reach and boundless accessibility.

Existing




Future Needs

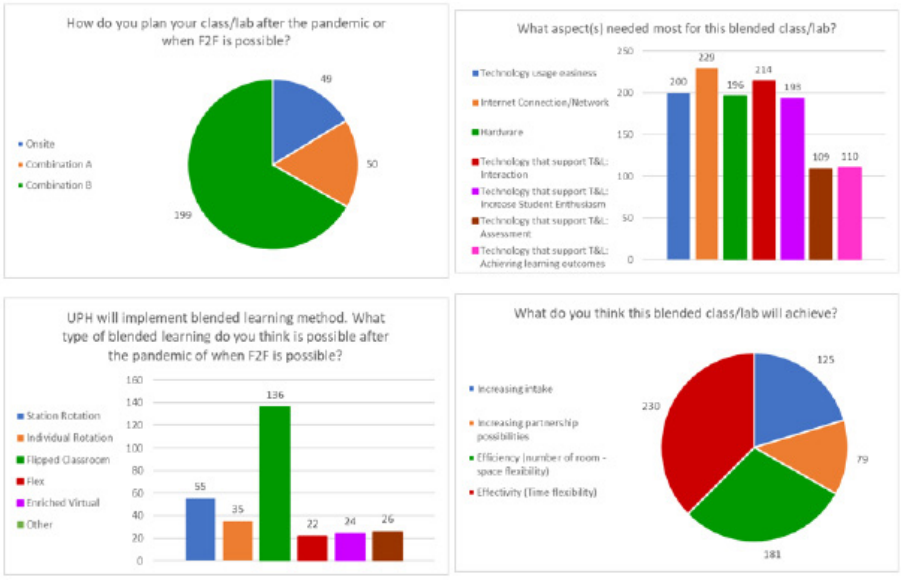



**Image 3 Data Collecting Results showing existing and future conditions of Blended Learning in UPH (UPH Classroom Task Force, 2022)**

## Design Translation

Utilizing the data collected, the UPH Classroom Taskforce team started to design the physical class needed by translating the data into 3 smart class categories: (Niemeyer, 2002; Lang and Witty, 2022)

1) Every classroom needed to be equipped with smart TV to made it into on-site collaborative class. The smart TV used as means of technology that enhanced students' interaction and fruitful discussion adopting station rotation blended learning model.
2) Every Faculty needed to have one smart classroom that has capability to have hybrid learning, where onsite and online teaching and learning can be done simultaneously. The class would use high-tech standard of smart classroom to enrich the interaction experience and possible to achieve significant learning. It will cater the possibility of expanding the scale of reach, in terms of the number of students that can participate and the number of external, even international partnership and collaboration. The class will be responding to the station rotation, flex and enriched virtual blended learning models.
3) Complementary to the hybrid learning smart classroom is the lecturer station to conduct online learning. This station is basically a support system for blended learning, including flipped classroom blended learning model.

Below is the design prototype produced:

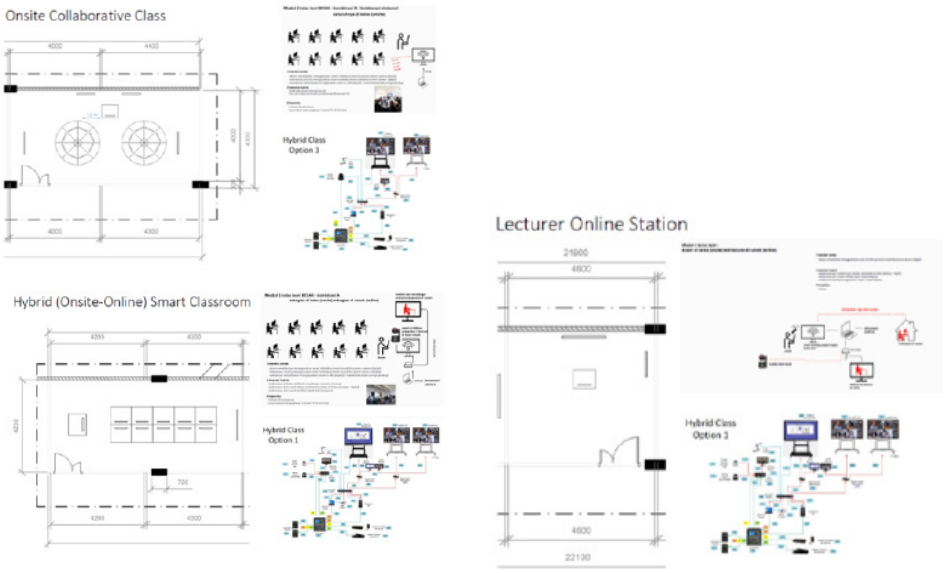



**Image 4 Layout and Schematic Design of: Onsite Collaborative Class, Hybrid (Onsite-Online) Smart Classroom and Lecturer Online Station (UPH Classroom Task Force, 2022)**

## CONCLUSION

The paper aimed to show on how blended learning will be new ways of teaching and learning even after the pandemic, as it already changes the landscape of how one conduct teaching and learning (Lang and Witty, 2022). Hence, there were several exciting new ways in blended learning that can be concluded from this paper:

1. Teaching and learning will be not limited with physical boundaries. Therefore, it will expand beyond geographical constraints and make teaching and learning accessible for everyone. It is also opening unlimited possibilities to build partnership and connect to everyone, or everything needed to cultivate experiential learnings.
2. Technological advancement, though still not ideal and requires continuous research, is showing amazing improvements on the interaction problems, in which very much needed in the teaching learning engagement process.
3. Blended learning makes ways for individual development to be counted, where students can grow in their own pace and excel where they should be while at the same time organized and acknowledged by the lecturer.

There are enormous things that are not covered by this research, as it is only a glimpse of blended learning potentials materialized into smart classroom design discussed in this paper. It is acted as a start to rethink our ways of conducting teaching and learning to produce the experiential and significant ones. Further research area that can be conducted is on how to increase experience, especially in terms of active interaction within the online learning technology area.

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# The Effectiveness of Building Envelope through OTTV Analysis

## Case Study: Building B, Universitas Pembangunan Jaya

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**ABSTRACT**

Directorate General of New Renewable Energy and Energy Conservation states that the most significant contributor to gas emissions in the Refrigeration and Air Conditioning (RAC) sector in Indonesia is Unitary Air Conditioning (UAC). The percentage of UAC continues to increase because Indonesia has had around 2000 skyscraper constructions since 2015. Regarding future building performance, there are many strategies to design the green building concept, such as how we feel about the building envelope. The building envelope should be prepared to gain energy efficiency and can be determined by calculating the Overall Thermal Transfer Value (OTTV). Based on SNI 6389:2011, OTTV has a maximum value of 35 W/sqm. The OTTV itself is equal to the heat load that enters the building for instance, if the OTTV is low then less heat will enter the building. Thus, the use of UAC is also lower. This research will analyze the effectiveness of the building envelope in Building B, Universitas Pembangunan Jaya, which currently uses external shading for the building envelope. However, even with external shading, the use of air conditioning and curtains when the room inside is operating still occurs. It is assumed that the existing building envelope in Building B may not work effectively. Therefore, this research wants to find out whether the building envelope in Building B, Universitas Pembangunan Jaya is effective through OTTV analysis and make retrofit suggestions to improve building performance.

Keywords: Energy Efficiency, Building Envelope, Overall Thermal Transfer Value

## INTRODUCTION

Universitas Pembangunan Jaya is an eight-story building that has been active since 2015. It is located on Jalan Cendrawasih Raya Blok B7/P, Bintaro Jaya, South Tangerang, Banten. There are two buildings at UPJ, namely Building A and Building B. Based on the observation of researchers who is also building B's users, this building relies on air conditioning and an internal shade (curtains). The use of an air conditioner occurs during activities.

Based on the Directorate General of New, Renewable Energy and Energy Conservation in 2017, one of Indonesia's most significant contributors to gas emissions in the Refrigeration and Air Conditioning (RAC) zone is Unitary Air Conditioning (UAC). The total gas emissions produced by UAC are 51% of the total gas emissions produced by the RAC sector. In 2015, as many as 2000 skyscrapers were built in Indonesia (Council on Tall Building and Urban Habitat, 2016). It affects the number of UAC usage in Indonesia. The number of gas emissions causes the condition of the earth's atmosphere to increase, which is called global warming. Global warming is the increase of the average temperature of the earth's atmosphere, sea, and land (Dinas Lingkungan Hidup, 2019).

Therefore, several buildings began to apply the concept of Green Building as an effort to minimize global warming. In GREENSHIP, there are six categories for implementing the Green Building concept, one of which is Energy Efficiency and Conservation (EEC). One of the efforts is to pay attention to the cover design of a building. The building envelope is the building element that envelops the building, which is translucent or opaque walls and roofs where most of the thermal energy moves through these elements (Badan Standarisasi Nasional, 2000). Paying attention to the building envelope can help create a sense of comfort for users in the room and reduce the energy used by the building (Aksamija, 2013). Energy efficiency regarding the building envelope can be determined by calculating the Overall Thermal Transfer Value (OTTV). Based on SNI 6389-2011, OTTV in a building must have a maximum value of 35 W/sqm. If OTTV values are known, efficiency and energy conservation can be carried out better, especially in air conditioners, because the lower the OTTV value, the lower the heat load that enters the building (Pemerintah Provinsi DKI Jakarta, 2012). Thus, the energy load of the room becomes more bass as well.

