

Collaboration and Participation in Architectural Design:

Lesson Learnt from Building a Bamboo Pavilion with Indigenous Karen

ความร่วมมือและการมีส่วนร่วมในการออกแบบสถาปัตยกรรม:

บทเรียนจากการก่อสร้างศาลาไม้ไผ่ร่วมกับชนพื้นเมืองกะเหรี่ยง

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Abstract

The study of the participatory process in architectural design has been discussed for decades, in which the user is directly involved in the design and decision-making in the design process. The collaborative design process is not just a way to influence building form, but it also indicates the dimensions of users and participants. From academic cooperation in the year 2019-2020 between the School of Architecture, Bangkok University and School of Design and the Built Environment, Curtin University, Australia, has an agreement to study and work together for a period of 10 weeks, focusing on collaboration and participation in the construction of an embroidery bamboo pavilion together with the Karen villagers in Banggloy village, Huai Mae Phrieng Subdistrict, Kaeng Krachan District, Phetchaburi Province. This paper focuses on explaining and discussing the process of collaboration and participation in the design and construction of architecture with the Karen people rather than the results of building construction or building form. The methodology of cooperative inquiry draws on experiential knowing which is through a direct face-to-face encounter with the Karen people; place and culture. The practical outcome of the process is a part of the life experience and collaborative practice between students, both universities and the indigenous Karen. Our learning process involves a much number of closer relationships, providing significant knowledge of person through a reciprocal encounter between people and people, and people and the environment. The limitation of the process is time-consuming, financial cost, and the difference of knowledge background of participants. Also, language communication is a significant challenge. It should be bear in mind that the final product was shaped in respect to all opinions, especially of those who will be regularly occupying the space.

Keywords

Collaboration

Participation

Design Process

Karen

Bamboo Pavilion

บทคัดย่อ

การศึกษากระบวนการมีส่วนร่วมในการออกแบบสถาปัตยกรรมได้ถูกกล่าวถึงมาหลายทศวรรษ ซึ่งผู้ใช้งานได้เข้ามามีส่วนในการออกแบบและตัดสินใจในกระบวนการออกแบบโดยตรงไม่มากนักน้อย กระบวนการออกแบบร่วมกันไม่ได้เป็นเพียงวิธีการที่มีอิทธิพลต่อรูปแบบอาคารแต่ยังได้แสดงถึงมิติของผู้ใช้งานและผู้ที่เกี่ยวข้องออกแบบด้วย จากความร่วมมือทางวิชาการในปี พ.ศ. 2562 - 2563 ระหว่างคณะสถาปัตยกรรมศาสตร์ มหาวิทยาลัยกรุงเทพ และคณะการออกแบบและสิ่งแวดล้อมสรรค์สร้าง มหาวิทยาลัยเคอร์ติน ประเทศออสเตรเลีย (School of Design and the Built Environment, Curtin University, Australia) ได้มีข้อตกลงร่วมกันเพื่อการศึกษาและปฏิบัติงานร่วมกันเป็นระยะเวลา 10 สัปดาห์ โดยมุ่งเน้นไปที่ความร่วมมือและการมีส่วนร่วมในการสร้างศาลาปักผ้าไหมฝ้าย ร่วมกับชาวกะเหรี่ยงหมู่บ้านบางกลอย ต.ห้วยแม่เพรียง อ.แก่งกระจาน จ.เพชรบุรี โดยบทความนี้มุ่งเน้นที่การอธิบายและอภิปรายกระบวนการร่วมมือและการมีส่วนร่วมในการออกแบบและก่อสร้างสถาปัตยกรรมร่วมกับชาวกะเหรี่ยงบางกลอยมากกว่าผลของการก่อสร้างอาคารหรือรูปแบบอาคาร วิธีการสอบถามแบบมีส่วนร่วมนั้นได้ดึงความรู้จากประสบการณ์ซึ่งเป็นการเผชิญหน้าโดยตรงกับชาวกะเหรี่ยง สถานที่ และวัฒนธรรม ผลลัพธ์เชิงปฏิบัติของกระบวนการนี้เป็นส่วนหนึ่งของประสบการณ์ชีวิตและการฝึกฝนความร่วมมือระหว่างนักศึกษาและชาวกะเหรี่ยงพื้นเมือง กระบวนการเรียนรู้ครั้งนี้เกิดจากทำงานอย่างใกล้ชิดต่อกัน ผ่านการเผชิญหน้าซึ่งกันและกันระหว่างนักศึกษาและชาวกะเหรี่ยง และนักศึกษา กับสภาพแวดล้อม ข้อจำกัดของกระบวนการนี้คือระยะเวลา ค่าใช้จ่าย และความแตกต่างของพื้นฐานความรู้ของผู้เข้าร่วม นอกจากนี้การสื่อสารทางภาษาก็นับเป็นความท้าทายที่สำคัญ สิ่งหนึ่งที่ควรระลึกไว้เสมอว่า ผลผลิตขั้นสุดท้ายนั้น ถูกผลิตขึ้นด้วยความเคารพต่อความคิดเห็นของทุกฝ่าย โดยเฉพาะอย่างยิ่งผู้ที่ใช้พื้นที่นั้นเป็นประจำ

