

## **Proposal for a Paper Presentation**

### **Design-Driven Social Service Learning : Applying Design Thinking Process to Community Design**

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#### **Abstract:**

#### **1. Introduction**

Social Service Learning projects when applied to the learning-and-teaching design activities are normally constrained by academic semester period. "Parachuted solutions" are therefore proposed and result as unsustainable on-shot projects. Industrial Design Program at School of Architecture and Design, King Mongkut's University of Technology Thonburi has seen our Social Service Learning in the form of the integration of academic courses. From 2017-2019, three courses of Industrial Design Program, both compulsory and elective, are designed to focus on one area-based community-engagement design project. Three courses, including Community Design, Industrial Design Studio and Design and Society, have provided registered students an opportunity to learn about social, political and economic issues that one small village along Myanmar/Thailand western borderline in Rachaburi Province called Borwee, has been facing. By using Design Thinking Process, students have been encouraged to co-create solutions to those discovered problems with the locals.

Due to several causes such as the political hardship and domestic battles since 1925, it appears that several ethnic groups from Myanmar, with Pga K'nyau, or 'Karen' as a major group, have been migrating to Thailand since then. They have settled in several provinces along western boarder line of Thailand from north to south including Rachburi, which is located 170km away

## Land ownership and settlement location

### Bamboo house with good living standard

(natural lighting, hygiene, mosquito prevention)

+ The village is actually settled in the territory of conserved forest. Villagers have, therefore, no ownership on the land they build their houses on. This nomadic move depends on their workplace and living resources. House moving or relocation are also a common practices among them. With this **impermanant living condition**, many villagers do not care much about their houses maintenance, not to mention nourishing them. The results from **poorly conditioned houses** are **Malaria decease** and bug bites(the houses cannot shelter them from mosquitos, bugs and insects), **unhygienic living** (badly poor sanitary system in the house leads to badly cooked food, bad tolletry system)

### Revival of Karen Silversmiths Craft

+ Even though this community is almost reach Thailand-Mynma Boarder, it is considered to be the town that is rather close to Central Rachaburi than other boarder towns. The urbanism seems to cast the impact on Borwee's change. It is at risk to gradually **loose their Ethnic identity** as a result.

### Selfty issues

+ The village is located on the way to tourist attraction spots (water fall). Within the community, there is also small village's waterfall. There are a few big bikers group pass by the village and sometimes pay a visit to the village. The noise and speed of those big bikes disturbs and can harm locals especially village kids(there are lots of kids in the village)

### Growing community resources

+ As the village is located in conserved forest, so we are not sure if planting more resources (such as bamboo or other plants) is illegal or not.

Assumption  
Issue

## Citizenship

### Multi lingual skills learning

### Cultural pluralism identity

+ There are still illegal migrants coming over from Mynma to Borwee. They are actually cousins of Borwee villagers, so this threat is hard to prevent.

**Thai language speaking skills** allows more chance to get Thai citizenship because beside the submission of official personal documents, application process is also based on the interview. Normally Karen people can hardly speak Thai if they have not any training.

+ If they are bilingual, they will be more likely to get the better jobs, better salary

## Local materials

### Local plants to sell at the village market and neighbourhood

+ There are palms grown in the area. Their leaves are durable and strong.

+ Almost every houses plant their own garden vegetables and some fruits. (The village headwoman proposes her idea to use palm leaves for fruit and vegetables to be sold at the village pop-up

+ There are plenty of fallen leaves around the area that we might be able to turn into something for sale. Those leaves always cause fire during

+ Reeds (They are normally turned into floor mats and other craft containers in other areas)

+ Long barks of a certain tree. They are strong and durable.

### Simple machinery such as fibre spinning to transform natural raw materials

## Donation System

### More meaningful donation for more positive impact

**underprivileged? over privileged? the spoiled underprivileged and the donation.** School is the centre for donation from outside. Food, stationary, clothes, toys and others are donated regularly. The school headmaster, however, still insists that they are not enough. We have doubted if this donation is **spoiling** the locals and make them totally **depending on others** and giving **less and less value** to the donated stuffs.

