Gaming simulation as policy planning tool in a racially diverse neighborhood: a case study of Lardproaw district, Bangkok

Paola, RIZZI, University of L'Aquila, Italy

Pongpisit, HUYAKORN, UDDI Thammasat University, Thailand

The researcher implemented Gaming Simulation as a method to assess the awareness toward climate change and the perception regarding the collaboration for local policy development from different local racial groups which include Thais, South East Asians, Europeans, etc. Ultimately, we recommend the progressive approach for elevated local community-based planning.

1. Background

Local community policy planning has never been an easy issue, most of the time the policy was generalized for the whole country or at best for the provincial level. Unfortunately, they will be the first actor that are going to face the adverse effects of climate change, in the decade to come the local ability to tackle with emerging issues of resiliency, immigration, diversity and inclusiveness will be extremely crucial. Presently, the district of Lardproaw is facing the impacts of ASEAN Economic Community (AEC) that was initiated in the year 2015 to promote the movement of people in 10 South East Asian countries. Unfortunately, in his research Huyakorn also learned that “In Thailand, the majority of Thai people still refer the low-skilled migrant worker as an “alien resident” instead of immigrant and as such, they have been regarded as so-called alien residents. It has been extremely difficult for them to find a place in the community”. (Huyakorn et al., 2018). And due to that, there have been growing tensions among the local residents and the newcomers in several neighborhoods. Consequently, as Thai local planning authorities neither familiar with the context of climate change nor the immigrant integration, we direly need a novel tool to creatively deal with this unaccustomed local phenomenon.

Interestingly, this research utilized the Gaming Simulation (GS) as a primary tool, due to its efficacy in both complex learning and risk communication tool, in the view of different scholars, GS allows participants to develop a global perspective, to connect learning with real-world situations and to get close to the realities of a complex world (Duke, 1974; Faria & Dickinson, 1994; Haapasalo & Hyvonen, 2001; Hoberman & Mailick, 1992; Lainema & Hilmola, 2005).

In term of risk communication tool, Promsaka and his team have found that “the gaming simulation offers representatives of stakeholders the opportunity to meet each other, discuss and exchange their different information and opinions on a specific issue, which enable a fruitful communication avoiding a risky judgment on wrong terms” (Promsaka et al., 2014).

More importantly, Huyakorn found out that in GS is truly useful for the neighborhood that has the complex relationship among diverse group of resident “It seems to have an extremely elevated potential for urban planning and design context wherewith. Regardless, in this new era of diversity, several nations will require collective policy planning in the local community level. Neighborhood planning is the best arena that urban policymaker and immigrant integration initiator should start implementing this tool” (Huyakorn & Rizzi, 2017).

The Arrival City Game was introduced to research participants, aiming at the local stakeholders that include natives and immigrants, while the participants have to accommodate the complicated issue about immigration, particularly the fact that in the GS the local and newcomer have to compete for jobs, house and other utilities. According to the role in the game, their action would affect not only the district but also the citywide and nationwide area, i.e. the investor could decide to invest in an old type of factory plant, the government can invest in costlier but more sustainable public transport. Hoping that we can comprehend how the racial difference affect their understanding and wherewith a solution for better collaboration and contribution toward local planning policy from different groups of stakeholder.

Accordingly, the research objectives are 1) to assess the local community awareness toward climate change, 2) to assess the local community perception about the collaborative local policy planning that have impact on the citywide area and 3) to propose appropriate policy recommendations for the local community-based planning efforts.

2. Research methodology

In order to assess the local community awareness toward climate change we observed their actions and decision during the game. And we let them do the pretest and posttest questionnaire. Firstly, we let them list the causes of climate change, the impact of climate change and then we let them assess from 1. Strongly disagree, 2. Disagree, 3. Neutral, 4. Agree and 5. Strongly agree about these 5 statements,

1. Giving the chance I will join the participatory planning event
2. Climate change is a problem for everyone
3. Climate change impacts effect my life
4. I am willing to contribute to climate change reduction and mitigation
5. Urban planning relates to climate change issues.