Building B Universitas Pembangunan Jaya is currently using external shade. However, the use of air conditioners and curtains when the room is operating still occurs. So, the researcher assumes that the building envelope in Building B may not work effectively. Therefore, the researcher wants to know the effectiveness of the building envelope in Building B, Universitas Pembangunan Jaya, through the analysis of the OTTV value (to reach the maximum value of SNI 6389:2011). Researchers will also conduct a green retrofit on Building B, Universitas Pembangunan Jaya, if the analysis results of the OTTV value exceed the maximum limit (35 W/sqm). Green retrofits are improvements made to improve energy and environmental performance, conserve water resources, and improve the quality and comfort of space (Rahmawati, Wisnumurti, & Nugroho, 2018). Researchers will be giving green retrofit efforts for optimizing the OTTV value in achieving the maximum value in the design of the building envelope of Gedung B Universitas Pembangunan Jaya.

## LITERATURE REVIEW

### Green Retrofit

The rise of the construction of high-rise buildings makes the earth's gas emissions

increase so that global warming occurs. Therefore, it is the building's responsibility that has been built to do a Green Retrofit. Green retrofit buildings are improvements or modifications to existing buildings (Hong, Deng, & Ezeh, 2019). Researchers will do a green retrofit on Building B of Universitas Pembangunan Jaya through the design of the building envelope so that it affects the optimization of the OTTV value of the building.

**Building Envelope: Type, Material, Design Principles**

The building envelope is an opaque component and a translucent component that separates the inside of the building from the outside of the building (Badan Standarisasi Nasional, 2011). Its function is to protect the building from the external environment, such as heat, wind, and rain, and also reduce energy consumption for cooling and light. According to the IFC Guide, in office buildings in Indonesia, about 63% of 100% of external heat is obtained through windows and walls. Therefore, Indonesia issued SNI on building envelopes and set the OTTV standard not to exceed 35 watts/sqm. There are two types of building envelope construction in Indonesia based on thermal characteristics (Pemerintah Provinsi DKI Jakarta, 2012). There is curtain wall construction and brick-window wall construction. The use of curtain walls in high-rise buildings enhances the commercial appeal and maximizes the views. However, this has another impact, which is increasing energy consumption in HVAC and lighting because heat radiation enters the building very quickly, and building users mostly use curtains so that the incoming light is minimal. As explained by Jimmy Priatman, 1999, in his journal, high-rise buildings have basic materials for building envelopes, namely: Cementitious Materials, Masonry Materials, Stone Materials, Metal Materials, and Glass Materials. A building envelope material is essential because each material has a different absorptance value of solar radiation (α). The absorbance value of solar radiation has been determined by SNI 6389:2011. Henceforth, The IFC guidelines explain that building envelope design principles are applied to reduce heat gain from the envelope, including building shape and orientation, window area, glass material, external shade, internal shade, and wall.

**Building Heat Conditions**

The thermal performance of the building and the exterior affects the thermal conditions inside the building (Alfian, 2018). Heat transfer is transferring energy from one area to another due to the temperature difference between these areas (Mursadin & Subagyo, 2016). There are three principles of heat, as follows: conduction (occurs in two objects that have physical contact), radiation (occurs between a vacuum and the objects around it) and, convection (through an intermediate (fluid or gas).

**OTTV Calculation**

Overall Thermal Transfer Value (OTTV) is the value specified as the design criteria for the exterior walls and glass of the building (Badan Standarisasi Nasional, 2011). OTTV is regulated in SNI 6389-2011 with the specified standard, which is no more than 35 W/sqm. Each outer wall of the building with its respective orientation must be calculated using the formula:

**Table 1 Each Orientation OTTV Formula. (Source: SNI 6389, 2011)**

| $OTTV_i$ = Wall's Conduction + Glass's Conduction + Glass's Radiation |
|---|
| $OTTV_i = \Delta[(U_w \times (1-WWR) \times TD_{EK}] + (U_f \times WWR \times \Delta T) + (SC \times WWR \times SF)$ |
| **Description:** |
| $\alpha$ = The absorbance of solar radiation |
| $U_w$ = Thermal transmittance of opaque walls (W/sqm.K) |
| WWR = *Window to Wall Ratio* |
| $TD_{EK}$ = Equivalent temperature difference (K) |
| SF = solar radiation factor (W/sqm) |
| SC = Shade coefficient of the fenestration system |
| Uf = Fenestration thermal transmittance (W/sqm .K) |
| $\Delta T$ = The design temperature difference between the outside and the inside |

OTTV calculation for the entire outer wall using the formula:

**Table 2 OTTV formula for the Entire Outer Wall. (Source: SNI 6389, 2011)**

| $OTTV\ total = \frac{(OTTV_1 \times A_1) + (OTTV_2 \times A_2) + \ldots + (OTTV_i \times A_i)}{A_1 + A_2 + \ldots + A_i}$ |
|---|
| **Description:** |
| $A_{oi}$ = area of the wall on the outer wall i (sqm) |
| $OTTV_i$ = overall thermal transfer value in the wall section i (Watt/sqm) |

The formula for calculating external shade is:

**Table 3 UPJ External Shade Formula. (Source: SNI 6389, 2011)**

| $SC = SC_k \times SC_{eff}$ |
|---|
| **Description:** |
| SC = window shading coefficient (fenestration system) |
| $SC_k$ = glass material shading coefficient |
| $SC_{eff}$ = effective shading coefficient of external shading devices. |

## METHODOLOGY

The research method used by the researcher is quantitative and experimental research methods. Quantitative research methods are ways to answer research problems related to data through numbers and statistical programs (Wahidmurni, 2017).

**Table 4 Methodology of The Research. (Source: Author, 2022)**

| Background | Data Collection | Data Analysis | Conclusion |
|---|---|---|---|
| Is the design of the building envelope of Universitas Pembangunan Jaya Building effective judging by the OTTV analysis?<br><br>How can the building envelope of Building B UPJ make adjustments to optimize the OTTV Value? | **Study of Literature**<br>The main data collection used is to explore the literature that is related to the calculation of OTTV, energy efficiency, and building envelopes.<br><br>**Observation Field**<br>Observing the object with the aim, researchers will find out more detailed phenomena that occur in the object to verify existing data, and input for simulation purposes.<br><br>**Documentation**<br>Visiting the location of the existing object and do documentation in the form of photos or 3D form to support visualization. | 1. Type (W) and its variable (Uw, TDek, and α).<br>2. Determining the area of each wall type (Aw) and fenestration area (Af).<br>3. Determining SC Glass, U-Value Glass, and Effective SC.<br>4. Calculating the values of Wall Conduction, Glass Conduction, and Glass Radiation.<br>5. Calculating Overall OTTV Value | Knowing the value of the OTTV to determine the effectiveness of the building envelope.<br><br>Provide suggestions for improvement (green retrofit) to fulfill OTTV standards based on SNI 6389:2011. |

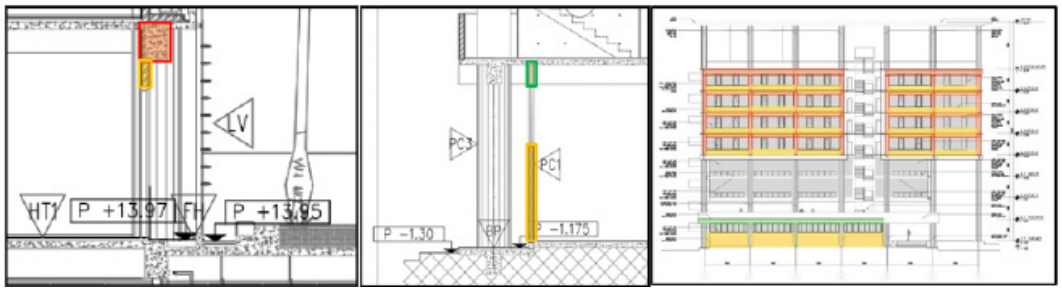
## RESULT & DISCUSSION

### Building Shape and Orientation

The orientation of Building B Universitas Pembangunan Jaya is North and South. Which makes the side of Building B Universitas Pembangunan Jaya face West and East. The importance of determining the orientation of the building is because it affects the amount of light that enters the building the wider openings in the West and East, the more heat radiation occurs. The existing Universitas Pembangunan Jaya building has the most windows on the East side. This orientation factor makes researchers assume that mostly sunlight and solar radiation enter the building through the east side.