+ Too much donation make locals perceive things invaluable

+ Those donated stuffs cause wastes around the village and school

+ Frequently, school allows kids to bring food back home for their siblings and parents. Does this make parents too much depending on school and put less effort to take care of their children by themselves as how it should be?

### Goat milk donation system

+ School milk and donated milk are also more than what they need. Kids get bored with it. They drink only half, and throw away another half bag of milk. Oversupplied milk is expired without anyone drinking it.

## Water Management

### Accessible water supply for all

+ The water comes from water fall in the village which cannot be distributed to everyone equally. Some who live on higher ground might get less and lighter water supply. It causes conflicts to community members when it comes to the bill splitting expenses for water. Some think it is unfair to pay the same price. Therefore the proper water supply technique and management system cannot be decided with consensus yet. Further, they are lack of information to make a good decision.

### Provision of data for communal decision making such as water quality, comparative water expenses, etc.

#### Amount of water

+ In summer, water supply is never enough. Some locals provide the water truck service for others but still not convenient for everyone and it is quite costly for them.

+ Waterfall without water attracts no tourists. The

#### Quality of water

+ Water seems unclean

+ Water could be contaminated with pigeons' shit and parasites. Water weeds also block the flow of water and keep water stagnant.

Assumption  
Issue

## Forest and natural resources

### Conserved forests

+ Taking any resources from conserved forest is illegal. Unfortunately, the village is just right on the spot. Now villagers rely on bamboo and wild mushrooms.

+ We are not sure whether it is also illegal if the villagers want to plant anything on the conserved land where their houses are located

+ There is also fire problem during summer time. Villagers have to find the way to prevent this annual fire accidents.

## Villagers

### Encourage cultural pluralism in the village

+ It is a multi-nationality community comprised of majority of Karen, Thai (community leaders are mostly Thai), Chinese

### Encouragement for life goals and dream

### Savings system

#### Karen

+ In the past, Karen's worldview seemed to focus on respect to nature, humbleness, simplicity, romance, appreciation in arts and aesthetics, freedom (nomad's spirit) and independence

+ Nowadays, without right travel or go beyond the confined territory and limited knowledge and skills, what they can do for living is temporal low-paid labourous jobs. They live their lives day by day, no strong urge for settlement. Future is only tomorrow away when even the job cannot be guaranteed (market)

## Local business

### jobs that transcend physical territory such as internet- based jobs

#### Local Business

+ There are some local business to serve the villagers such as water carrying service, convenience store selling fresh food and groceries (5 stores approximately) and barber's

#### Temporary Employed Job

+ In a family, there are approximately 2 persons to work for the whole family (there are average 8-12 persons in one family)

+ The jobs are labour jobs such as cutting sugar canes, weed cutting and other agricultural fieldwork as well construction work. There will be an agent who connects them with the job employers and manage the labourers logistics from the village to work site. They usually leave the village around 05.00 am and return around 20.00 pm.

+ These jobs are usually seasonal. Sugar cane harvesting lasts only 4 months, after that period, they will need to find the new jobs.

+ Some temporary jobs last 2-3days continuously, then they need to find the new ones.

+ They can commute to work within the confined territory because they haven't got the fully Thai citizenship yet. If they go further beyond the area of allowance, they will be considered illegal. They will have to pay fine or bribe or get punishment by that. **Job opportunity is limited due to their lack of traveling right.**

+ They don't usually keep savings. Kettles and cows are something they probably considered as savings.

## Children

### Child daycare centre

+ Parents spend their time working outside the community. They don't take care of their kids well. After a long day day of hard work in the field or construction sites, parents complete their days with drinking. So their house chores are then abandoned. Their children have to take care of themselves, including taking care of their younger brothers and sisters. With this matter, kids pay less respect to their parents. In contrary, parents then seem to spoil their kids in order to gain love from their kids in return.