As per the local community perception about the collaborative local policy planning that have impact on the citywide area we observed the participant during the game activity and we also did a focus group interview activity to collect the data. The essential discussion topics were about the GS activity, participatory planning issue in Thailand and in the neighborhood.

The neighborhood we implemented the game in was within Lardproaw district. Due to lower average rent compare to other district that is connected with decent public transport, it becomes easier and easier to see the foreign faces in the area. While the national statistic institution is still too rigid and slow to collect the data about immigrant residents we have learned that beside the low-skilled migrant that you can easily find in other neighborhood, there are a huge number of immigrant residents who have moved in to the area. Some of them even live in Lardproaw for more than 25 years.

The date of the game activity was on the 20th Mar 2018, the planning activity was on the 30th May 2018 and also the follow up interview on the 13th July 2018. The main languages of the activities are English and Thai. There were 50 locals and 50 migrants who took part in our research. We tried to have as diverse as possible group of samples for the research through snowball method. Our research samples include people of 15 countries, who identify their ethnicity as: Thai, Chinese, Japanese, British, American, German, Russian, Taiwanese, Indian, Mexican, Australian, Burmese, Lao, and Cambodian. The largest ethnic groups among the immigrants are Burmese. Interviewees' duration of stay in the neighborhood varies from a few weeks, months, a couple of years, to several decades. The longest consecutive durations of stay in the neighborhood are 25, 20,16 and 15 years.

There are 60 women and 40 men. Most samples are between 31-45 years of age. The second largest age group is 46-60 years old. We have also people aged 18-30 and over 60. The youngest four samples are 18, 21 and 25 years old, while the eldest three are 65, 67 and 70. The group contains the person who live by themselves, couples, single-parents, couples with children, a multigenerational family, and people who live in a form of shared housing (e.g. shared house with relative). The largest groups of interviewees live alone, have a partner and children, or are single parents with children.

Furthermore, in terms of the socio-economic status (SES) of the samples, referring to income and education levels and type of occupation, there are extremely diverse but the majority is in a lower-middle or middle SES and at least high-school degree. Nevertheless, these attributes are not the main consideration for this research as we focus more on the racial difference context. we randomly assigned them to 5 groups of 20 people (10 immigrants, 10 native resident) then in each group they formed a team of 5 people (must include both immigrant and native) to play for 4 roles of the game. The game session took up to 2 hours for each group.

3. Arrival city game

Arrival city game implement this mechanism for the simulated situation; 1. The immigrants are motivated by the job and quality of living, and then they migrate to the city (Arrival city), resulting in 2. The lack of urban resources/ utilities such as healthcare, police, electric power, then the player need to 3. Use land use management as a main tool to try to plan the land use policy, develop the infrastructure and control the vulnerability and lastly, 4. There will be a chance for every player to take part in mayoral election. (Refer to figure 1)