คำสำคัญ

ความร่วมมือ

การมีส่วนร่วม

กระบวนการออกแบบ

กะเหรี่ยง

ศาลาไหมฝ้าย

1. Introduction

The study of participatory design has been an active research field for several decades. An acknowledgement that users' direct involvement in the design and decision-making process has a positive influence and that, its investigation generates continued insight and knowledge. In order to design and build local resiliency in the context of Banggloy village, encouraging the involvement of all participants to contribute to the designing and building process is the main objective. This paper aims to understand and evaluate the collaborative design experience with local Built Environment students to raise a shelter: design-build of a small embroidery pavilion. In partnership with Bangkok University (BU) and Curtin University, students were divided into four groups. Each group obtained the same programme which designed a bamboo embroidery pavilion in the community public space. Students design freely based on the requirements of villagers and limitations. Collaborating with the Karen help students gain a broader understanding of the local context. We choose this village because the area has specific social and cultural challenges. Then, the Karen have knowledge and bamboo skills that can be passed on to students. Moreover, the Karen need help to rebuild the embroidery building because the old building is rotten, and they usually rebuild it every three years, depending on building materials. This pavilion is located in the center of the village and a place of work for women in particular.

In this paper, we examine the complexity of design reflection and action through the lenses of participatory process in order to not only honour students' work, but also to invite educators to rethink the collaborative and participatory design processes. The methodology of cooperative inquiry draws on experiential knowing which is through a direct face-to-face encounter with the Karen people; place and culture. This kind of in-depth knowledge is transformed into words and presentations that provide the form

of expression through drawing and models. Visualization provides a focus for a community's discussion of design ideas' it guides community members through the design process (Al-Kodmany, 1999). This paper argues that enabling a collaborative design is a key issue to the successful building process. Participatory design techniques were applied throughout the different stages of the design and building process. This paper begins by critically examining the collaborative and participatory processes, before turning to design processes such as charrette and design methods to rethink dominant narratives about alternative design models that directly address to the other design modules. However, the concern of working process requires dealing with ethics and equity, and careful consideration of the preconditions for engagement (Chambers & Guijt, 2011).

2. Collaborative Design and Participation in Architectural Design

Collaborative design generally describes an approach that integrates users into a design process (Broderick, 2014; Jalowski, Fritzsche, & Möslin, 2019) states that collaborative design is not just what people create; it is what happens when they create together. Collaborative design brings together the technical aspect of multiliteracies, including design with key feature of participation: opportunities for creative expression, social connection and sharing work (Jenkins, 2009). Additionally, collaboration roots the individual within a community of peers, offering basic support and the creative and corrective feedback of other views and possibilities (Reason, 2011). Collaborative design is, therefore, central to the multimodal composing process of working together.

In terms of participation, a designer or facilitator often uses a participatory design process with many approaches and techniques to enable the participants to develop an understanding of itself. Participatory process aims to produce knowledge and action

directly useful to a group of people; and aims to empower people by using their own knowledge to establish the production for the benefit of its member (Reason, 2011). It is more than a collection of design methods to influence the built form, and it also has a human dimension that engages people in the process, with users acting as participants in various activities and situations (Luck, 2003, 2007). King et al. (1989) support that visualization is the key effective public participation because it is the common language to which all people can understand. Thus, participation in the architectural design process enables students and the Karen to assess design hypotheses and priorities and simulate them prior to the planning of a building. Luck (2003) states that “participatory design facilitated the exchange of information and enhanced the designers’ understanding of the needs and expectations of the future building areas”. Turning to another positive aspect, “participatory projects can be empowering processes resulting in empowered outcomes” (Hussain, 2010). Also, motivation is a significant success factor for collaborative and participatory design. Sanoff (2007) states that “participatory design is an attitude about a force for change in the creation and management of environments for people.” However, a central challenge for participatory and collaborative design is to provide for alternative perspectives on participation and on democratization (Björgvinsson et al., 2012).