**Picture 1 Building B Universitas Pembangunan Jaya.**
**(Source: upj.ac.id, 2022)**

## Determine the Wall Type (W) and its Variables (Uw, TDek, and α)




**Picture 2 Type of wall material for UPJ Building B. (Source: Author, 2022)**

With the three types of wall materials used, the materials are categorized as follows:

**Table 5 Wall materials and Calculation of Wall Type (W), Uw, TDEK Building B UPJ. (Source: Author, 2022)**

| Code | Materials | Colors | Uw | TDek | α |
|---|---|---|---|---|---|
| W1 | White paint + Concrete + White Paint | | 2,2725 | 10 | 0,3 |
| W2 | White Paint + Aci Plaster + Light Brick + Aci Plaster + White Paint | | 1,6228 | 12 | 0,3 |
| W3 | White paint + Gypsum + rockwool + Gypsum + White paint | | 0,1584 | 15 | 0,3 |

## Determine the Area of Each Wall Type (Aw) and Fenestration Area (Af)

**Table 6 Calculation of Wall Area (Aw) Building B UPJ. (Source: Author, 2022)**

| Code | East | North | West | South |
|---|---|---|---|---|
| $Aw_1$ | 166,66 sqm | 163,31 sqm | 109,72 sqm | 107,05 sqm |
| $Aw_2$ | 332,47 sqm | 235,91 sqm | 281,24 sqm | 312,38 sqm |
| $Aw_3$ | - | - | - | 13,61 sqm |
| **Total** | **499,13 sqm** | **399,22 sqm** | **390,96 sqm** | **433,04 sqm** |
| **All Total** | **1722,35 sqm** | | | |

**Table 7 Calculation of Window Area (Af) Building B UPJ. (Source: Author, 2022)**

| Code | East | North | West | South |
|---|---|---|---|---|
| $Af_1$ | 166,66 sqm | 163,31 sqm | 109,72 sqm | 107,05 sqm |
| | | | | |
| **Total** | **499,13 sqm** | **399,22 sqm** | **390,96 sqm** | **433,04 sqm** |
| **All Total** | **1722,35 sqm** | | | |

## Determine SC Glass, U-value Glass, and Effective SC

The glass material on all sides of building B of Universitas Pembangunan Jaya is 8 mm clear glass. The glass materials are categorized as follows:

**Table 8 Glass Material and Calculation of Uf and SC Values for Each Fenestration Type (Source: Author, 2022)**

| Code | Materials | Uf | SC |
|---|---|---|---|
| F1 | Clear glass 8 mm | 6,17 | 0,95 |

In determining the SCef, the researcher uses the help of excel, which can be accessed at https://iai-jakarta.org.

**Table 9 Calculation of SCef (Source: Author, 2022)**

| No. | Codes of Horizontal External Shade | Length | Height | Tilt Degree | SCef |
|---|---|---|---|---|---|
| 1 | SH1 | 0,25 | 0,25 | 0 | 0,68 |

## Calculating The Values of Wall Conduction, Glass Conduction, and Glass Radiation

**Table 10 UPJ Building B Wall Conduction Calculation (Source: Author, 2022)**

| Orientation | Code | TDek | Aw | Uw | α | Total |
|---|---|---|---|---|---|---|
| East | W1 | 10 | 166,66 sqm | 2,2725 | 0,3 | 1136,20 |
| North | W1 | 10 | 163,31 sqm | 2,2725 | 0,3 | 1113,37 |
| West | W1 | 10 | 109,72 sqm | 2,2725 | 0,3 | 748,02 |
| South | W1 | 10 | 107,05 sqm | 2,2725 | 0,3 | 729,81 |
| | | | | | | |
| East | W2 | 12 | 332,47 sqm | 1,6228 | 0,3 | 1942,32 |
| North | W2 | 12 | 235,91 sqm | 1,6228 | 0,3 | 1378,21 |
| West | W2 | 12 | 281,24 sqm | 1,6228 | 0,3 | 1643,03 |
| South | W2 | 12 | 312,38 sqm | 1,6228 | 0,3 | 1824,95 |
| | | | | | | |
| East | W3 | 15 | - | 0,1584 | 0,3 | 0 |
| North | W3 | 15 | - | 0,1584 | 0,3 | 0 |
| West | W3 | 15 | - | 0,1584 | 0,3 | 0 |
| South | W3 | 15 | 13,61 sqm | 0,1584 | 0,3 | 131,42 |
| **All Total** | | | **1722,35 sqm** | | | **10644,47 W** |

**Table 11 UPJ Building B Glass Conduction Calculation (Source: Author, 2022)**

| Orientation | Code | Area | ΔT | Uf | Total |
|---|---|---|---|---|---|
| East | F1 | 756,51 sqm | 5 | 4,27 | 15676,24 |
| North | F1 | 527,3 sqm | 5 | 4,27 | 11257,86 |
| West | F1 | 258,24 sqm | 5 | 4,27 | 4793,50 |
| South | F1 | 432,48 sqm | 5 | 4,27 | 8994,33 |
| **All Total** | | **1974,53 sqm** | | | **42794,43 W** |

**Table 12 UPJ Building B Glass Radiation Calculation (Source: Author, 2022)**

| Orientation | Code | Area | SC | SF | Total |
|---|---|---|---|---|---|
| East | F1 | 756,51 sqm | 0,75 | 112 | 63546,84 |
| North | F1 | 527,3 sqm | 0,75 | 130 | 51411,75 |
| West | F1 | 258,24 sqm | 0,75 | 243 | 47064,24 |
| South | F1 | 432,48 sqm | 0,75 | 97 | 31462,92 |
| **All Total** | | **1974,53 sqm** | | | **193485,75 W** |

## Calculating Overall OTTV Value

**Table 13 Calculation of overall OTTV Value (Source: Author, 2022)**

| Orientation | Total |
|---|---|
| Wall Conduction | 10522,38 W |
| Glass Conduction | 42794,43 W |
| Glass Radiation | 193485,75 W |
| **All Total** | **265000,66 W** |
| ΔAw | 1722,35 sqm |
| ΔAf | 1974,53 sqm |
| **All Total** | **3696,88 sqm** |
| **OTTV Value** | **71,68 W/sqm** |

The OTTV value in Building B Universitas Pembangunan Jaya is **71.68 W/sqm**. The value does not meet the requirements specified in SNI 6389:2011, which is 35 W/sqm. So, it can be said that the cover design of the Universitas Pembangunan Jaya building has not been effective in meeting the OTTV value requirements.

## Green Retrofit Suggestions

1. It is replacing the glass with a lower U-value and SHGC. Clear glass can be replaced by double-glazed high solar gain low-glass because it has a much lower U-value and SHGC than before, with a U-value of 0.25 and an SHGC of 0.42. It could change the OTTV value from 71.68 W/sqm to 26,27 W/sqm.
2. The slope of the external shade can also affect the OTTV value. If we change the glass material and the slope of the exterior from 0° to 50°, it can make the OTTV value become 25,87 W/sqm.
3. Window to Wall Ratio (WWR) in a building also influences the OTTV value. Building B Universitas Pembangunan Jaya has a WWR value of 114.64%. With the WWR percentage, it can reduce the OTTV weight. The percentage of WWR that can meet the OTTV value determined by SNI 6389:2011 is 35%. With a WWR value of 35%, the OTTV value of Gedung B Universitas Pembangunan Jaya can decrease to 34.76 W/sqm.

## CONCLUSION

Building B of Universitas Pembangunan Jaya was not initially designed with the OTTV simulation. At this time, new buildings should try to implement the green building concept. There are so many categories that can be applied to this concept, one of them is by paying attention to the design of the building envelope because it affects the OTTV value. The researcher made observations on the building envelope of UPJ Building B to find out whether the building envelope worked effectively through OTTV value analysis. Based on the results of calculations and study that the researchers did, the value of OTTV Building B Universitas Pembangunan Jaya is 71.68 W/sqm. That means the building envelope is not functioning effectively because, based on SNI 6389:2011, the building envelope is functioning effectively if The OTTV value is not more than 35 W/sqm. Researchers do a green retrofit in Building B, of Universitas Pembangunan Jaya. The green retrofit that the researchers do is changing the glass material, changing the slope of the external shade, and reducing the percentage of the WWR.

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# Decoloniality for Conceptualizing The Future of Social Design

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## ABSTRACT

The practise of social design is facing challenges with the advent of the rewesternization of the West. This led to attempts to develop future social design concepts free from Western ontologies. This paper offers the possibility of developing a social design concept based on the concept of decoloniality. The literature studies method and empirical observation were employed to formulate the concept. The results of reading literature sources and their comparison with current social design practices lead to the conclusion that the concept of decoloniality is essential to be adopted in social design practice. This adoption will increase the possibility of a sustainable design process for preferable social life and the natural environment.

Keywords: social design, decoloniality, delinking, communal, ontology

## INTRODUCTION

The practice of social design began to emerge after the second world war. However, to explain the emergence of social design practice, we can draw on a long history from when the design profession emerged. The design profession, specifically product design, was born as a direct result of the industrial revolution, especially in England in the 18th century. Forty (1995) stated that the beginning of design could be marked by the need among entrepreneurs in the early industrial revolution for a figure capable of making a 'mock-up' to be mass-produced in the factory. This background caused the design orientation at the beginning to support the industry. Thus, the logic applied is the logic of capitalism, which pursues efficiency and quantity of production to increase the surplus for the capital owners. In such situations, the designer is fully employed to serve the industry. Therefore, the design practice was obsessed with achieving economic progress through a capitalistic economic framework.

The practice of design as an industrial 'linchpin' peaked post-World War 2 when society was flooded with industrial products. This situation later became the "Consumer Society" background, as Baudrillard (1998) called it. People consume goods more than they need. The negative impact often mentioned is the degradation of the quality of society and the natural environment.

Under these conditions, some design practices and researchers launched criticism. They demanded that the design be more socially and ecologically responsible. Despite criticism from various designers, the design's development still sticks to the construction of Western epistemology. The concept that design exists to improve the condition of

society has its roots in Western ontology as the world's saviour. For example, this tendency can be seen in some of Papanek's social design practices, such as his residency in Bali (Kries et.al, 2018). Papanek on several occasions, mentioned that the design needs to do more for people in poor countries. As if to suggest that the design comes from developed countries (West) that need to help poor countries.

