

# **The Pilot Project on Paratransit for People with Disabilities and Elderly in Thailand**

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## **ABSTRACT**

Besides challenging in education, employment, and social participation, people with disabilities in developing countries commonly struggle with accessing public transportation. Like other developing countries, public transportation in Thailand is not accessible and alternative transportation is not affordable for pedestrians with disabilities and elderly. In December 2016, the pilot project on paratransit was launched by National Institute of Developmental Transit for Disabilities and Elderly in Thailand to provide an accessible and affordable riding service for people with disabilities and elderly in Nakorn Ratchasima Province. The participants consisted of five pedestrians and two service providers, and the data was collected through semi-structured interview questions from pedestrians regarding their concerns of using public transportation, and from service providers experiencing challenges during the pilot project. In data analysis procedures, open coding and axial coding were employed to identify concepts and categories in the data to form the themes. The following themes were emerged from pedestrians: accessibility, affordability, time consuming, safety, and services. While accessibility discussed on no ramp and no announcement, affordability became a big challenge for pedestrians using alternative transportation, additionally, time consuming was commonly highlighted by pedestrians with visual impairment. Safety was also essentially underlined by pedestrians experiencing abusive on public transportation, unsecured on alternative transportation and approaching by strangers at bus stops. Moreover, services were emphasized by pedestrians who needed assistance getting in and off vehicles. The participants stated pilot project could help them commuting safely, conveniently, affordably, and timely. As experienced by service providers, the emerging themes included: lack of funding and resources, and legal authorization. Paratransit is ineligible to receive funding from government and no specifically legal authorization in operating the project. All participants agreed that the paratransit would be the practical application in fulfilling their concerns. However, lack of funding and resources are the key challenges to permanently run the project and expand the services nationwide.

**Keywords:** Paratransit, public transportation, accessibility and people with disabilities

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## 1. INTRODUCTION

Besides challenging in education, employment, and social participation, people with disabilities in developing countries commonly struggle with accessing public transportation. Like other developing countries, public transportation in Thailand is not accessible and alternative transportation is not affordable for pedestrians with disabilities and elderly. To make public transportation accessible for all in western countries, the vehicles are designed to become the friendly buses by installing ramp for people with physical disabilities, having announcement for people with visual impairment, equipping digital display for people with hearing impairment, and reserving front seats for senior citizens and pregnant women (Scott & Tuttle, 2007).

For Thailand, the National Statistical Office reported that the Thai population was roughly 64.42 Million in 2016. Among these people, approximately 5.1 Million people were over age of 60 considered as senior citizens (National Statistical Office, 2016). In addition, the National Office for Empowerment of Persons with Disabilities (NEP) stated that 1,697,180 individuals were registered in NEP system as people with disabilities in May, 2017 (NEP, 2017). Regarding the statistics of people with disabilities, the World Health Organization (WHO) reported in 2011 that about 15% of the world's population have some form of disability (WHO, 2011). With the estimation of WHO, it is assumed that roughly 9.66 Million people are identified as disability in Thailand. As empirical data presented, nearly 15 Million people may have difficulty accessing to public transportation because the public transportation networks in Thailand are not accessible for all in particular those who have disabilities (Leipziger, 2015).

### **The Principles of Accessibility to Public Transportation**

People with disabilities as legal citizens shall have legal rights to fulfill their needs as equal as nondisabled citizens. To adopt this principle, the United Nations as an international organization have recognized that people with disabilities are entitled to all the rights and freedom and have agreed to adopt the Convention on the Rights of Persons with Disabilities of 2006 (CRPD) by the United Nations general assembly (United Nations, 2006). CRPD was opened for signature on 30 March, 2007 and entered into force on 3 May, 2008 (Lord & Stein, 2010). In fact, CRPD is the first international instrument guaranteed the rights of people with disabilities and legally enforced to all states parties. Importantly, Thailand has ratified on CRPD

on 29 August, 2008 (United Nations Treaty Collection, 2008). As a result, Thailand as a state party has committed to apply all principles existing in CRPD into practice. Some principles of CRPD are to enable people with disabilities to live independently and fully participate in all aspects of life on the basis of accessibility principle. In addition, accessibility is listed as one of the general principles in article 3 and specifically emphasized in article 9 of CRPD. In article 9, it provides states parties with the guidelines for accessibility assurance of people with disabilities on an equal basis with others. Those guidelines include the accessibility to the physical environment, to transportation, to information and communications, including information and communications technologies and systems, and to other facilities and services open or provided to the public (United Nations, 2006).