Participation is an effective tool to get people involved in the design process. Design ideas will arise in collaboration with participants from diverse backgrounds. Designer and practitioners will spend time with users in their environment and then share ideas (Luck, 2010; Sanoff, 2007) mentions that “the concept of design coordination embraces design information, activities that produce design information, and design activity as it happens on a project”. Participation and collaboration allow people to gain access to information with regard to the method used to compile it (Sukkasame, 2018, 2019).

As such, it can be said that participation in architectural design is not merely for the purposes of achievement, but also to engage people in meaningful and purposive adaptation to their environment (Sanoff, 2000, 2007) and it also illustrates a sphere of design activity. A challenge for participatory design is to provide for alternative perspectives on participation and on democratization. This challenge means actively exploring alternative ways to organise future making for innovation (Björgvinsson et al., 2012). Next, we will indicate how students work together and work with the indigenous Karen.

3. Methodological Considerations

Our participatory and collaborative design process is divided into six stages. Firstly, diagnosis – to identify the community’s main characteristics and to define emergent problems, demands and needs. Secondly, understanding the background. This stage is to understand primary the culture and environment, beliefs and built environment values of Banggloy Karen village through documents. Thirdly, planning. To formulate the participatory design process, including workshops, developing different designs to give the community a wider range of options to design form. It divides into ideas generation, decision making and developing ideas. Fourthly, consultation. We were visiting the site of Banggloy Karen village in order to have a better insight into the culture, context and beliefs of the community and the place. Students have presented initial designs in the group prior to the visit and discuss them with the community members. Additionally, visiting architect firms who are bamboo experts. Students had the opportunity to learn from their methods, techniques and their experience of working with bamboo as a construction material. Fifthly, refinement, planning and building. This stage is to collaboratively discuss, refine, evaluate and revise the finalized design, and also to set a construction plan in collaboration with the skilled craftsmen from Banggloy village to

prepare all requirements for construction works to commence. Lastly, assessment and reflection. To reflect the different experiences students throughout the journey what we learn from the participatory and collaborative design with each other and the indigenous Karen. (Figure 1)

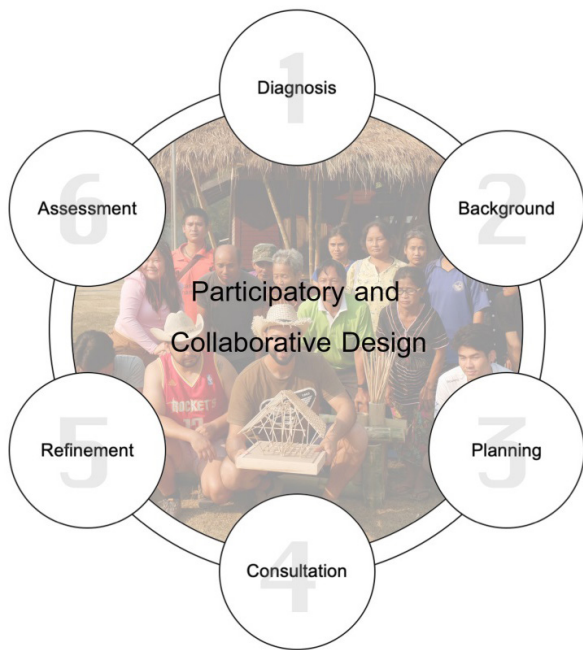


Figure 1 Our participatory and collaborative design process.