Thus,how should design practice, specifically social design, be carried out? How should design be practised in the Southern Hemisphere, for example, to solve the environmental problems? This paper attempts to offer the concept of decoloniality as a basis for future social design practices to liberate humans from the oppressive framework of Western ontology. This model is essential to anticipate the world's uncertain future, which is still under threat from various crises, including climate change, pandemic, and food and fuel crises. These crises are primarily rooted in the greedy practices of the production system under oppressive capitalism. Therefore the decoloniality approach offers the idea of shifting the capitalistic framework without falling back into an oppressive Western ontology.

## LITERATURE REVIEW

### Call for responsible design

Design in the post-WW2 era goes hand in hand with industrial and technological advances in the mode of production. This condition causes the design to primarily support industrial production and flood the market with consumer products. Criticism from among designers emerged. Ken Garland and 20 graphic designers voiced this criticism in the manifesto 'First Things First' in 1964. They assessed that graphic design through advertising should be able to play a more significant role in promoting social agendas, such as promoting culture, education and social activities, not merely advertising consumer products (Poynor, 2019).

In addition to the 'First Things First' manifesto, Viktor Papanek also criticized the top priorities of design in serving the market. Papanek conveys his critical views in his seminal book "Design for the Real World" published first time in 1971. In his statement, Papanek criticized the post-war design practice, which tended to only dwell on the stylization and repetition of the obsolete. De Bont (2021) underscores Papanek's indignation that designers should dedicate their profession to designing products for the poor, the sick, and the disabled instead of luxury products for the few. Papanek also adds to the importance of awareness to use natural resources more responsibly and a better balance of attention between the regions of developed and underdeveloped countries or, even in the most developed countries, between different social groups in modern society (Morelli, 2003).

### Decoloniality

To understand the concept of decoloniality I follow the views expressed by Walter Mignolo. Mignolo's decoloniality concept stems from the main idea, namely the concept of 'delinking.' Delinking in the context of decoloniality means shifting away from the development framework or instructions dictated by the West (US, EU, IMF and World Bank) (Mignolo, 2012). Delinking does not mean breaking away

from the “economic type” but instead preventing the recurrent domination of those economic organizations and countries (Mignolo, 2012).

To further understand the delinking process, Mignolo said there are two layers and levels of delinking, the level of civil society and political society. At the level of civil society, attempts to break the domination of the West and the market are in the area of questioning the state’s economic, political and daily public service decisions (health, education, food). On the other hand, the ‘global political society’ is moving more radically by attempting to break ‘economic coloniality’, which is an economic system based on growth and development that has created and increased poverty. Marxists name ‘Economic Coloniality’ by capitalism. However, Mignolo adds that ‘Economic Coloniality’ defines more than just capitalism. A more complex management structure oppresses the inferior class (Mignolo, 2011).

The delinking concept is rooted in the desire not always to obey growth and development needs. Contextualizing with design practice, epistemically, ‘delinking’ distances design from exploitative - and perhaps oppressive - practices due to the long history of design as a “linchpin” of capitalistic industry.

## METHODOLOGY

This study employed the literature studies method combined with direct observation of several social design intervention practices. Literature study is an appropriate method for synthesizing research findings at an early stage, especially in areas where more research needs to be done to build a more established theoretical framework (Synder, 2019).The literature study was conducted primarily to explore, interpret and relate the concept of decoloniality and social design practice. Many experts have conducted studies on decoloniality. I seek to contextualise those studies in social design work experiences. The results of the reading on the issue of decoloniality are then compiled to obtain clarity on its position to social design practices. Meanwhile, the results of direct observations and interactions with several social design work practices are utilised to directly compare the current practice of social design.

The two sources produced various findings. Those findings were then analysed to formulate how to conceptualise the future of social design using decoloniality thinking. The expected result, of course, is not just to re-amplify the previous opinions and thoughts, but how these thoughts are reformulated to contribute to the concept of future development of social design.

## RESULT & DISCUSSION

The concept of delinking in the decoloniality framework described by Mignolo is appropriate for the basis for developing a social design framework in the future. As explained earlier, the future of the earth and civilization is greatly influenced by how the colonialism matrix works. Social Design as a design intervention effort for the benefit of humans interests (Margolin & Margolin, 2002) can easily fall into the practice of tokenism if it is not really carried out with precise alignments.

Currently, the practice of social design has often been biased and fallen into public image building by designers and the party behind it. This is because the practice is still under the auspices of the oppressive western ontology. Within this framework, design often positions people as a group that must be saved, levelled up, or even empowered. This situation seems to put design as a tool to 'liberate'. The concept that Mignolo often refers to as an attempt of rewesternization and should to delinking.

Furthermore, Mignolo (2011) offers the concept of "communal" as a form of resistance to delinking the rewesternization agenda. Thus the communal concept means trying to shifting of western capitalist modernism. That there is another way outside the framework of the West. One of the things Mignolo emphasizes is moving out of the myth of "economic development", or in popular parlance, "progress" and "Development". This point becomes very important related to the existence of social design. So far, innovation through the practice of social design often leads to an increase in people's economic level. This condition is evidence that social design work has not been able to escape the western ontology. On the other side, there is another way that can be achieved, which is to achieve economic adequacy, meaning there is no need continuously to pursue economic improvement or progress. Economic progress always implies the nature of "greedy", which is ended up by damage to the natural and social environment.

Therefore, the future of social design needs to break away from the concept of "economic progress". On the other hand, the offer of the "communal" concept becomes interesting because its roots have long been practised in various parts of the world in the pre-modern-capitalistic era. This communal concept is not a derivative of the concept of "the common wealth", which is typical of capitalism, nor the concept of "common", which is rooted in Communism. Both ideas are still rooted in western ontology as the dominant force. On the other hand, communal is a decolonization practice rooted in local ideas and breaking away from the West colonial framework.

In the real practice of social design, the communal concept can be seen in the collective form carried out in several countries, for example, collective practice in Latin America, India, and also in Indonesia. Some collective practices in Indonesia can be found in some art collectives (e.g. Ruang Rupa, Taring Padi, and Hysteria). In addition, there are also collectives of farmers and factory workers. The author's observation of these collectives, with various notes, can be said to be an old practice that existed in pre-western Indonesian society. The activities of producing goods and services in the daily life of our society are integrated with various other practices, ranging from arts, worship, and even entertainment. The focus of production is not on efforts to increase economic progress but the balance of meeting needs with the sustainability of the natural environment.

If we align with the Mingolo's decoloniality concept, the communal concept in Indonesia, through the collective movement, could be one of the best practices that deserves to be proposed as a basic idea for future social design practices.

Communal will also provide more significant space for groups that have been marginalized in public affairs. The progress-oriented framework of the "saviour" of the Western model often requires sacrifices from some groups of society to achieve development goals. For example, in Indonesia, marginal groups are often victims, such as indigenous peoples, urban poor groups, farmers, and so on. They are required to sacrifice for reasons of national development interests. Perhaps, at the development policy level, social design strategies and innovations with communal concepts can be an alternative or even advocacy power to offset the "greed" of the capitalistic development model.

## CONCLUSION

The practice of Social Design has been trying to solve social and environmental problems through design interventions. It's just that the implementation framework still cannot be separated from Western ontologies, which tend to be oppressive. Moreover, the West's obsession with economic progress through development makes many groups sacrifice to achieve progress. The concept of decoloniality offers a framework of social design practice that is liberated from its oppressive nature.

Decoloniality is rooted in non-capitalist practices that already existed in many areas in the pre-modern era. Referring to Mignolo, the concept is called Communal. Establishing the future social design framework using the concept of decoloniality is an attempt to counteract the rewesternization of the West wants to maintain its hegemony. This effort is clearly essential to do to keep the earth and the world a no worse place. Decoloniality is a way to treat and cure the earth from the greedy practice of capitalistic development.

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# DISCUSSION ON THE FUTURE OF SID 2: HYBRID HUMAN CENTERED DESIGN, THE NEW NORMAL

**Possibility Transition to Hybrid Working System for Interior - Architecture Consultants in the Post-Pandemic Era**
Imelda Laurentsia, Marcelleano, William Jansen, Kuntara Wiradinata
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# Possibility Transition to Hybrid Working System for Interior - Architecture Consultants in the Post-Pandemic Era

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## ABSTRACT
Over time, the world community began to be able to live side by side with the Covid-19 pandemic. One of those is in the work system of the interior design and architecture consultant office that has gone through the work from home process with all the benefits and drawbacks, so interior design and architecture consultants still need a work from office way of working. Adaptation of work from a working system at home to a working system that is more responsive to current needs, namely the Hybrid system. This new work system is considered more effective and efficient considering its adaptability which is safer and more comfortable to complete design work, this system of course relies heavily on many strong supporters, one of which is the readiness of the office to respond to these safe and comfortable needs. Adapting to new needs for an office today are two sides of consideration that must be improved, the first side is the comfort and security of the office from the pandemic, on the other hand, is the ability to adapt to the possibility of working with a hybrid system. Through this study, the author will discuss the possibility that arises from fulfilling the safety and comfort factor through the point of view of apprentice students who work in interior design and architectural consultants, through the ethnographic method which is carried out through in-depth interviews, so that qualitative data is collected enough to build this writing.

Keywords: Post-Pandemic, Hybrid Work System, Technology

## INTRODUCTION
The COVID-19 pandemic has brought many changes to the working system of the interior-architectural design consulting office. The series of activities in the work

system must run well, and the proper way is needed so that it can be carried out safely and comfortably. This needs to be addressed so that the work process at the office continues to run smoothly even in a pandemic condition.