One of the principles stated in the first paragraph of CRPD article 9 is that the government shall provide and create equal opportunity for people with disabilities by installing accessible transportation systems which is a fundamental need of all citizens (United Nations, 2006). The public transportation shall be accessible for all people with disabilities whether provided by public agencies or private companies. According to the principle of accessibility, any transportation systems accessible for people with disabilities would be also accessible for all people (Likitpattanakul, 2013). Among people with disabilities, public transportation must be accessible for all disability categories regardless of personal conditions, racial issues and people of colors. In the general comment No2 of OHCHR, it is clearly stated that this principle would be beneficial for children and elderly people and also leads to making rights real for people with disabilities such as commuting to work—promoting employment rights and commuting to school—promoting educational rights. These are the fundamental rights that people with disabilities would receive as attached to the provision of accessible public transportation (OHCHR, 2014).

As mentioned in CRPD, the principle of accessibility does not explicitly specify or limit the types of transportation provided for people with disabilities. On the perspective of protecting rights of people with disabilities, accessibility set as a general principle is practical because the principle is flexible for applying to the future types or means of transportation. As such, it is guaranteed that all future public transportation systems are committed to be full accessibility as mandated in CRPD (Likitpattanakul, 2013).

Universal design is another principle in creating equal opportunity for people with disabilities so that they can exercise their rights as equal as nondisabled counterparts. As defined in article 2 of CRPD, universal design refers to products, environments, software and services accessible and beneficial for all (United Nations, 2006). As a result of the principle of accessibility and universal design, public transportation systems are fully accessible not only for people with disabilities, but also for elderly people and anyone in spite of personal conditions.

Although a majority of people with disabilities are able to fully access the public transportation systems as designed by the principle of accessibility and universal design, some people may not be able to access these services due to severity of disability or individual conditions. To assure the equal access to public transportation of all people with disabilities, therefore, the government must recognize the diversity of people with disabilities and individual needs, and set the accessibility standard as suggested by the general comment No2, section 25, of OHCHR (OHCHR, 2014). Even setting the accessibility standard, it is not completely guaranteed the accessibility to public transportation of some such cases as people with rare impairments or those who have severely limited mobility. To ensure the equal accessibility of these target people, states parties as signed and ratified on CRPD must further install accessible public transportation systems for people with disabilities through the principle of reasonable accommodation. With this principle, the public transportation would be reasonably provided based upon personal conditions. In the general comment No2, section 26, of OHCHR, it is obviously described that the principle of reasonable accommodation would be applied for a particular case and certain time to serve those who have unique needs (OHCHR, 2014). Paratransit is widely acknowledged particular in western countries as the best transport system assuring the full accessibility of people with rare impairments and those who have limited personal mobility. Importantly, paratransit is able to promote free movement of people with disabilities with their time selection and affordability as mentioned in article 20 of CRPD (United Nations, 2006).

### **The Detail of Pilot Project**

The Paratransit for Disabilities and Elderly in Thailand (PPDE) is a door-to-door ride services for people with physical or mental disabilities and elderly, initiating by the National Institute of Developmental Transit for Disabilities and Elderly in Thailand (NIDE) in December

2016. This project aims to accommodate people with disabilities and elderly in Nakorn Ratchasima who are incapable using an existing fixed-route transportation services as well as to promote living independence for them. PPDE is also applied from the ADA Paratransit model of United States. ADA Paratransit Service is required by the Americans with Disabilities Act (ADA) to provide accessible transportation services for passengers whose disabilities or health conditions prevent them from using an existing fixed-route transportation services for some or all of their travel. Only people who are certified by the regional transportation authority are eligible to ride ADA paratransit. In general, trips are only provided at the same time and within the same geographic areas as fixed-route (TCRP, 2013). In fact, ADA requires paratransit agencies to offer curbed-to-curbed with three miles of fixed-route services for these and the fares cannot be charged more than double of comparable fixed-route fares. This service can be partially subsidized by the transportation agency or sponsored by other partners.

#### Target Group

This project Services are offered for the following groups:

1. People with visual impairment;
2. People with physical impairment;
3. People with cognitive impairment; and
4. Elderly people who are over age of 65.