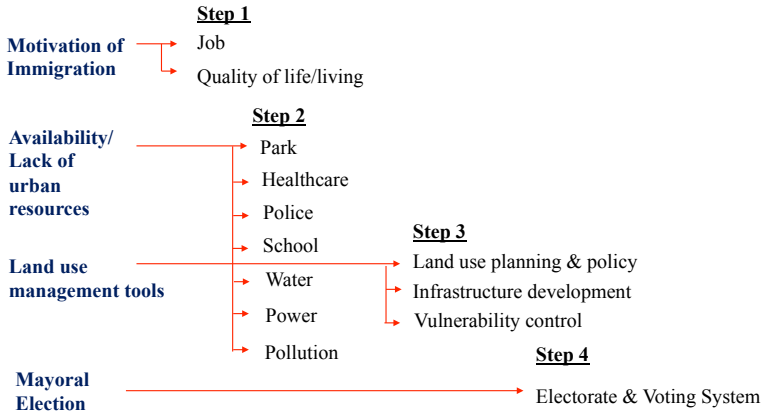

Figure 1: Processing mechanism

The game is a square-shape board with the circular-shape town center in the middle, the land lots are owned by both the public sector (in this case government) and private sector (investor). All the players will take part in managing the land; for their income, for their house, and for their livelihood. Accordingly, as illustrated in figure 2, all the players from the 4 different roles of immigrant, resident, investor, and government have to contribute to the development of the city (Arrival City). The government is the main decision maker of the city policy and land management, the investor is the job contributor in the city as well as developer of the land, lastly, the resident and immigrant are compelled to compete for the jobs and the accommodations.

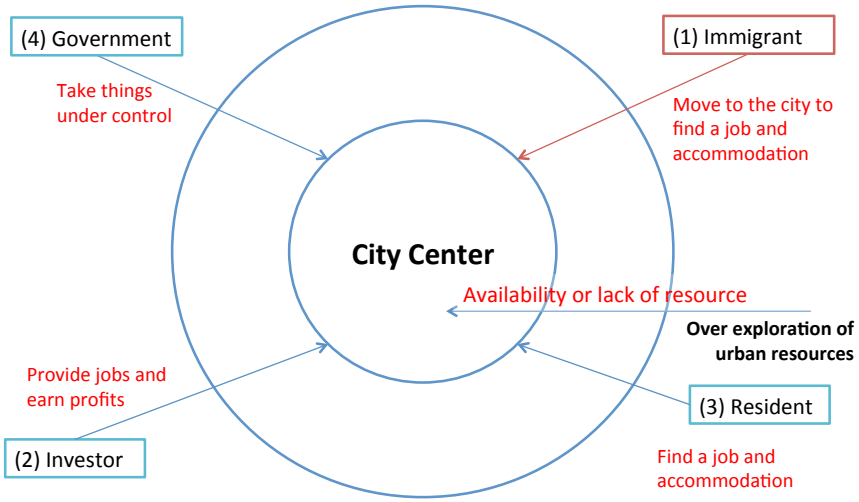

Figure 2: The simulated model.

After all the players complete their action according to their roles, all four teams are obliged to participate in city planning, which they must try to find solutions for Arrival City. Each turn becomes increasingly challenging as bigger waves of immigrants continue to come into the city that could cause additional problems and disruption to Arrival City.

The figure below is the example of the option cards. As the players are not experts in the field of planning, in the game we provide option cards for them to help them make decisions. For example, the government team can choose to provide incentives to the investor, adjust the property tax, or evict the illegal settlement. Not only that, the role of government is quite complex and they have to examine about a number of issues compare to others, the government role has access to the Excel sheets that provide detailed information of the situation of Arrival City and simulated index and graph such as the consumption, crime index, city vulnerabilities, etc.

Figure 3: Example of option cards for the player.

Throughout the game, it will become harder and harder for the player if they just work alone without considering the impact of their actions, they need to learn to work with each other, and eventually realize that they can also live and work with immigrants, wherewith they understand the role of immigrant in an urban system. They will also learn about the reality of urban planning impact on the climate change issue. Especially, the mode of transportation, the type of infrastructure and land use management. (See figure 4)