### Parenting system

+ It is said that kids' slow learning development is due to parents' illiteracy. Parents cannot teach their kids homework as they themselves cannot read, nor write Thai.

### Animal traps / Fruit picking devices design for children

+ Despite of their rather low Intelligence Quotient (IQ) level (according to school has had an official students' IQ test results), local kids has apparently high Bodily-Kinesthetic Intelligence level. (They can run, climb, swim, do other physical activities very well)

+ Kids play hard and naughtily, so accidents happens to them quite often. Small wounds and cuts are normal for them both girls and boys.



hunting skills with traditional tools that might be transformed into kid's toys. Kids can play and learn about food and nutrition while having fun gathering or growing plants themselves

from Bangkok. Nowadays, Pga K’nyau people still travel back and forth illegally between Thailand and Myanmar mainly to sustain both of their jobs and better quality of life in Thailand, and to keep the connection with their families in Myanmar. As a consequence, several Karen-based communities in Rachburi are now facing various political, socio cultural and economical challenges relating to human right and citizenship, urbanism effect and living standard. The goal of this project which is continuously operated through three courses is therefore to explore the alternative solutions and strategies that can create positive changes relating to those challenges by applying Design Thinking Process through out the research and design phases. The previous sheets displays circumstances, problems as well as issues and assumptions that can be initially defined when the team of instructors conduct a preliminary field research.

**Course overview**

2017-2018		2018-2019			2019-2020	
PHASE 01 Initiation		PHASE 02 Implementation			PHASE 03 Exit	
Phase 01.1 Empathy	Phase 01.2 Design and Redefining	02.1 Design Validation (Testing Prototype)	02.2 Developing Prototype	02.3 Prototype Implementation	03.1 Preparing to Exit	03.2 Monitoring
A. Through Field Research	A. Through In-Depth Research					
B. Through Conceptualising Ideas and Prototyping	B. Through Conceptualising Ideas and Prototyping					

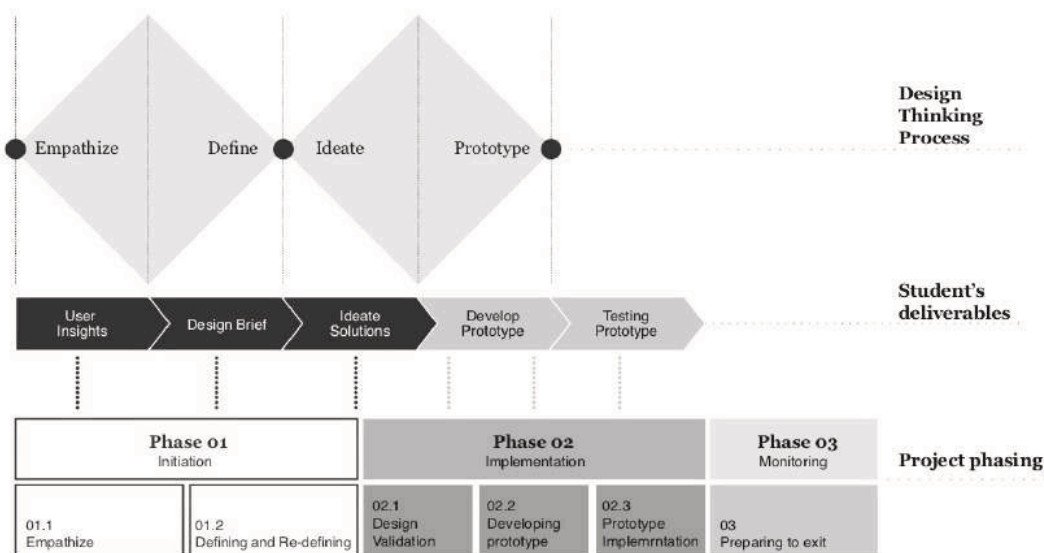
This paper will discuss about the course IND301/401 Collaborative Product Development which is deployed as a platform for Social Service Learning at Industrial Design Program, School of Architecture and Design, King Mongkut University of Technology Thonburi in 2018. This 4-month-long compulsory course requires one day and a half in each week from students to participate. It is not the first design course that bring the conditions of the real community into consideration to be a course focus and project briefing. Rather, it is one of the courses that tries to work with one community that other course have previously worked before. In order to form social service in the way that is characterised as ‘doing with community’ (Ward, Kelly, Community-Centered Service Learning: Moving from Doing For to Doing with, 2012) for students to learn through community-engagement, it needs a great deal of understanding among involving agents: the learners, instructors and community members as well as an insightful background information of community. Therefore, this course is designed to be continuing from other previous courses. For this course, there is a multi-nationality group of 9 students having registered. At the beginning, they are divided into sub-group to conduct the field research and after clearly consolidating their area of interest, they work on their own projects towards the end of the course. The diagram below show the line-up of the courses mapped with the phases. Each phase is identified with adapted Design Thinking Process.