#### Eligibility

To qualify for paratransit services, passengers must first apply for eligibility to NIDE. In requesting service process, while calling to schedule a trip, customers must have the following information ready: paratransit ID number; date and time of trip; exact address of the trip origin and destination; numbers of people traveling with the customer including any personal care assistant (PCA) and/or companions; types of mobility aids used by all members of party; and description of any assistance needed. Once approved by NIDE, individuals are scheduled as requested. However, the passengers sometimes are scheduled slightly different from their requested time due to high volume of customers.

#### Service Areas

PPDE particularly serves the customers in the urban area of Nakorn Ratchasima Province. The departures and destinations are mostly from home to schools/universities, home

to hospitals, home to workplace, home to shopping malls, home to bus stations and etc. To request trips, eligible customers have to call NIDE office to schedule a ride within one day in advance. However, the trips can be scheduled at least 3 hours before pickup time in case those trips are eligible shared-ride with other customers in the same route. In addition, the riders may be accompanied by a friend or escort (who must pay the same fare as the rider) or by a personal care assistant (who does not pay a fare). For cancellation policy, a trip cancellation must be notified at least two hours before scheduled pick-up time; otherwise, it would be recorded as "missing." By the rules, the passengers are allowed to have five-minute late after pick-up time. During window time, the passengers would be notified via phone that the vehicle has arrived. After window time without response, the driver is given authorization to leave and the customers would be recorded as "no show." Slightly different, a driver is allowed to have twenty-minute late due to traffic conditions or service volumes. The paratransit drivers are also appropriately trained to serve customers with disabilities. Furthermore, the Drivers would assist customers in boarding and exiting the vehicle as well as leading them to the destination upon requested.

#### Service Hours and Fares

PPDE usually starts serving passengers at 7:00 am until 9:00 pm, Monday to Sunday including holidays. In general, the PPDE Membership is free of charge. For the trip fares, the eligible customers and companions have to pay only 30% of the total fares for their ride calculated by the mobile application of the Department of Land Transport declared in 2016. The first PCA is also approved to ride with a customer for free.

## 2. METHODOLOGY

### Research Design

The pilot project on paratransit for people with disabilities and elderly in Thailand was a qualitative case study. By concept, case study is a qualitative approach in which the researcher explores a real-life, contemporary bounded system (a case) or multiple bounded systems (cases) over time, through detailed, in-depth data collection involving multiple sources of information (e.g., observations, interviews, audiovisual material, and documents and reports), and then

reports a case description and case themes (Creswell, 2013, p. 97). In addition, Yin (2011) stated that a case study design should be considered when: (a) the focus of the study is to answer “how” and “why” questions; (b) the behavior of those involved in the study cannot be manipulated; (c) contextual conditions need to be covered because they are relevant to the phenomenon under study; or (d) the boundaries are not clear between the phenomenon and context. Based on both concepts, the qualitative data was collected through individual interview. With this design, a real experiences of using public transportation and paratransit, multiple bounded systems of using public transportation and paratransit, and in-depth data of using public transportation and paratransit was explored through semi-structured interview questions.

### **Setting**

The study conducted in Nakorn Ratchasima province (Korat). Korat is the biggest province of Thailand located in the northeast region. According to the survey of the National Statistical Office in 2016, The population of Korat was 2,604,099. Among those people, 206,706 people were over age of 60 considered as senior citizen (National Statistical Office, 2016). In fact, the National Office for Empowerment of Persons with Disabilities (NEP) reported in December, 2016 that 74,925 individuals were registered as people with disabilities living in Korat (NEP, 2016).

### **Participants**

The participants were selected through the purposive sampling method consisting of two groups: pedestrians with disabilities and elderly, and service providers. While two males and two females with disabilities and one elderly person participated in the study as pedestrians, a driver and a project coordinator were selected as the participating service providers.

### **Data Collection Procedures**

The pilot project was initially launched in December, 2016 in the metropolitan of Nakorn Ratchasima. For the duration of roughly four months (December, 2016 to March, 2017), the data was gathered through the semi-structured interview questions from the pedestrians with disabilities and the service providers. The data collection was done through face-to-face interview and telephone calling with semi-structured interview questions. While the conversation with disabled and elderly pedestrians focused on their concerns of using public transportation and alternative transportation, the dialogue with service providers concentrated

on the implementation of pilot project, the project success and the recommendation for improvement. Throughout the study, all participants would be given a pseudonym for keeping confidentiality of all participants.