4. Design Processes

4.1 Charrette Week

“The charrette process refers to the rapid pace at which these designs were finalized and the energy that ensued from that production” (Sanoff, 2000). We spent the first week participating in the design of a small bamboo pavilion. A structured schedule and open design process, the charrette included design discussion, drawing, sketching, and model making. Generally, we defined this process through three stages. Firstly, idea generation. Each group shared, discussed and presented their ideas to each other. This stage took time and was crucial for the students to engage under different backgrounds and disciplines. Each group consisted of both undergraduate and postgraduate members, from both Bangkok and Curtin Universities. Secondly, decision making. We

found that each group had varieties of ideas and designs; thus, they required a dialogic discourse about the ideas presented. They then tried to summarize the ideas and select one to develop toward the next stage. Finally, after developing a chosen idea, students commenced onto the presentation, including drawings and models. This stage is about problem-solving, recommendations and outcome of the charrette process; necessary to resolve before presenting the design to the Karen villagers. (Figure 2)

The charrette process has proven to be a successful goal-setting technique, a collaborative exchange and an interdisciplinary, problem-solving approach (Sanoff, 2000). Thus, it can be said that a successful charrette process requires both technique and collaborative process to act in the design programme to gain the support of participants, and to get the commitment in order to effect the changes. Students have a sense of urgency about design issues in order for a charrette to become a tool that brings us together to work and change. Thus, it is important to get various ideas to together toward accomplishing common goals of the charrette. Also, by creating a dialogue within working groups, this allows students who have not experienced working problems to learn from each other. However, a major goal of participatory process is to solve practical problems in a community (Selener, 1997). Hence, as a project advisor role, it is to maintain control of the group dynamics and get the groups to work and be able to diffuse any disruptive behaviour.



Figure 2 Charrette week.

4.2 Architectural Design Charrette

Our architectural design charrette lasted one week. It addressed a well-defined bamboo architecture, and resulted in schematic and illustrated ideas.