Along with the emergence of various new policies, many consultants have begun to switch to a hybrid work system by combining the WFH and WFO work systems. Of course, this decision has an impact on the workers and interns in it. Therefore, this study will discuss the possibility of a hybrid work system transition in the future for interns at interior-architectural design consultants.

Based on the explanation above, questions arise: (1) When the pandemic is considered sloping, is a hybrid work system still needed? (2) What are the advantages of a hybrid work system and how to take advantage of its possibility?

## LITERATURE REVIEW

The author uses a descriptive qualitative method by using literature studies to find the basic principles of measurable office work effectiveness. Besides that, the author does in-depth online interviews to get wider data because the author can choose communication media so it can easily interact verbally with informants anywhere and anytime (Salmons, Janet 2014:29).

### Design Consultant Work System

Suyenni's research entitled "Analysis of Solution Search Strategies in the Design Process" (2009), it shows that: "the design principal sets from the start the design direction he wants to achieve in the design consultant he leads. The clarity of this design direction must be able to be translated by the working designers. In it, so that the design process in the consultant is maintained and controlled until it is time to issue the design results".

Through the quote above, it can be seen that the design process within the design consultant must be well controlled, supervision and control require a design strategy, but furthermore, it is necessary to think about the constraints related to the pandemic and the adverse effects it has on the design strategy.

Susanne Colenberg and Tuuli Jylhä, two researchers from Delft University of Technology, Delft, The Netherlands, used a literature sample of 59 peer-reviewed papers published across disciplines and used them to collect examples of workplace design features that positively affect worker well-being. Through their research, they can understand the influence of the workplace on the performance of current interior design employees.

The author interprets the design strategy as strategic steps to deal with various possibilities in current conditions, but still prioritizes work safety and comfort.

### Worker Productivity

Interior-architectural design consultants are institutions that must be professional in providing services to the community, to approach this understanding one aspect that is easily measured is the productivity of the work produced.

According to Colenberg and Jylhä, (2021), four factors must be considered by interior design offices today: (1) Design for comfort, (2) Design for restoration, (3) Design for social welfare, and (4) Design for healthy behavior. Their discussion emphasized the physical influence of space on employee behavior during a pandemic.

On the other hand, Andriyany (2021) mentions factors that affect employee work productivity, such as: (1) The relationship between superiors and subordinates can affect employee performance and productivity, (2) employee work motivation, where the WFH and WFO work systems have an impact on employees. motivation of a person at work, (3) Attitude of work ethics with colleagues and superiors, (4) Sophistication of technology, where the existing facilities can accommodate work needs and affect employee motivation.

### Discussion of WFH and WFO During Pandemic

Following the recommendation of the Government of the Republic of Indonesia and considering the recommendation of the World Health Organization (WHO) to open up more relaxed social isolation, the work system began to be divided into two, namely WFO (work from office) and WFH (work from home).

This discussion will be presented in stages through exposure to the constraints and possibility of WFO's work, then the limitations and possibility of WFH's work to facilitate understanding of the possibility of hybrid work.

## METHODOLOGY

Through this research, the author wants to know the effect of the pandemic on the work system of interior-architectural design consultants, so the author needs to find information from parties directly involved in it. The author uses ethnographic research methods with data collection through telephone interviews with resource persons. The selected resource persons have interned students from Pelita Harapan University class of 2018-2019. The data is compiled in field notes, with coding and memoing to facilitate discussion.

## DISCUSSION

### Working conditions in the office

The first factor is: Office for comfort, comfortable design is not just beautiful and cool, interior design also opens up opportunities for vertical relationships between superiors and subordinates, as well as horizontal relationships between subordinates and subordinates. Some interesting responses from informants are:

"...have to talk often to ask questions so that it looks like the initiative is brought to the site so I can learn a lot." (Informant D, Apprentice, 2/3/,2022)

"...Usually if you are an intern you are given a senior designer supervisor, so he is the one who always teaches you and if he has a project, you will be invited." (MK informant, Apprentice Student, 02/03/2022)

"...if we ask anything it becomes easy. If you're not close enough, you think a lot… If you're close, their superiors are welcome to answer me" (Navy Informant, Internship Student, 03/03/2022)

From the data above, it is found that the interior design of the consultant's office must meet the comfort needs of employees, both physical comfort and comfort at work. The relationship between supervisor and apprentice greatly affects the performance of the intern.

**Employee work motivation**

The second factor is the office must be able to restore, the current pandemic conditions make the concept of space must be changed, the thought of sociologist Aaron Antonovsky was originally developed by Aaron Antonovsky - a sociologist who made the theory of Salutogenics a positive force given by interior designers later adopted to deal with the pandemic. (Roskams and Haynes, 2019). This theory is in line with Positive Psychology written by Lea Waters et.al. (2022) who see an attitude with positive thinking as the best solution to overcome pandemic fears. From these two theories, it can be understood that space and human attitudes can provide solutions to current needs.

A few quotes provide insight into the current state of the design office.
"…. our industry will better coordinate offline. Reduces misunderstandings and human errors that can't be controlled by WFH." (Informant, principal, 30/05/2022)

"...The table is very narrow and the distance between my chairs is also very close to the guest chairs. The air conditioner is also not cold enough, I like comfortable, clean, and cold places so I can be productive…" (EF Informant, Practical Work Student, 01/03/2022)

"I prefer WFO, so I can get to know others and there are no problems for now" (Informant D, Apprentice, 2/3/,2022)

Based on the informant's data above, there are two opinions regarding WFO and WFH, WFH work slows down performance because it requires work coordination to reduce misunderstandings and human errors that cannot be controlled if WFH employees and interns do not get an uplifting work atmosphere. The rest admit that WFO is more profitable because it can build relationships with others and be more focused. The rest mentioned their concerns because health protocols were not properly maintained, especially during this time of the covid pandemic.

From the description above, it can be understood that working WFO motivates employees' work through several aspects, such as, (1) A comfortable office atmosphere, related to employee cohesiveness at work. (2) A clean office environment, associated with the covid pandemic. (3) Ergonomic arrangement of furniture in the office to provide a sense of comfort for its users.

**Attitude Work comfort**

The third and fourth factors that must be considered are: Design for social welfare and healthy behavior, this factor emphasizes the design that influences the comfort aspect in relation to increase work productivity.

"There's no difference in assignments, I was asked to hold an architect's working drawing and was guided from 0 to really teach it..." (CN Informant, Internship Student, 01/03/2022)

"The good thing is that at the beginning they don't understand boundaries, so they like to skip work hours and still get work" (EF Informant, Internship Student, 01/03/2022)

"...everyone is relaxed and doesn't care, like there is no covid" (MK Informant, Practical Work Student, 01/03/2022)

"...It's a bit negative because the work is too forced, it works all night. I once came home at 1-2 in the morning, maximum at 3 am ." (VL informant, Intern student, 07/03/2022)

From the informant's data above, it can be seen that the potential and constraints of WFO's work arouse enthusiasm for work, but work comfort and healthy behavior at work have a negative effect on interns, and work ethics are not implemented properly so that it affects their work productivity.

**Sophisticated technology**

This technology-related discussion becomes crucial because the network strength factor is often an obstacle, technology becomes great during WFO, but becomes a big problem during WFH. This obstacle has become a consideration for several principals to eliminate WFH, but it is necessary to think about it if the pandemic rages on again and must WFH.

"Now, WFH is using Discord + GDrive. There are many channels on discord that are based on ongoing projects." (CN Informant, Student Apprentice, 01/03/2022)
"… the system works if large files are sent via email, but if small files use WA." (EF Informant, Internship Student, 01/03/2022)

" … Files sent using the hard disk due to WFO…. For example, take it home (file), it must be sent to the office drive when finished and the file on your computer must be deleted." (MK informant, Apprentice Student, 02/03/2022)

"…the assist takes a long time to progress because you have to wait for the chat to reply." (VL informant, Intern student, 07/03/2022)

"Zoom is easy to use, fast, everyone uses, can share screens, comments quickly, image resolution is very good for presentations." (AG informant, intern, 29/05/2022)

Based on the sample data above, the use of advanced technology is preferred for data storage and communication. The existing data storage technology to date has answered the demands and needs of consultants. Online data storage technology has been widely applied by consultants, especially for those who run a work from home (WFH) system. The data security factor is also one of the considerations for the selection of storage system technology. Online storage is considered not as safe as storage through a server, because data online is easier to spread and can be directly accessed by anyone who has a link.

If the constraints of work coordination, data transmission and interaction can take place through available technology, then the design strategy through WFH work can be implemented. The difficulty of the WFO working system allows the WFH working system to develop, but it is an exciting thought that the advantages and disadvantages of these two systems can cover each other if supervision and control can be carried out properly, the opportunity for a hybrid system to be the best choice for certain conditions.

## CONCLUSION

If the above considerations are accepted, then the hybrid system can solve the weaknesses of the WFH and WFO systems, and open up new possibilities, including: (1) Work can be done more flexibly. (2) Provide freedom that can make workers more comfortable. (3) There is a regular distribution of WFO and WFH work schedules. (4) Long-distance interaction without being limited by space and time, thus facilitating communication and monitoring by superiors. The first question is answered through this explanation.

The hybrid work system in the post-pandemic period can continue to be applied, due to the fulfillment of worker productivity factors, namely, (1) increasingly sophisticated technology is accompanied by the ability of workers to operate existing technology to optimize work productivity. (2) Work comfort creates good relations between workers and superiors so that work motivation arises. The second question is answered through this explanation.