### **Data Analysis Procedures**

In the first step of data analysis, open coding approach was used for identifying concepts and categories in the data, in order to form the basic themes. Axial coding approach was subsequently used to confirm that concepts and categories accurately represented the data, and to explore how the concepts and categories were related to the themes (Creswell, 2013; Yin, 2011). Throughout data analysis procedures by using open coding and axial coding approach, The following themes were emerged from pedestrians: accessibility, affordability, time consuming, safety, and services. In fact, lack of funding, lack of resources, and legal authorization were the themes emerged from the service providers.

### **3. FINDINGS**

This study was to explore the experience of disabled and elderly pedestrians in using public transportation versus paratransit, and to examine the success and challenges in implementing the project as shared by the service providers. The findings were presented through the emerging themes as found in the data analysis procedures.

#### **Accessibility**

Accessibility was a major concern among disabled and elderly pedestrians when using public transportation and even alternative transportation. The main challenge of using public transportation was because the vehicles were not accessible such as no ramp for wheelchair users and no announcement for passengers with visual impairment. The main vehicles running for public transportation in Korat were mini buses. In fact, Tutu and motorcycle were widely used in Korat that was not absolutely accessible particularly for pedestrians with physical disabilities. When commuting with mini buses, pedestrians with visual impairment in particular those who are totally blind often get off at the wrong stops because the mini buses do not have announcement and the bus drivers forget to let them know. Getting to the bus stops is also difficult for people with visual impairment because the bus stops are not systematically located and no mark leading toward the bus stops. Somchai, a participant with visual impairment expressed that “getting off at a wrong stop is usually happened to me because a driver forgets

to tell me... They let me know after my stop is already passed and they just say, I'm sorry." Somjai, another participant with visual impairment said that "finding a bus stop is very hard particularly when I go to unfamiliar places... Even when being at the bus stop, I sometimes miss a bus because it does not stop, or I don't know what line is approaching due to no announcement or no one there." When being asked about the pilot project of paratransit, all participants agreed that it was much better than using public transportation. Kitthi, a participant with visual impairment said that "although a car does not have announcement, I will be dropped off at the right destination for sure." Kitthi also said that "When taking paratransit, I don't need to worry about how to get to the bus stop, when it is coming, and when it will be arriving my destination."

### **Affordability**

Affordability was another main issue for all pedestrians who needed to commute with alternative transportation such as Tutu, taxi or motorcycle due to inaccessibility of public transportation. For participants living in the area where public transportation is unavailable, they have to commute with other means of transportation such as Tutu, taxi and motorcycle. Definitely, Tutu and motorcycle are very expensive compared to traveling with mini buses. Although taxi is affordable, the passengers must live in the service area (metropolitan area). Otherwise, the cost will be calculated as a rental rate that is probably more than double as compared with regular fares. Kitthi, a participant living in Banmaishubdistrict located out of metropolitan area told that "there is no bus directing to my school, so I usually take a motorcycle or Tutu that costs almost 300 Baht for a round trip." Somporn, a participant who is elderly and lives in out of service area of public transportation complained that "I have to go see the doctor many times in a month and I cannot take mini buses because it is not convenient, so I have to pay a lot for taxi and Tutu." However, all participants in particular these two people pointed out that the paratransit was very helpful and helped them save a lot of money. Somporn also expressed that "when taking taxi to the hospital, I have to pay 300 Baht for a round trip; in contrast, I just totally pay 80 Baht for paratransit."

### **Safety**

Safety was also highlighted as a huge issue during the use of public transportation of the participants, the data indicated that safety should be more considered for people with