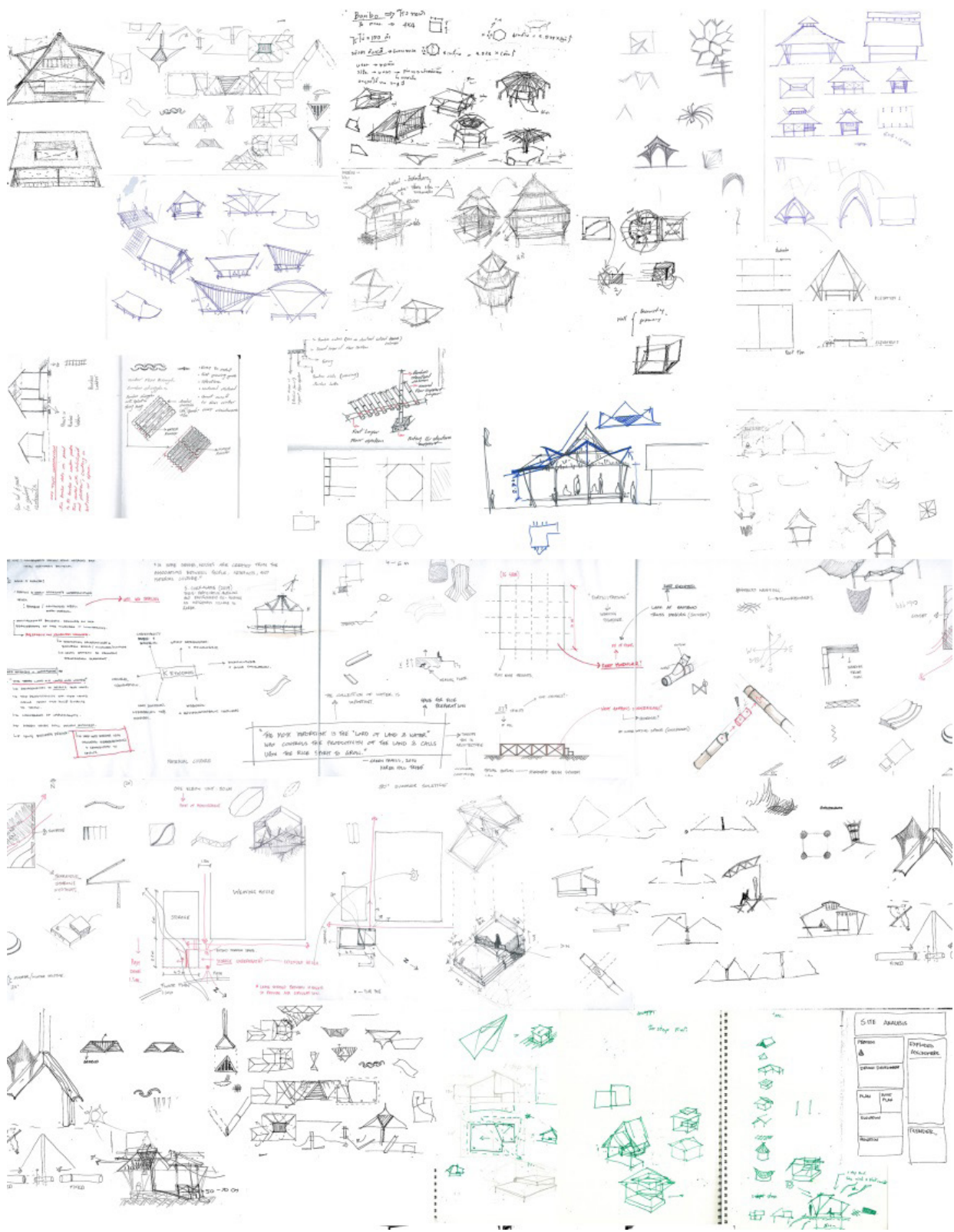


Figure 3 Brainstorming ideas from the Charrette week.

The programme included community participation and served existing community issues. In the charrette, the process requires all participants; with both universities at the table, to experience transactive dialogue and evolve this dialogue into collective decision making. However, an individual's interests are not ignored; rather, they are considered with respect to others and are modified.

Students evolved in the design and building processes under many constraints, such as limited time and budget. There is a wide range of techniques available to architect students. Some of these techniques are standard methods employed in a participatory process. The key to pavilion design work effectively is a range of techniques for enabling students and lay them collaborate creatively. Participation in bamboo pavilion design is classified into three categories.

Firstly, awareness methods. Students need to know information about the Karen village to be able to decide and design the schematic ideas. As an approach to environmental situations, students have adapted to intolerable conditions, whereby walking around the village and the area of study. This walk allows students to discover familiarity among the Karen village. This technique is most effective as an introduction to the collaborative process in terms of seeing, talking, hearing and touching.

Secondly, group interaction methods. The face-to-face interaction in the workshop or charrette week was our key concern in a collaborative method. Fifteen students were divided into four groups, selected by a facilitator or project director; who guided the discussion to relevant issues. This process convenes an interest group in a series of design ideas aimed at designing a small pavilion. This charrette process included a workshop that engaged participants in the development of ideas, recommendations and decisions. This also is an approach whereby students work together with models and drawings to explore alternatives.

Thirdly, brainstorming methods. Each student group freely expressed their ideas and discussed problem-solving. In this stage, students focus more on ideas generation (Figure 3). There are rules for brainstorming methods. For example, generate as many solutions as possible, wild ideas are encouraged, and no criticism is allowed – judgment is deferred (Sanoff, 2000). Each group and a member has pieces of paper with time to draw and write down all their ideas about pavilion design. Students discussed and exchanged ideas with each other. Notes and sketches are collected and presented to another team for exchanging ideas and comments. This method helps students to express ideas, and also learn from each other.

4.3 Presentation: Response to the Designs

After five-day design at the university, we made models and design panels presentation to present the Karen (Figure 4). The following day, we visited the Karen village and prepared for presenting our designs. The next morning, we arranged the meeting at the weaving house; a work platform for the community who was to decide on the design. Around fifty people currently work in this building (see Figure 5).

The Karen tried to follow the process of our design. We found they had difficulty understanding the designs in terms of language communication. In addition, we had to translate the presentation from English to Thai and Karen languages; at the same time, we also had to translate the comments from the Karen to English and Thai languages. However, models provided them with a better understanding of the principle of spatial planning and form. This interaction between the Karen and students as a designer in this project is clearly a departure from the traditional approach to participatory approach. The meeting, voting and presenting design each group took the comments from a community meeting. Community meeting allows us to present the project and design process. Students learned from a public

hearing and comments and language that they have never heard before. However, this meeting did not have too much time for discussion. The Karen participated in the process in terms of giving comments and asking questions and voting for the final design. A vote determined public reactions in the meeting by using stickers on the designs and models which they like most.

