

REPORT OF RESEARCH RESULTS

Title: **Participatory Action Research to Promote Bike to School**

Primary Researcher: Pondej Chaowarat¹

Co-researchers: Mathee Piriyakannon² and Suphathida Sawangchang³

1. Summary

This research aims to look for an alternative solution to promote cycling to school. Instead of taking traditional nationwide campaigns, this study intends to find an alternative solution emerged locally. To achieve this, 'Participatory Action Research (PAR)' and 'Design Thinking' are employed as a main research concept. It is supposed to bring innovation to the solution and strengthen walk and bike community. The main target group are residents who live in the area. The community titled 'Suk Sabai Jai' is chosen as a research area. It is located in Kalasin City, Northeast of Thailand. Research methodology involves 1) a literature review, 2) a questionnaire, and 3) a focus group. The research time frame is from December 2015 - November 2016.

According to the literature reviews, Design Thinking is supposed to be an appropriate methodology that could be integrated within PAR in the process of cycling promotion. Unlike the ordinary planning process, this combination of the two concepts is expected to create an innovative and realizable solution. 'Low Fidelity Prototyping' is chosen for ideation process. Roles of participants are a story teller, a listener, a designer, and a builder. The participants take these roles without competition among them. Participants exchange their ideas and develop their prototype collectively. These prototypes will be used as a basis for formulating Walk and Bike Community Plan.

The research is divided into three main phases: 1) a project preparation, 2) a Design Thinking workshop, and 3) a pilot project realization. The project preparation aims to identify people involving, location, equipment required, arranging schedule, and public relation. The Design Thinking workshop aims to formulate the Walk and Bike Community Plan with innovative and collective action. The workshop is based on the idea of Design Thinking which underlines human's abilities in problem solving with sub-consciousness. The pilot project realization comes along with the Design Thinking concept that emphasizes on the necessity of a prototype implementation. Therefore, the most possible prototype must be tested. Eventually, an innovative solution of road safety and strengthening walk and bike community are expected as an output.

2. Aim of Research

This research aims to look for an alternative solution to promote cycling to school. To achieve this aim, the research employs 'Participatory Action Research' and 'Design Thinking' as a main research concept.

3. Method of Research & Progression

Research methodology involves 1) a literature review, 2) a questionnaire, and 3) a focus group. The research time frame is from December 2015 - November 2016.

4. Results of Research

¹ Mahsarakham University, Kantarawichai, Maha Sarakham, 44150, Thailand, T: +6681 7292275, E: b_pondej@hotmail.com

² Mahsarakham University, Kantarawichai, Maha Sarakham, 44150, Thailand, T: +6681 4814891, E: methee-tar48@hotmail.com

³ Mahsarakham University, Kantarawichai, Maha Sarakham, 44150, Thailand, T: +6684 5897959, E: suphathida.s@msu.ac.th

The results of research is shown in three parts: 1) a model of walk and bike community promotion with PAR and Design Thinking, and 2) an evaluation of the model.

4.1 Model of Walk and Bike Community Promotion with PAR and Design Thinking

1) Concept of PAR and Design Thinking

'Participatory Action Research' (PAR) is a research methodology underlining people participation and a bottom-up approach. Relevant stakeholders must be involved in the process from the early stage, until realization and assessment (Supang Chantavanich, 2004). The PAR's methodology begins with studying on local problems, defining a target group, stakeholders, and resources available. Then, the data is analyzed in order to formulate a suitable solution. The advantage of PAR is its ability to create an implementable solution and strengthen local partnership through participatory action. Since PAR is a broad principle, a specific methodology must be adapted to the research. Hence, 'Design Thinking' is selected as a specific concept in this research. According to the characteristics, Design Thinking is supposed to be an appropriate methodology to integrate with PAR for cycling promotion. Unlike the ordinary planning process, this combination is expected to create innovative and realizable solutions.

'Design Thinking' is a methodology varied used for making creative devices or solutions since 1960s. Design Thinking believes in human's ability to solve problems with sub-consciousness. It underlies balancing between designing with intuitiveness and logic (Tim Brown & Jocelyn Wyatt, 2010; Faste, Rolf, 1994). The solution, so called a prototype, must be realized as a testing in a real context and target group. Its process involves 1) inspiration, 2) ideation, and 3) implementation. In the ideation step, 'Serious Play' is employed because of its ability to stimulate creativity and innovation. The Serious Play are a lego serious play, an improvisational theater, a role play exercise, a low fidelity prototyping, and a gamification. In this research, 'Low Fidelity Prototyping' is chosen. Roles of participants include a story teller, a listener, a designer, and a builder. These roles must be played without competition among them. Participants are expected to exchange their ideas and develop their prototype collectively. Tools are simple stationary for writing, drawing and model making, like flipcharts, post-it cards, color pens, glue, hard paper sheet and etc. (Schulz et al., 2015; Sanders & Stappers, 2008; Von Hippel, 2006).