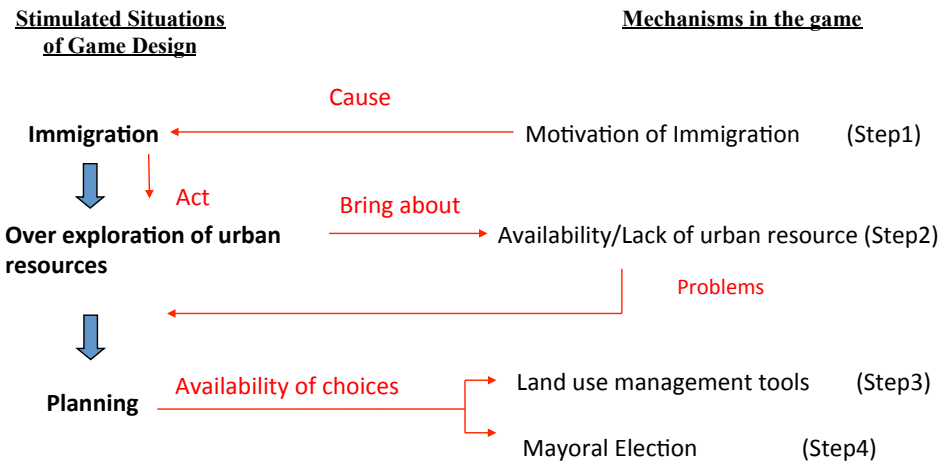

Figure 4: Game mechanism

4. The result of gaming simulation activities

The results indicated that the majority of the research participants aware of the climate change problem, however, they prioritize their current livelihood, income security and housing first. Noticeably, the group from developed countries chose their actions more consciously if it concerns the issue of climate change. While, the natives are more familiar with the local planning processes, the immigrants seem to be more enthusiastic and eager to participate in the activity.

Importantly, as there was a huge gap between the immigrant and native resident samples' perception, we are convinced that it is necessary to show three different figures, which elaborate three sets of sample group as follow, figure 5 shows all 100 samples, figure 6 represents the pre and posttest results of immigrant group perception toward diversity and figure 7 shows pre and posttest results of native resident perception toward diversity.

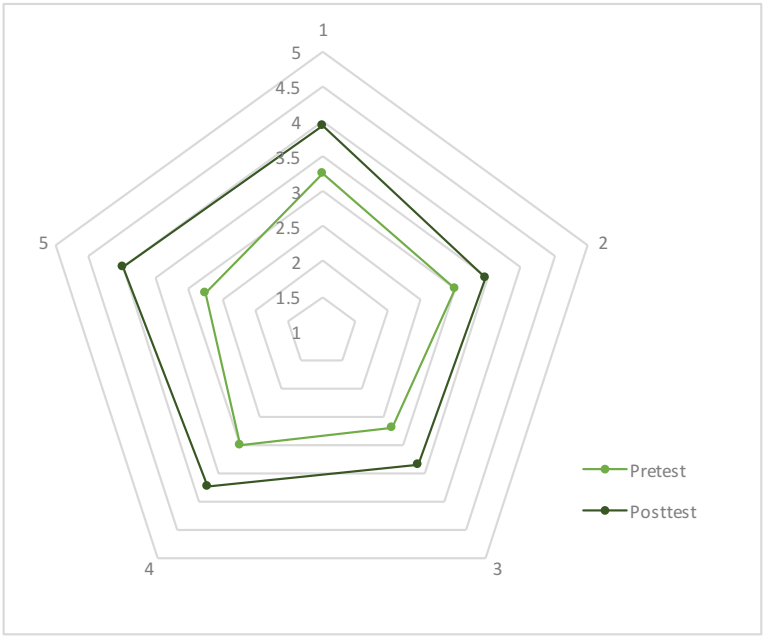

Figure 5: Pre and post test results of resident climate change awareness (N=100)

Overall, all the 5 categories are in neutral level (3.3, 3.0, 2.7, 3.0, 2.8 respectively) which "Climate change impacts effect my life" and "Urban planning relates to climate change issues." were among the lowest. After the game, there were apparent changes in all categories (4.0, 3.5, 3.4, 3.8, 4.0 respectively). They all agreed that "Giving the chance I will join the participatory planning event", "Climate change is a problem for everyone", "I am willing to contribute to climate change reduction and mitigation" and "Urban planning relates to climate change issues", while they still remained neutral about climate change impacts effect my life. (see figure 5)

As figure 6 shows, the Thai resident seems to have lower awareness about climate change situation as the pretest reflexed that they disagree that climate change impacts effect my life (2.3) and urban planning relates to climate change issues (2.2) while "Giving the chance I will join the participatory planning event", "Climate change is a problem for everyone" and "I am willing to contribute to climate change reduction and mitigation" are in neutral. (2.9, 2.5, and 2.5). After they played the game they agreed with statement 1,4 and 5 (3.7, 3.6 and, 4.0), statement 2 and 3 still remained in neutral level (both 3.1).