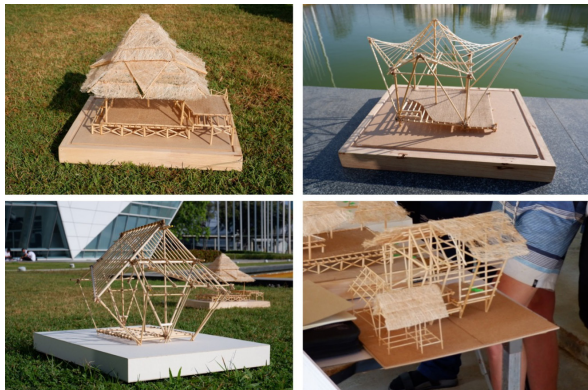


Figure 4 Four designs by students from charrette week.



Figure 5 Students are presenting the designs in the weaving house of the village, and the Karen will select only one design for building.

During the presentation, the Karen involved the process and encouraged the exchange of ideas and comments on the design of each group. We tried to encourage them to be a part of the project and communicate a sense of ownership in the final product. The Karen are empowered by making decisions to select a design. This approach enabled the Karen and students to make spatial and form modifications after discussion and comments. We have learnt that the effectiveness of a collaborative

process is contingent on the involvement of parties. Additionally, the language of communication should reflect the ideas developed by designers and convey goals and activities. The language of presentation – the floor plans, elevation and section – should all be easily translatable to the user group.

5. Results and Discussion

5.1 Learning from Student Collaboration

The different backgrounds, experiences and way of thinking from the students created an opportunity for participatory design to act as a way of exchanging knowledge. Coming from two different countries, institutions and schools of design resulted in creating a broader range of design concepts and a variety of methods. The workshop set up was arranged to support interaction between not only group members, but also the different groups together. Different areas of expertise and viewpoints of design and architecture from undergraduate and postgraduate students were mutually joint to create the most suitable approach towards the project brief. Learning from each other required a personal experience and communication skills from all students to equally contribute to developing, reflection and testing of their ideas. Students gain the most out of the direct learning and experience of participatory design throughout the charrette week, different learning and designing methods, including reflecting, conceptualizing, brainstorming, model making, sketching and verbally presenting ideas. For Australian students, the collaborating with Bangkok University students provided an opportunity for a better understanding in terms of considering the cultural beliefs and values while respecting and appreciating the Thai traditional and contemporary architecture. On the other hand, Bangkok University students were exposed to a different way of approaching design, materiality and structure. It can be said that students were encouraged to freely communicate and negotiate collectively the best outcomes rather than a tendency

for individuals' opinions. It can be seen in the workshop, which focuses on the potential of collective creativity and knowledge to form the most suitable design for the specified context.

5.2 Community and Student Collaboration

Verbal communication between students and indigenous Karen was challenging due to the different languages, as translation have to go through three stages (English – Thai – Karen). However, physical models, panels, sketches and process models were prepared by the students to act as a visual way of communicating their ideas and design to the Karen community. The exchange in knowledge and

viewpoints that were perceived throughout the communication of ideas between the Karen people and students have helped shape a better understanding of the community's necessity. Furthermore, community members were invigorated to vote for one of the four different designs presented by the different groups of students, and the selected design was developed further (Figure 6). After the design was finalized, the craftsmen in participation with the students finalized a construction plan and agreed on particular joinery systems for the structure. Furthermore, building the structure was also done by the collaboration of locals and students, which has resulted in the completion of the structure within only ten days (see Figure 7). The final product was shaped with respect to all opinions, especially of those who will be regularly occupying the space (Figure 8). Effectiveness of the interaction between the Karen people and students throughout the project was evidently a departure point from the traditional approach to a participatory design approach.

5.3 Mutual Learning

Students engage in experiences providing an opportunity for learning and designing for human reactions. Learning from each other requires personal experience that requires reflecting, developing and testing of ideas and design approaches. These processes become clear when students are required to resolve their differences problems. Our charrette week, students learn from each other and explore design issues. An essential issue in the development of design is that of building group cohesion (Sanoff, 2000). They have opportunities to see the works of others. Thus, it is necessary to organize the experience so that there is a focus on the group process. Sharing experiences is sharing lessons (Symes & Jasser, 2011). This also increases the learning process and what they should consider.