2) Process

There are three main phases in the research process: 1) a project preparation, 2) a Design Thinking workshop, and 3) a pilot project realization. All phases have involved people participation in a certain form.

Project Preparation

A meeting of key stakeholders is held. They are delegates of 1) a research team, 2) the Kalasin municipality, 3) a local cycling club so called 'Dino Speed Bike', and 4) a selected community so called Suk Sabai Jai. A meeting agenda includes: 1) an introduction of the participants and projects, and 2) a project preparation. A meeting output is the workshop project detail, including a location, an event date, participants, a schedule and activities, public relation affairs, souvenirs, food and beverage, and staff members. Working tasks and cost is shared among stakeholders.

Design Thinking Workshop

This workshop aims to make an innovative solution regarding walk and bike community promotion. Then, a selected prototype must be implemented as a pilot project. The workshop activities are as followings.

- Registration and grouping: Participants register and fulfill a questionnaire regarding attitudes towards walk and bike and travel behavior. Then they are grouped. Each group is not exceed 10 people.
- Understanding and building awareness and knowledge: Essential information of project is presented to participants. It includes particular issues and solutions of case study. This part aims to build up a similar understanding and goal of the workshop that is necessary to move the project forward.
- Ideation: Participants are asked to write a keyword of problems or solutions on a post-it card, and then pass it to a group moderator for categorization. This process must be done within 15 minutes. Participants are urged to write as many keywords as possible. It is not allowed to duplicate the keywords of another. Then, participants discuss and choose a particular issue or idea to develop further as a prototype. Participants must follow basic rules including no denial saying, no personal domination, no mobile phone using, keep concentration, and following time schedule. The prototype must be titled and drawn on a flipchart with a business model format.
- Presentation and pilot project selection: Each group present the prototype to delegations of municipality and relevant stakeholders responsible for realization. Comments and discussion towards the prototypes is made in order to improve their realizability. These prototypes are involved in the Walk and Bike Community Plan. And one prototype is selected as a pilot project which could be realized shortly. The project called 'Street Paint' is chosen as it can be realized shortly and required less resources.

Pilot Project Realization

A pilot project entitled 'Street Paint' is held a week after the workshop. It is done at a main road intersection where most of traffic accidents take place. Instead of a standard traffic paint, the participants choose an illustration locally designed to be paint on the street surface. It is expected to gain positive attention from drivers and be more harmony to the school located nearby. The illustration which is locally designed has figures of the city and community iconic symbols like dinosaurs, bicycle, and happiness. The project is realized by collaboration of the research team, the municipality, the local cycling club, the neighbor, and the provincial police office. Besides, people from all over the city join the activity. The street paint takes about half a day to be done.

4.2 An Evaluation of Model

The research is supposed to make 1) an innovative solution of road safety and 2) strengthening walk and bike community. Therefore, the researchers evaluate the project in these two aspects.

1) Innovative Solution

The output of this research is an innovative Walk and Bike Community Plan. The plan has been integrated with 3 different prototypes from the workshop. They are 1) a standard road safety equipment installation, 2) a collective ride program, and 3) a street paint event. The first prototype 'standard road safety equipment installation' includes a street signage, a traffic light, a street lamp post, a bike lane, and a rumble strip. The participants believes that these standard equipment help to reduce car speed in the area because of their legal attachment and general understanding. The second prototype 'collective cycling campaign' includes a weekly ride for anti-global warming, a night cycling, and a bike donation. The participants believe that these collective programs

would make cycling accessible, enjoyable and socializable. The third prototype 'street paint' is a project that adapts art to a road safety measure. It is believed that the art painting makes car drivers reducing speed in a positive way. These prototypes have been integrated into the Walk and Bike Community Plan through a focus group and a public hearing event.

2) Strengthening Walk and Bike community

The strength of community is measured in two points: 1) an attitude towards walk and bike community, and 2) project initiation and collaboration. The first point 'attitude towards walk and bike community' is assessed through a questionnaire with a five likert scale after the Design Thinking workshop. The result is the following. First, participants strongly agree (4.66) that the workshop benefits the community. Second, participants agree (4.36) that the workshop benefits him/her. Third, participants agree (4.32) that the workshop is able to convince them to walk and ride a bike in daily life.

For the second point, the stakeholders make an initiation and a collaboration in the street paint event. This prototype is selected by them in the focus group meeting and then has been proceed collaboratively by them. Everyone shares tasks like preparing food and beverage, playing music, preparing the area, and street painting. Rather being a guest, they act as a host of the project. It shows the sense of ownership of walk and bike plan and strength of walk and bike community.

5. Future Areas to Take Note of, and Going Forward

The output of this research is the Walk and Bike Community plan. Future research is recommended to go deeper on a plan implementation phase. A main challenge is how to realize the plan within the context where a walking and cycling topic is not yet a main policy. A high level of collaboration might be a hint. Therefore, the future area should focus on this point.

6. Means of Official Announcement of Research Results

This research results will be announced through acknowledged academic journals and symposiums.

7. Acknowledgements

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