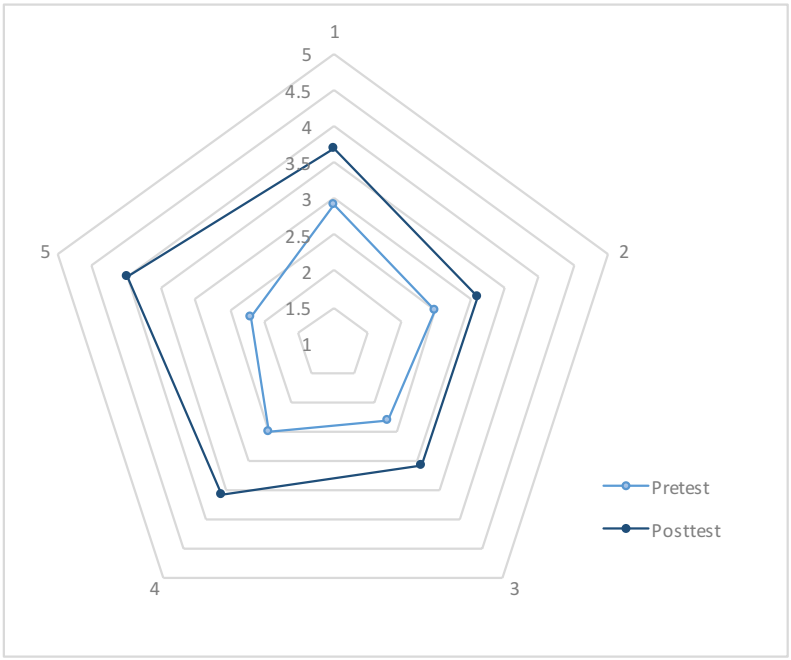

Figure 6: Pre and post test results of native resident climate change awareness (N=50)

Howbeit, for the immigrant residents they seem to have more elevated awareness about climate change as they wanted to participated in the planning process (3.6), they also think that climate change is a problem for everyone and they are willing to contribute to climate change reduction and mitigation both (3.5). However, the statement regarding "Climate change impacts effect my life" (3.1) and "Urban planning relates to climate change issues" (3.3) were in neutral. Eventually they came to agree with all statement as there were improvements in each category (4.2, 3.8, 3.6, 3.9, 4.0 respectively).

In term of causes and impacts of climate change, before the game they could just list around 2-3 causes and impacts of climate change. But after the game they could list around 6-7 answers. This was forasmuch the opportunity during the game which they can learn about the phenomenon as well as the interaction and exchange of ideas, case studies during the game and essentially in the planning activity.