## 2. Theoretical framework/literature review

Based on human-Centred Design approach, Design Thinking Process, which is comprised of Empathy, Define, Ideate, Prototype and Test (Kelly T. and Kelly D., Creative Confidence: Unleashing the Creative Potential Within Us All, Currency New York, 2013), has been applied all through 3 courses with the effort to invite community members to participate during all the divergent and convergent phases. As mentioned “**design thinking** is not a linear path, it's a big mass of looping back to different places in the process” (Kelly T. and Kelly D., Creative Confidence: Unleashing the Creative Potential Within Us All, Currency New York, 2013), each course can be seen as consecutive iteration in a whole design process. Research with bottom-up approach aims to identify the problems, needs and opportunity of the community in various dimension such as education, wellbeing, local economy and cultural identity.

### Design Thinking



The course IND301/401 Collaborative Product Development is usually aimed for the students to exercise design thinking skills in order to propose new design opportunity for the future to business clients. In general, community is reckoned as ‘our clients’ in this class. However, we intend to encourage them to participate the project as our partner, rather than a client, which this is later realised to be the most challenging factor for community-engagement design project. Therefore the Design Thinking process is adopted as a main structure of learning activities that are designed.


Design thinking is believed as a way of tackling complex problems in an era characterized by increasingly ‘wicked’ problems in the way that is solution focused (Buchanan, 1992). Even though the origins of Design Thinking are around design disciplines, design thinking is used to denote an iterative process or set of process for investigating, refining and planning many things-

from product to service as mentioned by Heather Douglas in his paper in Design Thinking and Social Enterprise innovation, ANZAM 2014. The following diagram displays how Design Thinking Process is distributed into the course structure.

### **3. Methods/analysis**

Towards project's design ideation phase, research findings and insights are collected and analysed from the data gained by qualitative-approach action and design research methods. It is a combination between the method, inspired by conventional qualitative research methodology such as in-depth and focus group interview and ethnographic research methodology such as participatory observation and a cultural probe. Further details of research framework, methodology and techniques are discussed in the table below.

The 7<sup>th</sup> Asia-Pacific Regional Conference on Service-Learning 2017-2018

