

RAPID PROTOTYPING DESIGN FOR THE COMMUNITY

*LEX SINGAPORE POLYTECHNIC & UNIVERSITAS
PELITA HARAPAN MARCH 2024 – DARUSSALAM
SCHOOL, KEBUN KANDANG & DODOL OYOT,
TANGERANG*

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Abstract

Learning Express (LeX) Program is a program initiated by Singapore Polytechnic (SP) in cooperation with the School of Design, Universitas Pelita Harapan (SoD, UPH). LeX 2024 worked with 3 Ciakar's, Tangerang communities to solve problems in their area: Darussalam School, *Kebun Kandang* Eco Farming, and *Dodol Oyot* SME. The research-design-action is conducted in 12 days using Design Thinking methods. The results would be rapid prototyping social innovation design for all the three communities.

Keywords: Learning Express Program, Design Thinking, Rapid Prototyping, Social Innovation

INTRODUCTION

Learning Express (LeX) Program is a program initiated by Singapore Polytechnic (SP), where SP lecturers and students cooperate with another educational institution in Asia to work with the community there. School of Design, Universitas Pelita Harapan (SoD, UPH) has been SP's partner in Tangerang area since 2023. LeX 2024 between SP and SoD, UPH is the 2nd collaboration to work with Ciakar's,

Tangerang communities to solve problems in their area. LeX 2024 focuses on 3 communities: Darussalam School, *Kebun Kandang* Eco Farming, and *Dodol Oyot* SME, all in Ciakar, Tangerang. It was conducted by 3 teams consisting of each group: 3-4 facilitators with 10 students from SP and 10 students from UPH that will do research-design-action in 12 days. The results would be rapid prototyping social innovation design for all the three communities.



Image 1 Existing Condition: Darussalam School, *Kebun Kandang* Eco Farming & *Dodol Oyot* SMEs. (Source: LeX SP-UPH Program, 2024)

LITERATURE REVIEW

In the scouting trip made by the SP and UPH Team facilitator before the LeX program, some issues found in all the three communities:

1. Darussalam School is initiated by Dr. Suharli in 2004 providing an affordable education for Panongan, Tangerang residents. It aimed to become a green and

sustainable school (SEKOLAH DARUSSALAM (darussalampanongan.com). It has various programs, one of it to reduce plastic consumption and waste around the school (<https://www.nawasis.org>) . However, it has difficulties to implement it in the school as the school stakeholders (teachers and students) did not have adequate knowledge on it and direct involvement on the program. Thus, it needs an engaged (<https://www.umpi.edu/academics/engaged-learning>) and immersion learning approach (https://ballotpedia.org/Immersion_learning). The approaches will push stakeholders active collaboration and the needs of partnerships.

2. *Kebun Kandang* Eco Farming is initiated by *Pak* Supendi, a school teacher, utilizing government vacant lot to do farming. It aimed to become an Eco-Sustainable Tourism. According to the UN Sustainable Development Goals (SDG, 2015), it needs 5 P's to achieve it: People, Planet, Peace, Prosperity, and Partnership. Sustainable tourism is "tourism that takes full account of its current and future economic, social and environmental impacts, addressing the needs of visitors, the industry, the environment and host communities." Sustainable tourism "refers to the suitable balance of environmental, economic, and socio-cultural aspects of tourism development to guarantee its long-term sustainability" (UNEP & UNWTO, 2005: 11-12. *Making Tourism More Sustainable – A Guide for Policy Makers*).
3. *Dodol Oyot* is a SME that produced traditional sweet snack from Ciakar, Tangerang started in 1991 and continued by the 2nd generation. It is popular in the Ciakar region, but *Pak* Syamsul the 2nd generation aimed at how to expand the business to the broader market. In this case understanding the digital natives as the potential market is very important and how they interact and built their own way of communicating and connecting to the real world (Jukes, 2010). Digital marketing is one way to reach these digital natives. Digital marketing is the promotion and marketing of goods and services to consumers through digital channels and technologies, i.e: the internet, mobile devices, social media platforms, webinars, search engines, online customer communities and other digital platforms (<https://www.techtarget.com/searchcustomerexperience/definition/digital-marketing>).