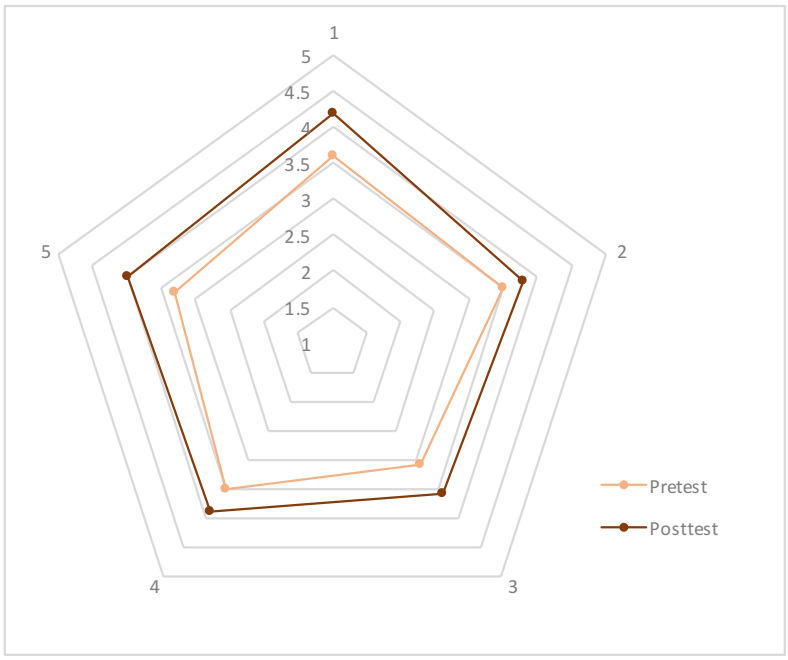

Figure 7: Pre and post test results of immigrant climate change awareness (N=50)

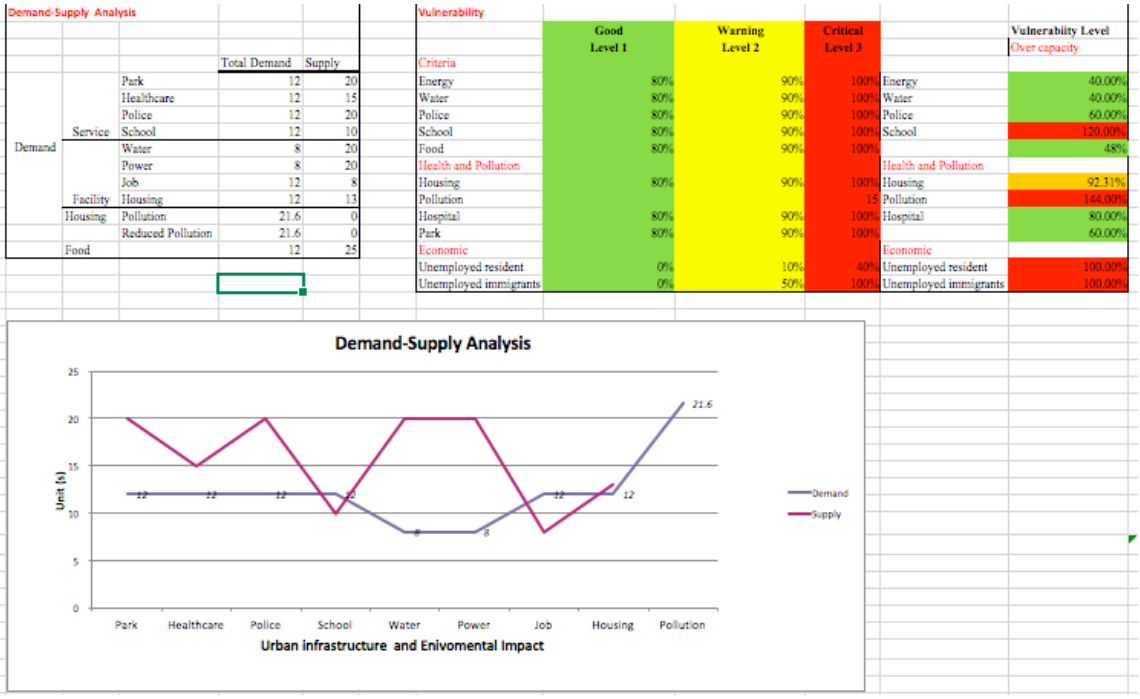

Figure 8: In-game excel sheet

Principally, in all of the 5 groups that we played the game with, in general they had similar result during the game. In the first phase they only focused in making profit and competed with other teams in order to try to win the game. The Arrival city could function for some time but eventually there will be an abruption such as over demand, high rate of crime, unemployment rate, pollution problem and disaster situation as you can see from this example (figure 8). Consequently, when they all had to face with the crisis, they started to realized that while they prioritized the short-term need and individual benefit they can make do for a certain period of time. But ultimately, the world (in this case Arrival city) will face with several problems, some of those relate to climate change. Then all the 5 groups showed a change in mindset and the way they played the game, all of the team in each group acted as

they need to work and rely on each other. The government teams communicated more before making decision. The resident and migrant teams tried to work together, while the investor teams contributed more to the city.