		Phase 01 Initiation			
		Phase 01.1 Empathy		Phase 01.2 Defining and Redefining	
		A. Through Field Research	B. Through Conceptualising ideas and prototyping	A. Through in-depth research	B. Through Conceptualising ideas and prototyping
<b>Courses</b>	Elective Course: IND321 Craft Product Design Elective Course: IND322 Community Design	Core Course: IND301/401 Collaborative Product Development			
<b>Objectives</b>	(1) To introduce ourselves to the community	(1) To embed/introduce innovative spirit into community			
	(2) To find out village profile relating to economic/social and cultural and political capacity.	(2) To establish the relationship and connection with community, creating trust			
	(3) To understand social structure of community, networking of different groups of people, connection between community and their neighbours	(3) To re-investigate community to find out about social relationship, power structure, management system of community's commons and stakeholders			
	(4) To create research framework for in-depth research not round	(4) To investigate our previous assumption regarding several community issues by including community members to share their thoughts. The renewed set of assumptions is due for planing further in-depth focused research			
	(5) To identify the connecting agents	(5) To invite other stakeholders to become a part of driving mechanism for community co-operation such as influential outsiders (KMUTT for instance) to engage int the working process because they can bring 'louder voice' to local authorities.			
<b>Process / Research Framing</b>	To study village profile, we have studied how locals live, work, recreate and get connected based on human-human-centred approach, the following domains are initially introduced to students to pursue their research. Tourism / Karen Cultural Identity / Karen Citizenship and human right / School Donation and Resource management / Health and wellbeing / Child development. DIAGRAM	Even though it is supposed to be in-depth research, it takes divergent dynamic to re-visit the previous findings, to question the unknown and to identify area of interest based on user types.			
	<b>Issue-based research framing</b> Each sub group conduct their field research based on their areas or issues of interest which lay within the domains mentioned above. The issues includes the over consumed artificial seasoning (MSG) which might be possibly replaced by local herbal mixtures / Perception and value given to Karen traditional costume and crafts and how to re-connect it with youngsters / The imbalance between the real needs and the external support through donation, and how to manage these resource sustainably. The research information is shared and analysed among all groups.	<b>User research for segmented user types</b> After studying the previous research findings from last class, new group of students decided themselves into sub groups to study different types of local members based on types of local community members: non-employment home-bound group such as ladies with toddlers and ill elderly, main income earners (both Thai and Karen), active ageing group, cultural activists, community entrepreneurs and regular school members (students and teachers) User research is conducted in order to understand their everyday difficulties, attitude, expectation and life goals.			
<b>Research methodology</b>	<b>Qualitative research methods</b> The research tools are basically the ones of conventional qualitative research : participatory observation by attending village ceremony and monthly meeting : interview the local members	<b>Qualitative research methods</b> Apart from previous methods of interviewing and observation, there are also in-depth interview and focus group using probing materials such as income/expense canvas, as seen below as a piggy bank jar, and annual activities canvas to aid the conversation. Insightful findings such as the social fabric of community, villages operational system are ambitiously expected to be unfolded.			
					

<b>Research techniques</b>	<b>Case studying</b> Having known very few locals at the beginning, we have KMUTT social researcher team who work in Rachburi took us to Borwee and its neighbouring villages(Huayhang and Huay Namnak Village) which have similar cultural background of Karen.	<b>Iteration of prototyping</b> It is a quick design process going on around here. Students analyse their data using grounded theory method in order to converge their findings into focused design assumption. Then they conceptualise those design assumption into various design possibilities, self-evaluate them before creating quick prototypes. The prototypes are brought to assumption validation stage or testing. After getting feedback from testing, the prototypes are fixed, developed or re-designed and are brought to validate again. The cycle of conceptualising ideas / prototyping / validating are intended to include community members from different types and various stakeholders but unfortunately only a few can attend(mostly students test their prototypes within class and with some local authorities such as a school headmaster). Further, the approach of semester endings limit the iteration to only 2 rounds
	<b>Snowballing</b> Female Journalists II School is the local school that we have established the first connection which can be considered as a gateway to community. School children, teachers, staffs, school merchants including some parents share us the information about the village. These members help us identify the target informants to whole we should go and have talk. The circle of connection gradually get bigger to cover village head-woman, village craftsmen, neighbouring Royal farm manager , farmers, village retail owners fir instances.	