All the three cases also relate to the UN Sustainable Development Goals (SDG, 2015): Darussalam Schools project related to no.4 Quality Education and no. 12 responsible consumption and production, *Kebun Kandang* Eco Farming project related to no.12 as well and no. 15 life on land, while *Dodol Oyot* project related to no.8 decent work and economic growth, no.9 industry innovation and no.12 as the other two projects above.

METHODOLOGY

The research-design-action activities in these 3 projects in Ciakar, Tangerang were carried out using the Design Thinking (DT) method developed by Brown (2008, 2009, 2010) and IDEO (2015). The DT method allows fast-collecting bottom-up data from the community, clustering it into themes and generating ideas, until

finally turning it into real prototypes that can be used by the community. The method has three phases, namely: 1) Discovery, collecting data and information through engagement, observation and interviews with the community, and immersion into the context, 2) Ideation, using the data from the previous phase to generating and developing ideas into concepts, and 3) Prototyping, in which building ideas into reality.

RESULT & DISCUSSION

A. Discover Phase

In the Discover phase, there are 2 stages: sense and sensibility and empathy. In the sense and sensibility stage, LeX Teams did preliminary research and learned from experts about green school initiatives, sustainable tourism, and digital SME's initiatives. In the empathy stage, LeX team went to the communities, to immerse, observe and engage within each specific context.

There, LeX team conducted interviews with the stakeholders to gather information, especially their problems and potential. The data gathered then each LeX Team generated insights and defined statement of needs by creating persona.

1. Darussalam school need to: a) find out more effective methods for students to participate in sustainable practices in the long run, b) explore linking outdoor activities and sustainable practices, and c) (the teacher) learn and understand more sustainability → How might we help the teachers in Darussalam School to enhance their effectiveness in sustainability education (cleanliness and green corners) for the students?
2. *Kebun Kandang* Eco Farming need to: a) educate the public about organic farming to ensure food resiliency, b) build more support from the surrounding community, and c) increase productivity → How might we help *Kebun Kandang* Eco Farming to develop its potential as eco-tourism hub and educate the community and public on organic farming?
3. *Dodol Oyot* SME's need to: a) be able to reach a larger market, b) the packaging suitable for formal marketplace (i.e.: supermarket), and c) cost-effective production system → How might we help Pak Samsyul enhance *Dodol Oyot* product value?



Image 2 Empathy stage: Darussalam School, *Kebun Kandang* Eco Farming & *Dodol Oyot* SMEs. (Source: LeX SP-UPH Program, 2024)