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# Study of Accessibility and Territoriality in CPTED Application in Vertical Residential

(Case Study: BB Apartment and Rusun Apron, Greater Jakarta)

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## ABSTRACT

In large cities, vertical housing as a housing choice could have criminal issues. It could result from social backdrop elements and building design. Crime Prevention Through Environmental Design (CPTED) was introduced to minimize the potential problems. CPTED was based initially on Oscar Newman's theory from his book, Defensible Space. The 2nd generation of CPTED appears that design alone was not enough to prevent crime and more focusing on its residents' social life. This research examines how the implementation of CPTED could function appropriately in vertical housing in Greater Jakarta. This study uses a qualitative method that was compiled descriptively using two case studies, BB Apartments, and Rusun Apron. The results of this study indicate that all aspects of CPTED, whether accessibility, territoriality, or community, must be considered in designing a safe and comfortable vertical residential environment. The scale of the building is also an essential factor in the occurrence of crime; when the scale is too large, the supervision and bonds between residents are not intense. Nevertheless, it is important to highlight that CPTED was created to reduce crime, not eliminate it. The application of CPTED must also be adapted to the situation and conditions of the vertical residential environment that will be created to be a maximum preventive.

Keywords: Crime Prevention, CPTED, Accessibility, Territoriality, Jakarta

## INTRODUCTION

Residential is the only space the whole community uses when we are isolated due to a pandemic. The comfort and safety of the residential area are crucial things to consider in choosing a residence. With the urban land crisis, vertical housing has become the choice of urban communities (Sabaruddin, 2018). Vertical dwellings have been made with various considerations of facility design and accessibility. But there are still many criminal cases that occur and make people hesitate to choose vertical housing as a place to live. Various factors certainly cause this. Programs, building forms, building design, accessibility, and even social factors

can also influence the occurrence of criminal acts in vertical residences. This phenomena inspires designers from around the globe to collaborate and establish a foundation for crime prevention through design. In 1996, Crime Prevention Through Environmental Design (CPTED) was formed, which is under the auspices of the International CPTED Association (ICA) (CPTED, 2022). So, in this study, the authors try to find out how CPTED can be applied in Indonesia and how much influence it has as a measuring tool to prevent crime in vertical housing.

## LITERATURE REVIEW

### 1. First Generation of Crime Prevention Through Environmental Design (CPTED)

Crime Prevention Through Environmental Design, or CPTED, is a movement to reduce the fear of crime in society. CPTED is a pioneer in reducing victims by trying to deter criminals and build a sense of community so they can gain control over their territory. CPTED was initiated in the 1970s, when Oscar Newman released his book defensible Space (Newman, 1973). This book reinforces the concept of the CPTED movement in preventing crime and building the community.

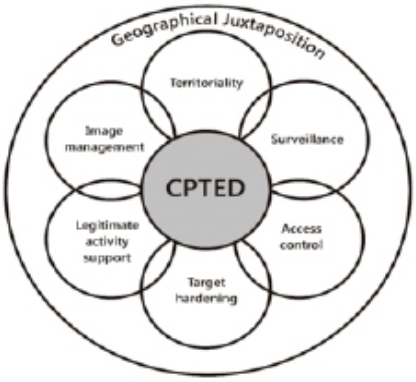


**Image 1 First Generation of CPTED Diagram.**
**(Source: Nadezhda Samoylova, 2020)**

### 2. Second Generation of Crime Prevention Through Environmental Design (CPTED)

Several years after the existence of the first generation of CPTED, CPTED members carried out various studies and experiments that led to the birth of the second generation of CPTED. This second generation has references from the field of environmental criminology, and has changed the focus which was initially focused on how design can solve the problem of crime, now to focus on the community and social life. The second generation of CPTED has 4 approaches, namely Social Cohesion, Community Culture, Connectivity, and Threshold Capacity.


**Image 2 Second Generation of CPTED Diagram. (Source: Newman, 1973)**

## METHODOLOGY

The research method used in this research is qualitative and arranged descriptively. This qualitative method is used to get answers to research questions by exploring and understanding the meaning of a problem (Creswell, 2009). Qualitative methods use the data needed for research obtained from literature studies, opinions, understanding, history, and behavior. The data are explained narratively, along with the data obtained from observation activities in the field. The method of data collection in this research is by analyzing case studies and conducting field observations, documentation, and interviews with certain people, so that data collection is more structured and can be done systematically.

## RESULT & DISCUSSION

### Accessibility in Vertical Housing

In the first vertical housing case study, the Rusun Apron Kemayoran, there are 8 towers, each consisting of 5 floors, where a commercial and service area is on the ground floor. This apartment is located in the city centre, surrounded by other vertical residences, settlements, offices, halls, and several shopping centres, both traditional and modern. The problem with this flat at first was its openness to the surrounding environment. This means that the Rusun Apron Kemayoran area can be accessed by anyone from the main gate (Image 4) to the other two doors that should exit (Image 5 & Image 6). Not only the Apron area can be accessed by anyone, but also anyone can access every building because there are no gates or fences that surround the Apron area.


**Image 3 The Main Gate of the Rusun Apron Kemayoran. The condition of the main gate of the Apron Flat since it was built until before the parking gate was built, only uses a portal and can be accessed by anyone. (Source: Google Streetview 2019)**

**Image 4 The Second Gate of the Kemayoran Apron Flat. The condition of the second gate of the Apron Flat is located at the back of the apartment area and is always open, before the parking gate. (Source: Google Streetview 2019)**

**Image 5 The Third Gate of the Kemayoran Apron Flat. (Source: Google Streetview 2019)**

**Image 6 Main Entrance of the Apron Flats in Kemayoran 2022. (Source: Author's Documentation)**

Starting in 2021, the main entrance to the Kemyoran Apron Flat will be given a paid parking gate (only for immigrants or outsiders) or using a card (only for residents of the Kemayoran Apron Flat) (Image 7). Then the portals at the other 2 entrances were closed so that until now access to enter and exit was only through the main gate.

*"For me, it's good now, there's only one door (entry). People also don't enter carelessly because there is a parking gate, so it's more organised. Yes, even though theft or robbery is still there, it becomes more comfortable." [Mrs. Ari]*

They believe that with the parking gate, the apartment environment is more defined as their environment and is not as open to the public. In fact, clear boundaries can add to residents' comfort even if crime still occurs. Although Newman stated that using fences or gates would only give criminals the impression that what is behind

the fence is valuable. However, in some cases, the fence will make the occupants more comfortable, such as when one Pruitt-Igoe tower decided to use the fence because the crime was too high and causing the occupants discomfort.

BB Apartments are made with a design that is quite different from other apartments. This BB apartment area is very open, without fences or gates, and has six entrances (Image 8). The main entrance is right in front of the main road, and pedestrians use huge glass (Image 9). The ground floor and upper ground become the center of public activities, such as the lobby, lounge, as well as trade and services. So the first 2 floors are public areas. When you enter the lift area, it indicates that you have entered a more private area; only residents and building users can go up because they have to use an access card. Even residents can only access the floor of their unit, the UG floor, which is a facility area, and the Refugee floor.

**Image 7 BB Apartment Accessibility Existing Condition. (Source: Author's Documentation, 2022)**

**(a)** **(b)**

**Image 8 (a) Outdoor View Main Entrance BB Apartment, (b) Indoor View Main Entrance BB Apartment (Source: Author's Documentation)**

In the absence of literal boundaries such as the use of fences in this BB Apartment building, they said there were enough people who understood that when they turned and passed the signage that said BB Apartment, they entered a different area, namely the residential area. But not a few are also not aware of the difference, so there are people who enter with hesitation because it is open.

*"Actually, the apartment environment is safe, even if there are one or two thefts. But that's very rare. Well, if there is no fence or at least a parking gate, it won't be comfortable to any of us who live in this building." [AH]*

It can be said that the absence of a fence or at least a parking gate makes those who

live in it uncomfortably. Then there are also other opinions about the main entrance to this apartment. According to Oscar Newman (1973), placing the entrance at the front with wide and clear visibility, can help prevent crime. Because road users could become a natural surveillance when something suspicious happens. But now, in this apartment, it turns out to be contrary to Newman's opinion.

*"The door (the main entrance) was locked because it was more unsafe. Initially, because we lacked security personnel, and the front entrance, someone really had to guard it. So when we consider the safety aspect, we finally close the main entrance. Because even though there is security, one day they also have their guard down. also, this entrance is by the side of the road, lots of people passing by, lots of people can see what's going on inside, if you're careless, someone suddenly enters and in the lobby there may be residents sitting and not aware of what's going on, and that would be a crime." [P.B, Managing Operations Manager]*

## 1. Territoriality in Vertical Housing

In each building in this Apron Flat, if we enter from the front entrance access, the circulation is divided into 2. An example is if the building is an Apron 1 building, then if we take the stairs on the right we will enter the 1D residential unit and if we take the stairs on the left we will enter the 1E residential unit (Image 11). So that in one building there are 2 different and separate circulations, on each floor there are also only 4 residential units that share corridors and stairs. The corridor in this Apron Flat is not too big and not too small for people to pass by. The majority of units in the flats use netting doors, so at certain hours they open their main doors and only close the net doors (Image 12). This makes natural surveillance on the residential floor increasingly formed.