If we take a look deeper within the team member and group composition, Japanese, British, American, German, Russian, Taiwanese and Australian participants concerned more about green infrastructure, public transport and alternative energy resources. The German, American and Australian are in particular more willing to collaborate with other players, while Chinese, Russian, Cambodian are the three groups that seem to be less cooperative. And it was not a surprise that Thai are the most sensitive to immigrant role but some of the British, American and German also voiced their concerns toward low-skilled migrant worker.

Seeing the positive result of gaming simulation activity, we asked all the participant to come again to do the neighborhood planning policy development by themselves with the help from our team and local experts. Not only that they demonstrated better understanding, more expression and connection between ideas and several climate change related issue. They could come up with a considerable number of policy recommendations for their neighborhood to tackle with climate change issue. The notable policies are as follow,

1. The urgent need in the neighborhood master plan development in all the local area.
2. Improvement on the infrastructure that connect between mode of public transportation as well as origin and destination. Because it is not walkable enough people still need to use other paratransit mode (motorbike taxi) to connect between nodes of public transport.
3. Several small and medium size park are needed.
4. More incentive and compensation to motivate people to do positive behavior.
5. Alternative public space that focus on socio-cultural activity such as museum, art gallery and library.
6. Higher parking fee, and policy that discourage people to use car, i.e. CBD entering fee, zoning pass, odd and even driving plate permit.
7. Standardized and improvement to local school and kinder garden so that parent can just send their children to the local school.
8. Better management of the water resource, in particular the improvement to waste water treatment, sewage as well as the revitalization of canal and river.

The following are some of the interesting interview answers that we need to quote. The Thai participant want to work more with other and contribute more to urban planning and climate change reduction but they still criticized the current urban planning system in Thailand “We must plan in advance, government must be proactive and we need to start to consider about the immigrant resident if we still want to support AEC. Well I still feel that urban planning may not contribute that much due to the limitation in our planning law and regulation” (R4, M, 32, Native resident) “we love to work together more if we are allowed and supported, bringing new ideas is a beautiful matter, in particular the cases from developed country, but I do not think our government will allow the foreigner to take part in Thai urban planning” (R13, F, 29, Native resident), While the immigrant participant showed that they want to work more with other and contributed somehow to planning. “In my home country participation is a must and it is easy to join but I never join the activity in Thailand, I am not sure that we can.” (R67, F, 45, German). “Well as I may not be so fluent in speaking Thai, in order for a successful planning event, we need a medium to share and help bridging people as well as communicate in the language that everyone understand” (51, F, 33, Mexican) and “local

planning is the basic of everything in Japan, people can make change through this opportunity for participation" (R87, M, 50, Japanese).

5. Discussion and recommendations

Correspondingly, from the result we can supplement our finding to the past research that utilized GS as the tool for the planning to implement in the neighborhood which is experiencing the dynamic of population movement. "The game shows a very good potential as an education tool for immigrant integration and neighborhood co-existing diversity. Players also learn about land use planning and its relation with the immigrant phenomenon. It has proved to be a very attractive tool for urban planners, to use as a tool to teach people about land use management planning" (Huyakorn et al., 2018). But not only that, judging from this research experiment results, the Arrival city game is also an excellent planning tool in the context of participation and climate change problem.

We have unearthed the essential pronouncement that GS is exceptionally appropriate to be the tool in the arena of immigrant integration as it could stimulate progressive dialogue between the local and the migrant populations that result in a rewarding partnership afterward.