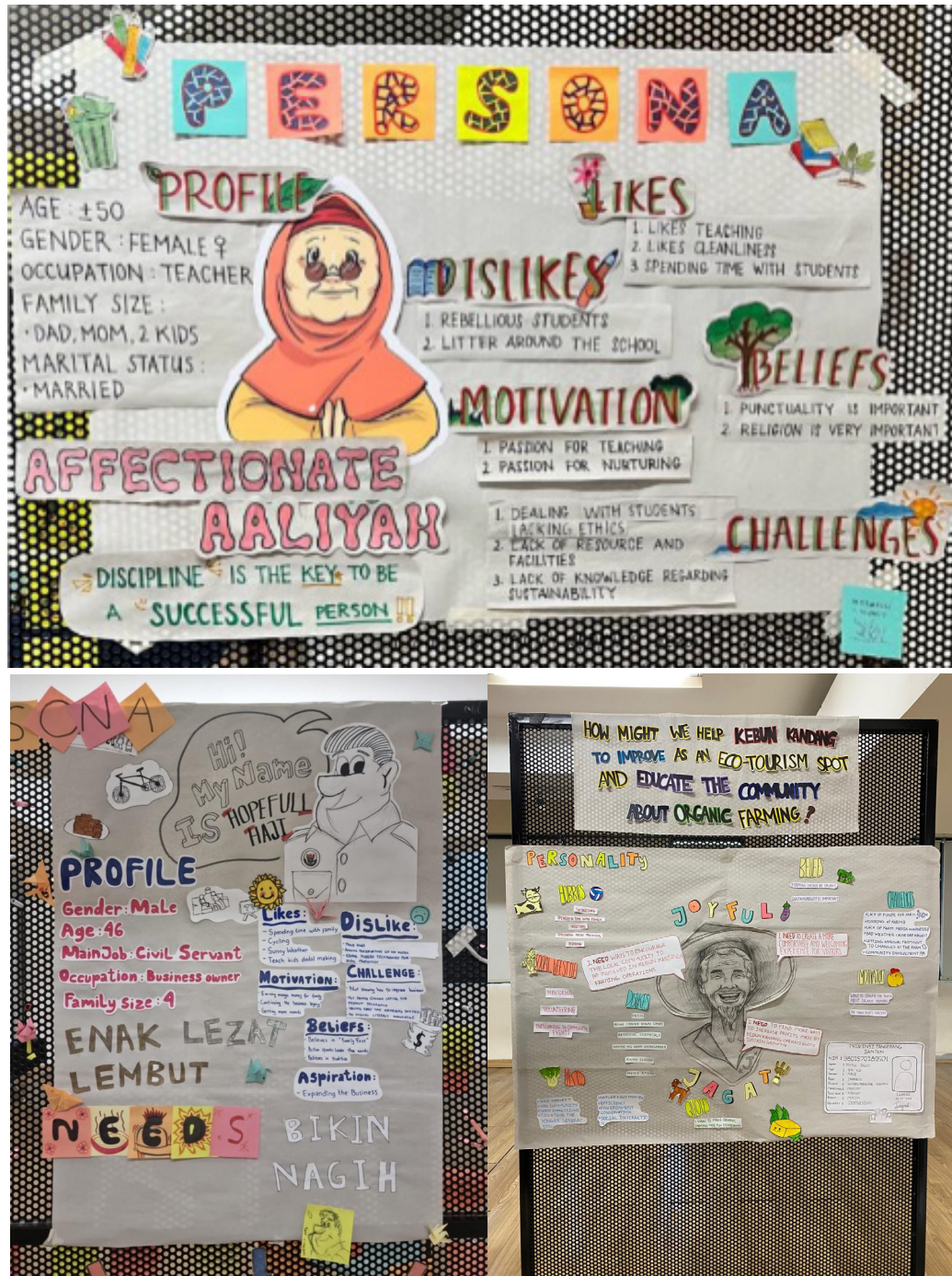


Image 3 Persona: Darussalam School, Kebun Kandang Eco Farming & Dodol Oyot SMEs. (Source: LeX SP-UPH Program, 2024)

B. Ideation Phase

In the Ideation phase, the HMW from Discover phase is used to generate ideas and develop it into concepts. The ideation for:

1. Darussalam school: Designing an engaging and immersive learning method for Darussalam school students that utilize the vacant lot in the school for practicing

what had been learned. At the same time creating sustainable certified course partnering with local green initiatives and universities.

2. *Kebun Kandang* Eco Farming: Designing interactive and experiential activities, supported with interesting signage system and digital marketing for KK farming products.
3. *Dodol Oyot* SME's: Designing physical (brand, packaging) and digital marketing system with production tools that can enhance and improve productivity.

C. Prototyping Phase

In the Prototyping phase the Team did a rapid prototyping, then gets the feedback from the users to refine it. The Prototype for:

1. Darussalam school is called '*Harapan Hijau*' (*Green Hope*). The prototype consists of:
 - a. Continuous learning materials targeting the grade 7 (GEMAS), 8 (IMUD 1) and 9 (IMUD 2) students.
 - b. Mockup for the vacant lots, called Darussalam Green Corners created and built by the teachers and students of Darussalam school, where they practice GEMAS and IMUD.
2. *Kebun Kandang* Eco Farming is called '*Belajar Bermain Bersama Omah Hejo*' (Learn & Play with the 'Green' Home). The prototype consist of:
 - a. *Kebun Kandang* Eco Farming Guidebook that focuses on the four main components of KK Eco Farming: plantations, livestock, fishing, and a green stall (*saung*).
 - b. KK physical green hub, signage and information system and KK digital apps for information and marketplace.
3. *Dodol Oyot* SME's that consisted of:
 - a. Smart marketing that focuses on the utilization of digital apps: IG and WA apps.
 - b. Dynamic packaging that is good design and uses sustainable materials.
 - c. Electrical tools to mold and cut the dodol to be more time-efficient and precise.