#### 4. Results and Discussion

As a result, research findings acquired during each course collectively addresses community's issues, some of which can be seen as a representation of regional phenomenon such as labour relocation and inequality. The design proposals that have been ideated and validated with locals are finally executed into nine projects which can be considered as concept design proposals ready to proposed to key stakeholders for the implementation. The nine design proposals are

##### 1) Between-meals Service for Communal Child Care

**Anticipated impacts:** better nutrition for kids and meaningful bonding between kids and elderly.

##### 2) New Snacks for Oral Care among Local Children.

**Anticipated impacts:** better oral health. New snacks can be distributed through community health centre, and that could make a new channel for the community health centre to constantly monitor kids' health. Besides, new products can generate extra income for the villagers who wish to produce them.



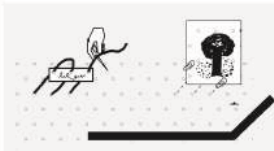
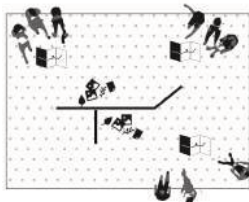


### 3) Community Mapping Lesson Design for local children

**Anticipated impacts:** To raise awareness of children's own route and community existence. Pride and love in their own community would encourage them to nourish their own hometown, rather than abandoning it. Interaction between local kids, youngsters and other members in the community.



ภาพนักเรียนกำลังช่วยกันเติมแผนที่ชุมชนบ่อหวี  
Student working around the map.



ภาพแสดงถึงวิธีการใช้แผนที่ชุมชน  
map usage instruction

#### วัตถุประสงค์

โครงการนี้เป็นความคิดริเริ่มด้านการศึกษาสำหรับชุมชนบ่อหวีและชุมชนที่มีลักษณะใกล้เคียงกัน พวกเขาจะทำงานในชั้นเรียนผ่านการวาดแผนที่ชุมชนโดยอาศัยเครื่องมือที่ถูกออกแบบมาจากนั้นจึงแบ่งปันให้กับผู้คนจากประเทศอื่นๆ เพื่อให้เด็กๆ ได้เล็งเห็นถึงความงามของอัตลักษณ์ชุมชนของตน

*The project is an educational initiative for the school of bowee and similar villages of bowee in the world. They work in class and share the result with the other countries.*

ผ่านกิจกรรม 3 อย่างเด็ก ๆ เล่าเรื่องมุมมองหมู่บ้านที่พวกเขาอยู่อาศัย พวกเขากรอกแผนที่ด้วยการบรรยายเกร็ดเล็กเกร็ดน้อยและวัฒนธรรมรวมถึงอัตลักษณ์ของพวกเขา

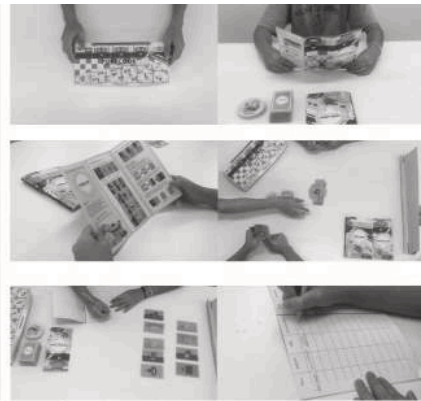
*Through 3 activities, the kids tell me the story, their point of view of the village where they live. They complete the map with narrations, anecdotes, and their cultural identities.*

#### 4) Learning about Right and Collaboration through Cooking Card Game

**Anticipated impacts:** To groom a sense of equality, awareness of their own rights and others' rights as well as empathy among young people.

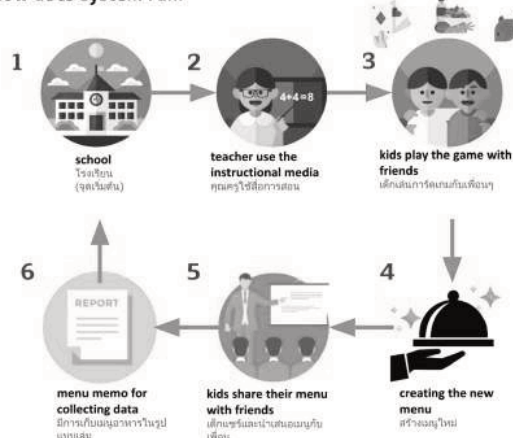


พอร์คูก (FORECOOK) การ์ดเกมที่จะช่วยสร้างเมนูอาหารใหม่ผ่านการเล่นเกม และช่วยปลูกฝังเด็กในเรื่องการมีสิทธิที่จะมีส่วนร่วมในสังคม  
FORECOOK is menu generator card game that help kids to create the new menu and learning about Rights.