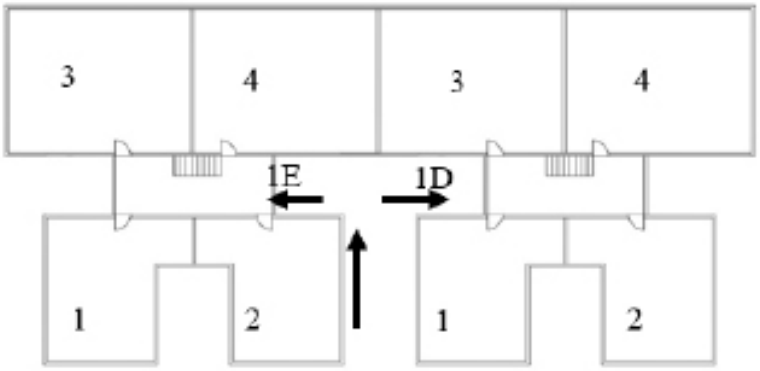


**Image 9 Typical Plan of Apron Flats. Sharing access within one building. One staircase and one corridor serve fewer units (Source: Author's Documentation)**

**Image 10 The corridor of Rusun Apron Kemayoran. The condition of the residential floor of the flats is not large and causes the shape to be circular. The use of a residential floor pattern like this, also supported by the use of net doors, adds to the natural surveillance of the occupants. (Source: Author's Documentation, 2022)**

*"There's enough privacy here. Although actually, our privacy space is only in our unit. But because sometimes the front or side neighbors are familiar with it, it's normal to cross boundaries (privacy). Most of the people here use netting doors, when people pass by, they still greet each other. Or what are the next-door neighbors doing in the corridor, we'll just join in."* [Mrs. Kayla]

When social life is formed in a vertical residence, care will also be formed. With a small building scale, it will be easier for this concern to be formed. The corridor in this flat also only facilitates four units and can be said to be very small; this adds to the formation of natural surveillance. Because when they get to know each other and see someone they've never seen in their neighborhood, curiosity arises, leading to surveillance. The example in Newman's book, The old student dormitory has the same concept as the Rusun Apron Kemayoran, and the new student dormitory has the same concept as the BB Apartment. However, the students claim that they prefer their old dormitory, because in the old dormitory they had a strong bond between students on one floor. When they have to share a corridor with dozens of

rooms, they find it difficult to bond with each other on one floor because there are too many people and a too large area to control. The scale of this building also how strong the community's awareness is built.

BB Apartments do not have literal boundaries, such as the use of fences, but the application of symbolic boundaries in the form of a change from concrete to andesite roads is enough for the public to realize that it is a different area. The comfort factor in this BB Apartment, which the interviewees mentioned, is one of the factors due to the occupants of the unit who are more active and communicative if they compare it to the first tower. The residents and unit owners create a group that they call the *Paguyuban*. However, even though the social life in this apartment has been established, it does not mean that they can also interfere in the affairs of other residents if they are already in the unit. They really understand their limits, and sometimes knowing their limits can also be negligent in preventing crime.

*"[…] Even though it doesn't rule out the possibility that the criminals are the residents themselves who have access, so they don't go through screening on the GF floor. And if there is a crime on the residential floor, maybe they are the ones who committed crimes for themselves, and we can't monitor it either, for example, maybe drug users. […]" [PB, Managing Operations Manager]*

BB Apartment uses a double-loaded corridor for 32 units with a length of approximately 82 meters. Although this corridor is only straight, the visibility is too long and it is obscured by light coming from the openings on both sides of the corridor (Image 12). So even though several people passed through the same corridor, having a considerable distance away, it couldn't be said to be natural surveillance because we can't even identify the person's face if the distance is too far (Image 13).

**Image 11 Typical Floor Plans of BB Aprtments (Source: Building Manager of BB Apartments)**

**Image 12 The existing condition of BB Apartment Corridor (Source: Author's Documentation)**

## CONCLUSION

Accessibility and territoriality are inseparable concepts. In vertical housing, everyone, not only inhabitants, must be aware of what their borders are and what their restrictions are. When current territoriality or borders are unable to specify the bounds of each space in the environment, this affects accessibility and should concern the user. The size of the building can also play a role in crime reduction in vertical housing. A smaller building size will be better in lowering the danger of crime in vertical housing, according to the findings of the author's observations and analysis. Residents' territoriality on their residential floors is also smaller due to a lower building scale, which allows for maximum surveillance.

CPTED exists to reduce crime in vertical housing, not to overcome or even eliminate crime. So that's why when the first generation was created, they realized territoriality, natural surveillance, and image were not enough to reduce crime. Therefore, the second generation of CPTED appears, emphasizing more on the residents and community's social life. So even though the designers have considered the design using the first generation CPTED, they didn't consider the second generation CPTED; preventing crime is not optimal. The author is aware that while creating a vertical house, designers must consider more than just design principles and theories; they must also consider the setting in which they will be used and the intended audience. On this basis, we may ascertain the requirements of our users and modify our proposed design accordingly.

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# DISCUSSION ON THE FUTURE OF SID 3: TECHNOLOGY 5.0 (METAVERSE & BIG DATA) IN SOCIAL INNOVATION DESIGN

**The Implementation of Virtual Reality as a Representation Medium of Architectural Space**

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# The Implementation of Virtual Reality as a Representation Medium of Architectural Space

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## ABSTRACT
In the practice of architecture, representation is one of the fundamental things to be noted, as it acts as the medium to present the design. To establish a significant and memorable architectural space, the knowledge of spatial relationships from plans, sections, and elevations is needed. However, most of the time, those representations can not tell the designed spatial experience intended. This study incorporates the uses of virtual reality as a representation medium to investigate the effectiveness of virtual reality in conveying the architects' designed spatial narrative. This study employs qualitative methods with data collected through literature studies, virtual reality simulation, observation, and interviews. The data obtained were analyzed through a comparative study and interpreted based on existing theories. Based on data, it can be concluded that virtual reality succeeded in conveying a designed spatial narrative and establishing a similar spatial experience for several users.

Keywords: Virtual Reality, Representation Medium, Spatial Narrative, Spatial Experience

## INTRODUCTION
The phenomenology of architecture is an essential study for us, architecture students, as we bear the responsibility to not only design a space, but also the experience. To establish a significant and memorable architectural space, the knowledge of spatial relationships is needed. Architecture students went through years of practice and training to understand spatial relationships through the representation of plans, sections, and elevations. However, most of the time, these representations can not specifically tell the spatial experience intended behind them.

In the practice of architecture, representation is one of the fundamental things to be noted, as it acts as the medium to present the design. Thus, architects need to fully understand the potential of their representation medium to maximize the expression of their designed architectural space. According to Aydin & Tong (2019), the intention of architectural space is primarily to create a spatial perception for its users so it could tell a spatial narrative cohesively.

Virtual Reality (VR) as a medium has the capacity to provide an indistinguishable visualization from reality as it blurs users' senses and establishes new perceptions. Cruz (2018) argued that Virtual Reality allows users to establish a sense of presence by putting the user on a human scale and providing the opportunities to experience the virtual environment through visualizations.

The main objective of this study is to investigate the effectiveness of virtual reality as a representation medium of architectural design. It is intended in the present study to discuss the potential of Virtual Reality as a tool to represent architects' designed spatial narrative and its ability to establish spatial experience in users. This study is believed to be relevant to today's society because representation medium in architecture is a key to strengthening coordination and communication between project stakeholders, hence avoiding false perceptions in the process of architectural practice.

## LITERATURE REVIEW

### Virtual Reality

Chen (2020) proposes that Virtual Reality (VR) is a computer-simulated environment. Hence, VR provides a non-physical and artificial environment that is able to replace the present reality. Aydin & Tong (2019) argued that VR is a representation medium based on visual and auditory elements. This correlates to the application of VR hardware which includes a head-mounted display to block out sight and earphones to block out sound, in this manner, it enables to blur the line between the artificial environment and physical environment.

VR allows users to interact with the artificial environment by providing rendered spatial sequences. According to Mihelj, et. al. (2014), VR is constructed by these elements:

a. Virtual Environment, a non-physical and computer-simulated environment.
b. Virtual Presence, the sense of a user's presence in the virtual environment.
c. Sensory Feedback, the capability of users to interact and affect the virtual environment.
d. Interactivity, responses towards user's movement.

### Spatial Perception

According to Bergqvist (2015), perception is defined as the way humans interpret something based on the stimuli they receive from multisensory modalities; primarily visual and auditory. The perception of each person varies, this has to do with the subjective mind that allows people to interpret from a perspective. This argument is supported by Green and Schellenberg (2017) who considers people perceive objects as multitude spatial properties which have both constant aspect—remains unchanged through the changes in perspective, and perspectival aspect—changes depending on perspective.

### Spatial Experience

Predominantly, architecture and humans are engaged in a sense that one influenced the other; and the other way around. Soltani (2019) believes that architectural

space is dependent on its surrounding environment. Hence, the essence of spatial experience is established based on the relationships between humans and the space they occupy. It is worth noting that spatial experience is capable to enhance an emotional connection within space by providing ambiance and atmosphere that will be judged based on subjective evaluations.

## METHODOLOGY

This study investigates the effectiveness of virtual reality as a representation medium to convey the designed spatial narrative by adopting Chichu Art Museum VR as a case study and displaying it through a head-mounted gear. The case study was chosen as a fitting spatial experience for its varying atmosphere. A total of 7 key respondents participated in the study at different times over two weeks. This study uses a qualitative methodology which is carried out by VR simulation, observation during simulation, and interviews.