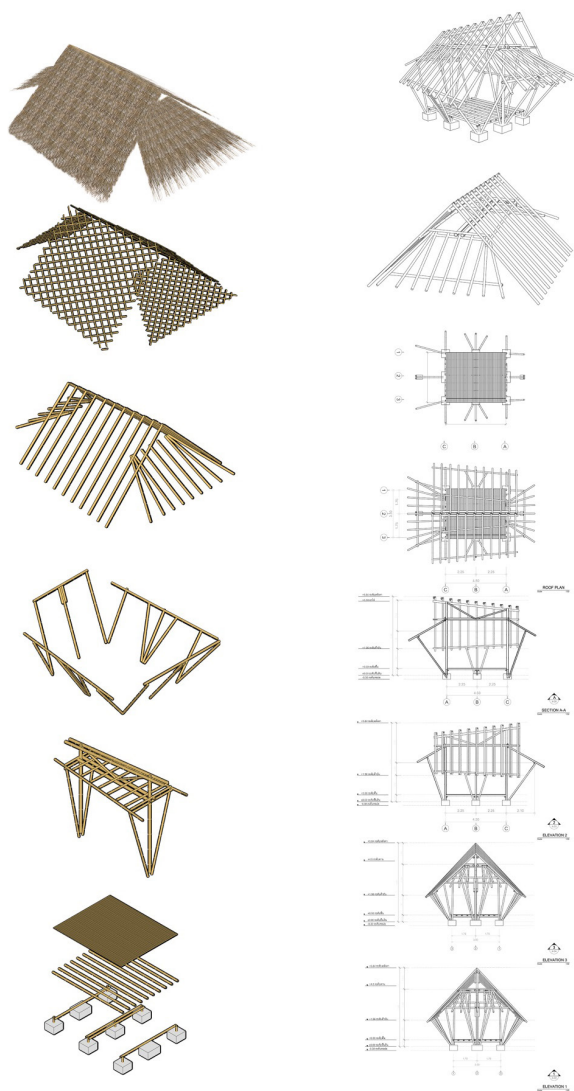


Figure 6 The selected design is modified following the comments of the Karen villagers.

An old embroidery building.



We demolished the old one.



We started building following design in the charrette week and the comments of the Karen.



The key structure was built and started roofing.



All building materials come from around the village. This reflects the common resources so that they interact harmoniously.



A completed embroidery pavilion.

Figure 7 We demolish an old embroidery building and rebuild it in the same area. The selected design is built together with the Karen spending ten days.



Figure 8 A completed embroidery pavilion. It is a place of work for Karen women in particular.

Techniques employed to direct learning include activities such as model making, discussions and summarizations. These techniques provide an atmosphere for learning and designing as a team. We employed graphic and drawing, sketching and models which are important factors that contribute to a successful session. Thus, it is necessary to state the workshop's goals, schedule and outcomes clearly. For example, providing students with the Karen village information to understand generally about the Karen people. This overview took the form of a simple

presentation of environmental, cultural and political issues, including the introduction of awareness understanding and behaviours. This focuses on active collaboration in activities that involve all the senses, allowing discovery and encouraging exploration (Sanoff, 2000).

Actually, each group has no leader; thus, each group will help to clarify the roles and the group objectives. They were encouraged to freely communicate and try to decrease the tendency for individuals' opinions. Hence, students from both Curtin and Bangkok Universities need to understand the context of their design and see the potential of their collective creativity before designing and making models. Our constraints in the workshop are that students have different backgrounds and subjects and level of study. Thus, their viewpoints are formed from different angles and perspectives. For example, Curtin students focused on materiality and structure. On the other hand, this becomes a chance to learn from each other and share ideas and experience and learn how to work together.

In our collaborative processes, opinions and judgments have their place, but our purpose is to allow options and encourage input rather than to prevent ideas of participants. Summarise during a session enable us to perceive what has been happening and to determine how to continue and what is the problem we face. An important thing, student each group learns from each other from their summaries. Thus, the intention is to reach the solutions best responds to the concerns of all participants. However, participation generally takes time in a process because of differences in knowledge and understanding between researchers and participants. For example, they considered many issues such as materials, construction, solar orientation, circulation and gender that would influence the design of the bamboo building. A significant challenge is that participation uses enormous time and may endlessly delay and circularise decision making (Botes & Rensburg, 2000; Sarkissian et al., 1997).