การ์ดเกมนี้ยังเป็นสื่อการสอนเรื่องสิทธิสำหรับคุณครูในโรงเรียนบ้านบ่อหวี  
FORECOOK is the instructional media about Rights for teachers in Baan Bor Whee school

#### How does system run?



สื่อการเรียนการสอนที่สามารถนำมาสอนเด็กในโรงเรียน  
บ้านบ่อหวีในเรื่องการใช้สิทธิและการมีส่วนร่วม

The instructional media that can educate Rights for  
children in Baan Bor Whee school. statement

วัตถุประสงค์ objective

เป็นการช่วยสร้างเมนูใหม่ให้กับชุมชนเพื่อลดปัญหาการกินอาหาร  
ซ้ำซาก และช่วยปลูกฝังเรื่องการใช้สิทธิของตนในชุมชน

Creating the new menu for community for reducing the  
food repetition and educate Rights in the community.



#### 5)Hydroponic planting system in school for Integrated learning

**Anticipated impacts:** alternative learning method for effective learning outcomes/ more variety of ingredients for school canteen/ lessen the cost for school canteen as they can plant their own vegetables.

**6) Jewellery Products, made from school spoiled milk, new crafts skill for young people**

**Anticipated impacts:** new crafts skills to create new products to sell for extra income. Students' learning outcomes. Public awareness about School Milk Policy Transparency.

**7) Floatable communal vegetable plots.**

**Anticipated impacts:** To create collaborative activities among local members in order to lower the sense of barrier between different ethnic group/migrants and non-migrant groups. The project could also help reduce the food cost that locals usually spend.

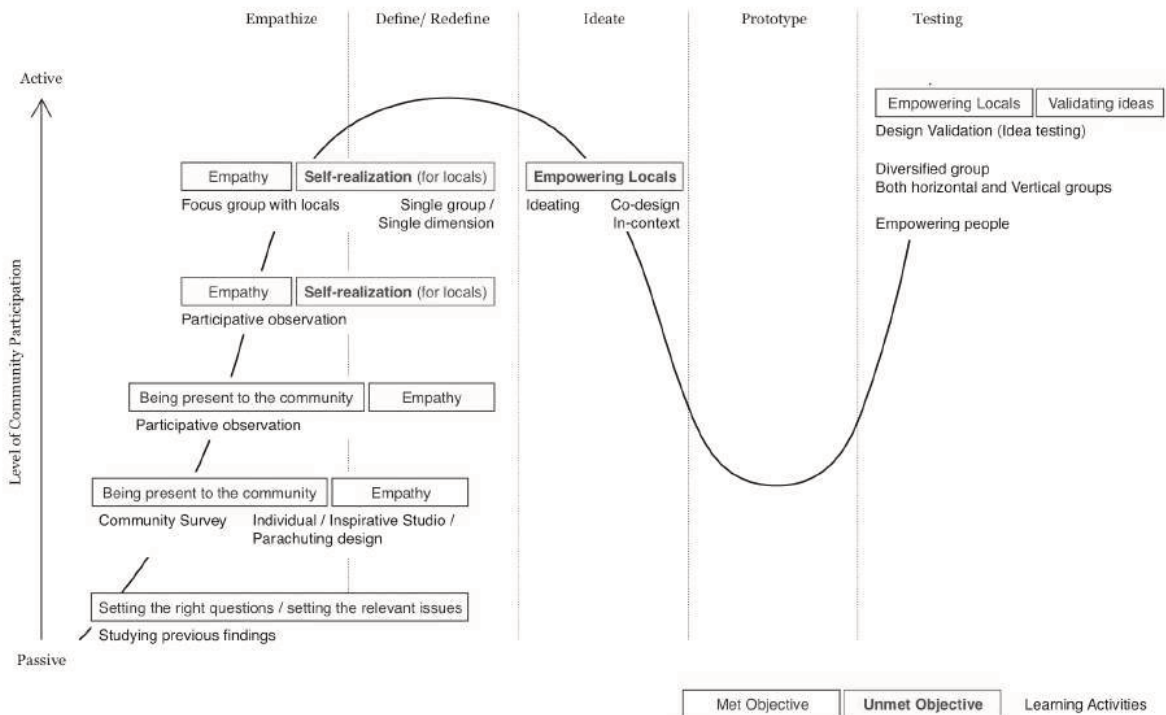
**8) Branding and community products: Bamboo bags**