Image 4 Prototype: Darussalam School. (Source: LeX SP-UPH Program, 2024)

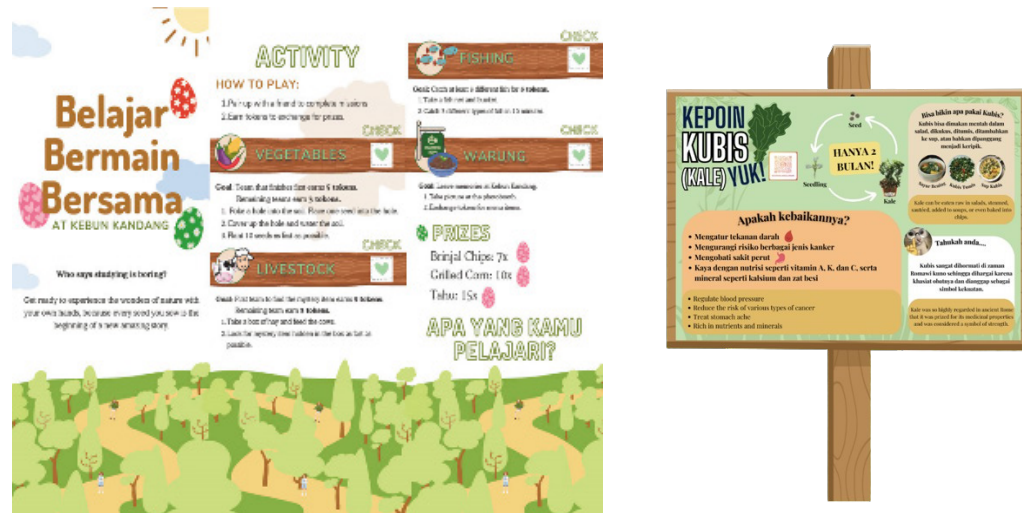


Image 5 Prototype: Kebun Kandang Eco Farming. (Source: LeX SP-UPH Program, 2024)



Image 6 Prototype: Dodol Oyot SMEs. (Source: LeX SP-UPH Program, 2024)

The refined prototype is then exhibited in Gallery Walk, a short exhibition and celebration at UPH for all LeX Teams and the stakeholders. Besides as an exhibition and celebration, the event was also used to gather feedback from the public, especially from the larger UPH communities. It is also the prototypes handover

time from LeX team to the community, with hopes that the rapid prototype can be developed into more operational prototypes which can be use by the community.



Image 7 Gallery Walk at UPH (Source: LeX SP-UPH Program, 2024)

CONCLUSION

Because of the Learning Express Program nature where it is only done in 12 days, it is important to think about the sustainability of the projects that had been initiated by it. In the case of the three projects: Darussalam School, *Kebun Kandang* Eco Tourism and the *Dodol Oyot* SME's it has been continued by the School of Design, UPH. The continuation is in the form of environmental learning and practice at the Darussalam school, producing an interesting signage for *Kebun Kandang*, and producing an electronic *dodol* cutting machine for the *Dodol Oyot* SMEs' collaborated with each community members.



Image 8 LeX Program Continuation (Source: LeX SP-UPH Program, 2024)

However, the UPH team acknowledge that it is still far from finished to answers all the aims from the three projects, which are: to become a Green School for Darussalam School, to become Eco-Tourism for *Kebun Kandang* Eco Farming, and to broaden *Dodol Oyot* SMEs' market through digital marketing. It will need time and continuous collaboration to finally empower all the three stakeholders.

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