In essence, the key attributes of GS are the simulated events, action and reaction as well as the ability to bypass time. And these lead to the in-game experience that the player can learn about the consequent of action. We believe that this is extremely important when you want to campaign for climate change.

Taking the research finding in mind, hopefully with further improvement the GS can become the novel toolkit for other neighborhoods in AEC region respectively. More investigation on the actions and roles that were taken during the Arrival city game should be triangulated with other factor such as the participant attribute, period of stay and the impact of participant background, in order for us to understand better this complex situation. Importantly, with this new local reality of diversify neighborhood and ongoing changes of population, we can rely on the GS to be the tool that help the local planner communicate more progressively with both the resident and the immigrant population. Wherewith, it is proved again to be an effective participatory planning tool for extensive group of stakeholders.

Endnotes

1. Regarding Thai urban planning regulation, it still limited to land use planning but it does not include several aspects such as public transportation, local grid, compensation and advance incentive scheme, etc.
2. Thai urban planning participation processes have been mainly focus on public hearing to just present the result of land use plan.

References:

Chalamwong, Yongyuth, Prugsamatz, Raphaella (2009) "The economic role of migration: Labor migration in Thailand: Recent trends and implications for development." TDRI Quarterly Review, 24, 3,

Dixon John, Durrheim, Kevin, Tredoux, Colin (2011). From Divided space to shared space, how might environment psychology Help us to understand and overcome the tenacity of racial segregation?, Gottingen: Hogrefe Publishing.

Duke, Richard (1974). Gaming: the Future's Language. Sage publication, New York

Dumblekar, Vinod (2003). Management simulations: Tests of effectiveness, Changing trends in management. Challenges and opportunities, 104-115

Faria, A.J., Dickinson, John R. (1994). Simulation gaming for sales management training. Journal of Management Development, 13, 1, 47–59.
Haguet, Jerold W., Chamratrithirong, Apichat (2012) Thailand Migration Report 2011, Bangkok: IOM
Haapasalo, Harri, Hyvonen, Johann (2001). Simulating business and operations management - a learning environment for the electronics industry. International Journal of Production Economics 73, 261–272
Hoberman, Solomon, Mailick, Sidney (1992). Experiential management development: From learning to practice. Quorum Books, Westport, CT
Huddleston, Thomsa, Tjaden Jasper Dag (2012). How immigrants experience integration, Brussel: King Baudouin Foundation
Huyakorn, Pongpisit, Rizzi, Paola (2017) "Neighborhood Design Concept for Diversified Inclusive Community in Thailand: A Case Study of Wat-ket, Chiang Mai" ISOCARP-OAPA Conference 2017
Huyakorn, Pongpisit, Rizzi, Paola, Kanegae, Hidehiko (2018) "A Study on Gaming Simulation as a Key of Meta-Frame of Planning for Neighborhood Immigrant Integration and Co-existing Diversity." Intersections in Simulation and Gaming Springer International Publishing AG
Jacobs, Jane (1961). The death and life of great American cities, New York: Random House
Kesten, Jamie, Raco, Mike, Colomb, Claire, Moreira De Souza, Tatiana, Freire Trigo, Sonia (2015). Fieldwork inhabitants, London (UK). London: UCL.
Lainema, Timo, Hilmola, Olli-Pekka (2005). Learn more, better and faster: computer-based simulation gaming of production and operations. International Journal of Business Performance Management, 7, 1, 34–59
Migration Policy Institute. (2014). Skilled immigrants in the global economy: prospects for
Promsaka, Sarunwit, Huyakorn, Pongpisit, Rizzi, Paola (2014). Urban Gaming Simulation for Enhancing Disas-ter Resilience. A Social Learning Tool for Modern Disaster Risk Management. TeMA Journal of Land Use, Mobility and Environment, Special issue June 2014, 841-851