disabilities and elderly while using public transportation. The first safety issue was being abusive on public transportation of pedestrians with visual impairment. Being abusive sometimes was occurred in a form of sexual harassment. It usually takes place while getting in or out of the vehicles of pedestrians with visual impairment. Somsri, a female participant said that "I don't know whether or not he wants to help me getting into a bus, but what he does is like he is trying to sexually abusive on me." Sexual abuse is typically faced by women with visual impairment. Unsecured on alternative transport was the second safety issue. It could happen in different ways. For instance, taking motorcycle without humid is very dangerous particularly in rush hour. Kitthiexpressed that "I use to take a motorcycle from my house to school in the morning and the driver doesn't have a humid for me... I feel very risky because a lot of vehicles are running so fast around me... I think if we have an accident, I may die." Even taking Tutu or taxi, pedestrians with disabilities still felt unsecured because the drivers occasionally acted in unfriendly behaviors. Somchaitold that "one day, I take Tutu from a mall back to my house... During the trip, a driver tells me with an unfriendly voice that your house is very far so can I charge more? At that moment, I cannot say no due to feeling insecurity." This situation can happen to not only women with disabilities, but also men with disabilities or even people without disabilities. Approaching by strangers at bus stops was another safety issue underlined by pedestrians with disabilities in particular by those who have visual impairment. To take public transportation particularly in Nakorn Ratchasima, people with visual impairment must first find out the bus stops where are unsystematically located. Once arriving a wanted bus stop, they need to ask for assistance when a needed bus is approaching. It is common that people with disabilities are at the bus stops in the nighttime without personal assistant and no other passengers waiting there. In this situation, people with disabilities in particular who have visual impairment are sometimes approached by strangers. While some strangers are willing to assist, some behave in the unfriendly actions. Somjaishared that "I was at a bus stop by myself at the nighttime last week... While looking for assistance, I was approached by someone and asked for money... I didn't know what to do; fortunately, several people were coming to the bus stop so he left immediately." This circumstance can happen to not only people with visual impairment, but also anyone in nighttime at the bus stops. When being asked about paratransit project, all

participants agreed that it was the most safety transportation system in Korat. In general, the vehicles would pick up a passenger at the given location and certain time. The drivers would call the passengers before arriving a pickup location, so they didn't need to be at the waiting area too early. Somsrisaid that "paratransit is very safety especially when I have to travel in the night time... I don't need to worry about waiting for a bus at the bus stop that is very dangerous in the night time."

### **Time Consuming**

Time consuming should not be a big issue for passengers using public transportation outside Bangkok. However, it became the greater challenge for people with disabilities especially who have visual impairment. The challenge begins with looking for the bus stops where are unsystematically located in particular when no assistant and being at unfamiliar place. In the first challenge, it takes a while depending on many factors (e.g., the distance from starting points to the bus stops, volunteering assistants along the sidewalks, the accessibility of walkways, and the orientation and mobility skills of the travelers). The upcoming challenge is once arriving a wanted bus stop, the travelers with visual impairment have to looking for assistant in notifying what line is approaching because the buses don't have announcement. On occasion, there is no passenger waiting at that bus stop or no one voluntarily assist due to rush hour. Once getting on a correct bus, they have to ensure that they get off at a right stop because sometimes a bus driver or a money collector forgets to notify when their stop is arriving. If it occurs, they have to start over with the first challenge. In case they are dropped off at the right stop, they need to move themselves to the destination that consumes more time depending on the distance. This is just an example of using straight-line buses. If they have to transfer to the second and third routes, it cannot imagine that how much their time would be consumed. Somjaiexpressed that "I sometimes miss my morning class because there is no one helping me transferring to the second bus even though I leave very early morning." Somchaitold that "waiting for a bus consumes my time a lot because it usually won't stop unless it is called... I have to wait until getting assistance from someone." However, paratransit was proclaimed by all participants as the best choice for saving their time in their daily commuting. To get paratransit services, the passengers have to make a reservation before 7 pm of the previous day so that the service provider can arrange the schedules appropriately. The idea is based on "first come first

serve,” so some passengers may not get a certain time they want due to high volume of reservation. Kitthipointed out that “paratransit can help me planning my day because it won’t consume my time in finding the bus stops, seeking for assistance and transferring to another bus... Although I occasionally don’t get a requested time, I can do something while waiting for a given time... Again, it helps me planning my day...”

### **Services**

Service was the last theme emerged from the data shared by the pedestrians. As previously mentioned, mini bus is the main public transportation in Korat, so there is typically no money collector on the vehicles. Although the money collectors are not mainly responsible for assisting the passengers, they can take care of the passengers with disabilities while being on the vehicles or in getting on and off the buses. Due to no money collector, people with disabilities have to seek for assistance or take care of themselves while being on the vehicles or in getting on and off the buses. Sometimes, the vehicles do not stop at the loading areas or completely closed to the footpath. In fact, some buses are just rolling at the bus stop and then leaving even though some passengers are still getting off. With this situation, many passengers with disabilities and elderly passengers were accidentally fallen while getting of the mini bus. Somporn told that “there is no assistant on mini bus, so one time I have an accident while getting of a mini bus because it doesn’t completely stop... My toes are hurt.” When talking about the paratransit project, Somporn said that “paratransit is very good because a driver helps me getting in and of the car... I don’t need to worry about getting an accident.” In fact, all participants supported that paratransit could provide services meeting personal conditions in which people would have differently.