**Anticipated impacts:** Extra income. Job creation for new groups of locals, especially the unemployed or non-Thai-citizenship who cannot go to work outside the community .

**9) Logo and Merchandising Products for Design Borwee Academy Football Club**

**Anticipated impacts:** To evoke the local pride and sense of belonging and unity.

**5. Conclusions and contributions to theory and practice**



The diagram above shows the different level of community engagement that has been appeared during the Design Thinking process. During the Define/Redefine stage and Ideate stage where the community engagement is needed the most, it is only partially brought in. There are limited numbers of locals having participated the stages as at that time. There is also the boundary between us, the outsiders and then community as insiders. If more key stakeholders and representative form

different local groups can participate the process next time, in which activities such as data analysis, and co-creation are, the objectives to provide an opportunity for locals to get empowered as well as self-realized will be better achieved.

For validation process, a group of community representatives and experts were invite to partake the project pitching presentation. Apart from the fact that local representatives have seen design proposal as unfamiliar, yet potential, means to solve their daily problems, the results from locals' feedback also address the need for further practical systematic implementation. Strategic design based on future perspective is also expected to be included as well as more intensively collaborative working process with the locals and stakeholders. Further, relating to Design Thinking Process, Empathize phase should try to understand community's 'unmet needs' as the ones of a whole community, rather than as a collection of individual needs. Therefore, Industrial Design Program has planned to push the project further as the third iteration for the next semester in 2019-2020 through the course called Design and Society.

In conclusion, in terms of research findings, the fragmented pieces of information are gathered. We need to link them and identify the missing pieces in order to understand the whole. It is a good start to know the community but it takes a great amount of involvement to understand the complication and interrelation of the circumstances and problems that have been already uncovered. Most of the findings are based on the 'obvious' problems which are usually easy to identify. As locals and we are new to each other, deep conversation that can lead tom insightful findings is not made successfully yet. However, our regular presence in the community paves the way to a close interaction later on. The main output and outcome of the course are rather for us to learn about community design , rather than to provide completely community service.

In terms of conceptual design as outputs, some of conceptual designs require technical knowledge to support the concept completion. They are such as the herbal candy fo dental health, bio plastic from left-over milk and hydroponic vegetable planting system. Therefore, multi-disciplinary team members should be invited to support this lack. It is found that the proposals of Corporate Identity Design for Youth Football team and The Card Game design to educate local children about right and roles are welcomed by community representatives. That is because they are easy to implement, they have clear targets, they are in need and they are independent from complicated community existing system.

**Keywords:** community design, design thinking , borderline community, ethnic group

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*APRCSL 2019*

*The 7<sup>th</sup> Asia-Pacific Regional Conference on Service-Learning*

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*For: Paper/Panel\_Presentation*

## Biographical sketch of each presenter

### Presenter 1:

- i. Boonla-or Nanthana
- ii. Lecturer, Industrial Design Program, School of Architecture and Design, King Mongkut's University of Technology Thonburi, THAILAND

- iii. Short biography

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