6. Conclusion

This paper has examined the design reflection and action through the lenses of a participatory process in order to invite educators to rethink the design processes. The practical outcome of the process is a part of the life experience and collaborative practice between students, both universities and the indigenous Karen. Our learning process involves a much number of closer relationships, providing significant knowledge of person through a reciprocal encounter between people and people, and

people and the environment. It can be said that collaboration and participation are helpful to the flourishing of people. Effectiveness of the interaction between the Karen people and students throughout the project was evidently a departure point from the traditional approach to a participatory design approach. For students, coming from two different countries, institutions and schools of design resulted in creating a broader range of design concepts and an extended variety of methods. The different backgrounds, experiences and way of thinking from the students created an opportunity for participatory design to act as a way of exchanging knowledge. Our collaborative process addresses the opinions, ideas and judgments as our purpose is to allow options and to encourage input rather than to prevent viewpoints of any participant. In addition, the process indicates the generalization, possibilities and limits of the person acting in the collaborative process. Thus, students engage in experiences delivering for learning and designing for human actions and learning from each other. This produces knowledge and action that derive from the Karen, and empower them by using their own knowledge to build an embroidery pavilion that benefits them. The limitation of the process is time, financial cost, and the difference of knowledge background of participants. Also, language communication is a significant challenge. It should be bear in mind that the final product was shaped in respect to all opinions, especially of those who will be regularly occupying the space. Community resiliency requires additional approaches to advance the traditional building methods, that bring innovative solutions to the built environment.

References

- Al - Kodmany, K. (1999). Using visualization techniques for enhancing public participation in planning and design: Process, implementation and evaluation. *Landscape and Urban Planning*, 45(1), 37–45.
- Björgvinsson, E., Ehn, P., & Hillgren, P. A. (2012). Agonistic participatory design: Working with marginalised social movements. *CoDesign*, 8(2), 127–144.

- Botes, L., & Rensburg, D. V. (2000). Community participation in development: Nine plagues and twelve commandments. *Community Development Journal*, 35(1), 41–58.
- Broderick, D. (2014). Collaborative design: Participatory culture meets multiliteracies in a high school literary arts community. *Journal of Adolescent & Adult Literacy*, 58(3), 198–208.
- Chambers, R., & Guijt, I. (2011). PRA five years later. In A. Cornwall (Ed.), *The Participation reader* (pp.109–121). Zed Books.
- Hussain, S. (2010). Empowering marginalised children in developing countries through participatory design processes. *CoDesign*, 6(2), 99–117.
- Jalowski, M., Fritzsche, A., & Möslin, K. (2019). Facilitating collaborative design: A toolkit for integrating persuasive technologies in design activities. *Procedia CIRP*, 84(5), 61–67.
- Jenkins, H. (2009). *Confronting the challenges of participatory culture media education for the 21st century*. MIT Press.
- King, S., Conley, M., Latimer, B., & Ferrari, D. (1989). *Co-Design: A process of design participation*. Van Nostrand Reinhold.
- Luck, R. (2003). Dialogue in participatory design. *Design Studies*, 24(6), 523–535.
- Luck, R. (2007). Learning to talk to users in participatory design situations. *Design Studies*, 28(3), 217–242.
- Luck, R. (2010). Using objects to coordinate design activity in interaction. *Construction Management and Economics*, 28(6), 641–655.
- Reason, P. (2011). Cooperative inquiry. In A. Cornwall (Ed.), *The Participation reader* (pp. 99–108), Zed Books.
- Sanoff, H. (2000). *Community participation methods in design and planning*. Wiley.
- Sanoff, H. (2007). Special issue on participatory design. *Design Studies*, 28(3), 213–215.
- Sarkissian, W., Walsh, K., & Cook, A. (1997). *Community participation in practice: A practical guide*. Institute for Science and Technology Policy, Murdoch University.
- Selener, D. (1997). *Participatory Action Research and Social Change*. Cornell Participatory Action Research Network, Cornell University.
- Sukkasame, S. (2018). Community Participation in Low-income Community Design in Thailand. *International Journal of Architecture and Urban Studies*, 3(1), 31–37.
- Sukkasame, S. (2019). Collaborative community design processes in rural and urban settlements in Thailand. *Nakhara: Journal of Environmental Design and Planning*, 17, 71–80.
- Symes, J., & Jasser, S. (2011). Growing from the grassroots: Building participatory planning, monitoring and evaluating methods in PARC. In A. Cornwall (Ed.), *The Participation reader* (pp. 125–139). Zed Books.