The simulation setup consisted of Virtual Reality Glasses (VR BOX) which displayed a sequence of artificial architectural spaces. Next, 3 key spatial scenes with certain narratives were demonstrated, as follows:

**Image 1 Key Scene 1: Uncomfortable & Narrow Narrative (Source: Chichu Art VR, 2020)**

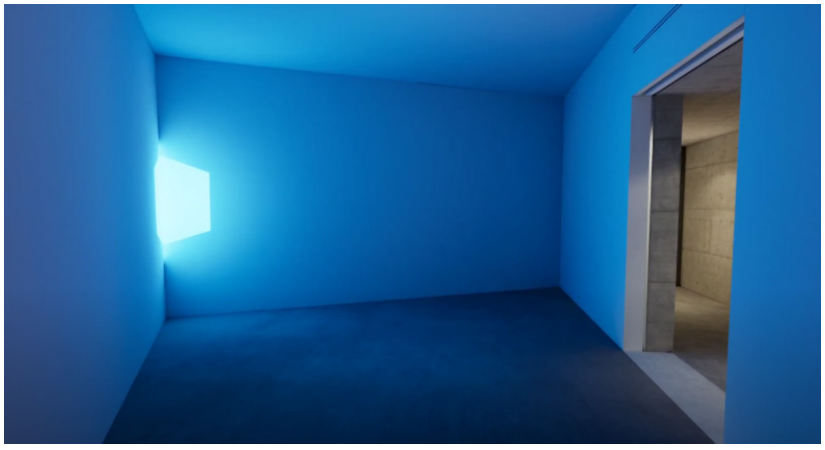

**Image 2 Key Scene 2: Cold & Chills Narrative (Source: Chichu Art VR, 2020)**

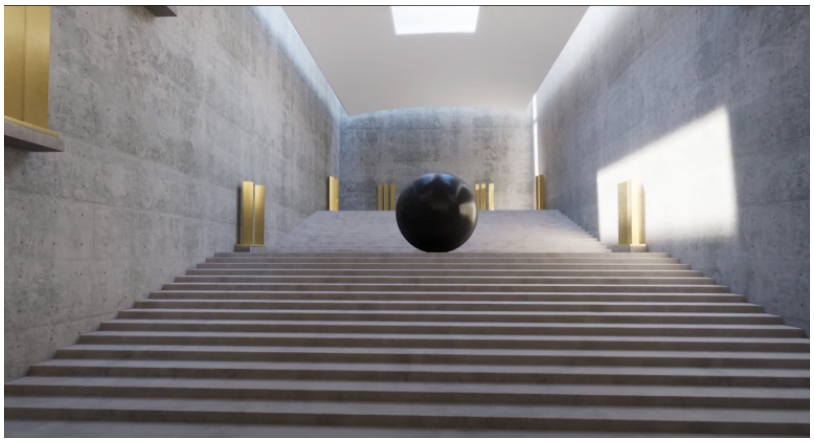

**Image 3 Key Scene 3: Spacious but User Feel Small Narrative (Source: Chichu Art VR, 2020)**

During the simulation, the responses of 7 key respondents are observed through vocal and body expressions. Afterward, the respondents were interviewed about the atmosphere and ambiance they received during the simulation.

The data collected in this study includes primary data and secondary data. The data collection results were processed through a comparative study by comparing the result of one respondent with another. The analyzed data will then be interpreted based on existing theories before the conclusion is drawn. The conclusions generated will be related to whether virtual reality could act as a good representation medium to convey a designed spatial narrative and establish a spatial experience or not.

## RESULTS & DISCUSSION

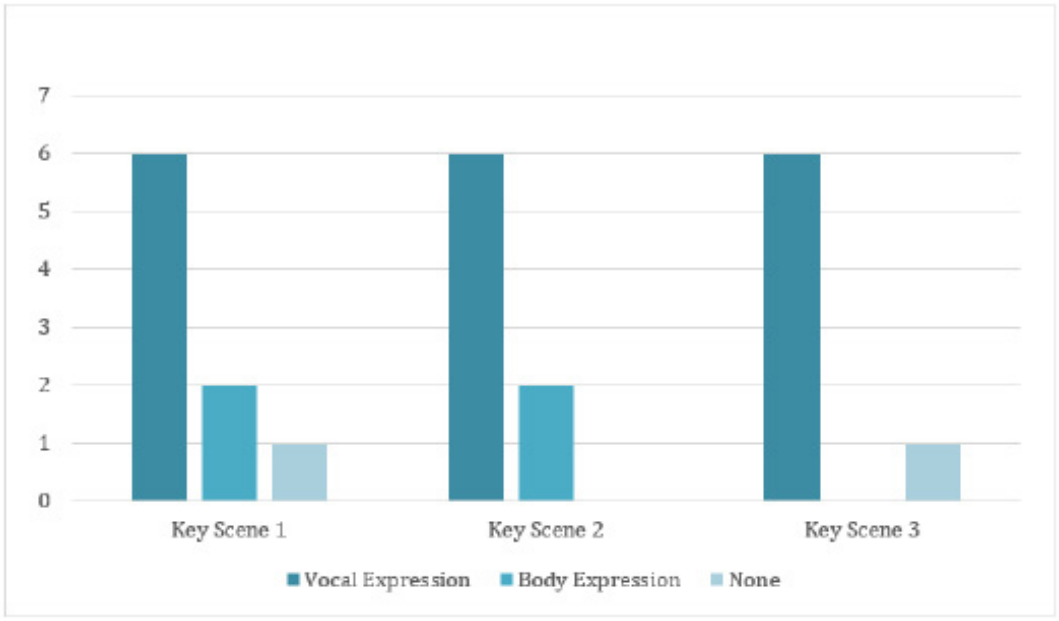


**Image 4 Expression Towards Spatial Narrative (Source: Fitri Nurul Aqila)**

The observation results of all respondents in terms of vocal and body expressions during the simulation are summarized in Table 1. Overall, the respondents tend to

express their spatial experiences through vocal expressions or verbally. On the other hand, some respondents reacted through body expression, for example in Key Scene 1—two people actively move their heads left and right; in Key Scene 2—two people hunched their shoulders.

**Table 1 Key Scene 1: Uncomfortable & Narrow Narrative (Source: Fitri Nurul Aqila)**

| Respondents | Impression / Spatial Perception |
|---|---|
| 01 | The alley is dark and scary, it feels like there is no end in sight |
| 02 | It feels narrow and moisty |
| 03 | It feels like I can't move my body freely and it is so quiet, that it makes me cautious |
| 04 | It's dark and quiet |
| 05 | I feel isolated |
| 06 | It's dark and uncomfortable |
| 07 | I don't feel anything |

From the interviews, it showed that (Table 1) most of the respondents feel some kind of uncomfortable feelings during the simulation; whether it's dark, quiet, narrow, moisty, or cautious. This indicates that Key Scene 1 successfully establishes a spatial experience in users with the designed spatial narrative by designing the space in a narrow dark alley with concrete as its material.

**Table 2 Key Scene 2: Cold & Chills Narrative (Source: Fitri Nurul Aqila)**

| Respondents | Impression / Spatial Perception |
|---|---|
| 01 | The deep blue color blurs my vision |
| 02 | It feels cold |
| 03 | The lighter blue in the corner of the room makes me feel there is hope |
| 04 | It's cold and quiet |
| 05 | I feel empty |
| 06 | It kind of resembles the sea |
| 07 | It's cold and dim |

Overall, based on the interview results (Table 2) of Key Scene 2, all of the respondents feel a spatial experience through their perceptions. The impressions or spatial perceptions they experience indicate the achieved cold narrative by designing the space in deep blue. Other narratives include the similarity between the room and the sea or the emptiness it conveys.

**Table 3 Key Scene 3: Spacious but User Feel Small Narrative (Source: Fitri Nurul Aqila)**

| Respondents | Impression / Spatial Perception |
|---|---|

| | |
|---|---|
| 01 | I feel free |
| 02 | I feel calm and free |
| 03 | It feels like I could move anywhere but then I realized I can't escape this closed space |
| 04 | It's huge and wide |
| 05 | I feel alone |
| 06 | I don't feel anything special |
| 07 | The room is wide |

From Table 3, it can be concluded that most of the respondents feel the freedom and the wideness of the room. However, some respondents felt alone or trapped in a space. This result showed that Key Scene 3 has succeeded in establishing a spacious spatial experience for users but fails to achieve the "User Feel Small" narrative.

Based on the results of the data that has been presented, it can be seen that virtual reality provides a good representation medium to convey a designed spatial narrative, it also establishes similar spatial experience in users. In this study, there is not much body expression during the simulation. This could be caused by the limited gear that only provides visual and auditory feedback, there is a possibility that it would achieve different results if the simulation was demonstrated in full-gear equipment, such as remotes for users' hand movement.

## CONCLUSION

Based on the simulation, observation, and interview that is demonstrated through the Virtual Reality Glasses (VR BOX), the conclusion that can be drawn from this study is that virtual reality is effective to use as a representation medium of architectural design as it successfully conveys the designed spatial narrative. Moreover, the results of the analysis argue that virtual reality achieved to plant or establish a similar spatial experience for its users. These findings indicate that the implementation of Virtual Reality as a Representation Medium of Architectural Design could improve the users' understanding of spatial narrative cohesively and minimize the presence of false perceptions.

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