### **Lack of Funding**

Lack of funding was the first and foremost theme emerged from the data of service providers. The main concern was that no policy in both national and local to support the complementary transportation projects like paratransit that provided fully accessible transit for people with disabilities, elderly people, and people who had limited mobility. Even for the mainstream public transportation in Bangkok—capital city, most of the buses were not accessible for those passengers. It is interesting that roughly ten thousand million bahts are collected in the Fund for Promotion and Development Quality of life of Disabled Persons. Most

importantly, the aim of the fund clearly states that the fund is used for improving quality of life of people with disabilities. Providing accessible transportation definitely is one of support services that leads to creating equal opportunities for people with disabilities such as education, employment and social participation. Those opportunities are the basis of quality of life improvement of people with disabilities. Unfortunately, the paratransit project was not eligible to receive funding from this fund. The pilot project was mainly sponsored from the Occupational Development Association for the Blind (ODAB). In addition to receiving financial support from ODAB, the National Institute of Developmental Transit for Disabilities and Elderly in Thailand, as a project operator, used social enterprise approach for further fundraising. However, the funding was not sufficient to provide services as much as the request of the passengers. In relation to funding issue, the project coordinator told that “funding is the biggest challenge... We hope that ODAB would support in the beginning, and then we can get support from local government and private agencies, and earn more incomes from social enterprise projects... Unfortunately, we still challenge with funding resources.” To seek for additional grant, the project coordinator told that “we are planning to collaborate with local governments, public agencies, private companies and nonprofit organizations... With our success, we hope that they would support our project or partner with us in operating and expanding the services.”

### **Lack of Resources**

Lack of resources was another challenging issue identified by service providers. Due to lack of funding, it led to lack of resources. Firstly, the project was unable to provide fully accessible vehicles for individual needs because they were very expensive. A vehicle provided was a regular car without ramp for pedestrians with physical disabilities. However, a driver was trained to appropriately accommodate those pedestrians while using the services. In addition, during the pilot project, there was only one car available for services, so sometimes passengers did not get their requested time due to high demand. The project coordinator expressed that “we try our best to serve all our passengers; unfortunately, some of them occasionally have to cancel because we don't have available time for them.” Support staff was another huge issue considered as lack of resources. The pilot project did not have fulltime staffs. While the project coordinator was voluntarily work on behalf of the founder, a driver was the personal driver of the project coordinator. Other support staffs were also unpaid jobs. Therefore, the services sometimes were

suspended because of inconvenience of operating staffs. With this concern, the project coordinator expressed that “due to lack of funding, we cannot hire fulltime staffs... What I'm doing is using my personal driver and asking for voluntarily work from my colleague; however, when those staffs are busy in their business, we have suspend the services for a while.”

### **Lack of Legal Authorization**

Lack of legal authorization was the last theme emerged from the data of service providers. In Thailand, there is no legal authorization or affirmative action to operate the complementary transportation projects such as paratransit. Most of people involving with the transportation operation systems such as police officers, security guards and other staffs had no idea in facilitating the paratransit vehicles. For many places, the loading areas were not accessible for people with disabilities in getting off the vehicles or inconvenient in proceeding to their destination. In this case, the driver had to explain to the staffs for loading the passengers with disabilities at the accessible areas. Unfortunately, the security guards of some places did not allow the paratransit vehicles to drop off the passengers at unloading areas. The driver told that “one day, I drive a passenger with visual impairment to the transit center and the loading area of the transit center is in the front; however, it is very hard for visual impaired person in proceeding to the terminal he wants because it is very far and no assistant... I ask a security guard at the loading area to drive him inside; unfortunately, he doesn't allow, he keeps saying that the private cars are not allowed to go inside.”

## **4. DISCUSSIONS**

On the human rights perspectives, the pilot project on paratransit was established based on the principles of accessibility, universal design and reasonable accommodation as guided in CRPD. These principles have been proven as the key instruments in providing public facilities to be fully accessible for all regardless of personal conditions, social barriers and unfriendly physical environments. In the case of public transportation, the study of Turkel (2016) indicated that the State of Delaware was successfully in providing paratransit services to and from any location throughout the entire state. The study further pointed out that paratransit services were beneficial for people who have limited access to fixed route system of transportation (Turkel, 2016). As found in the findings, paratransit was considered as an effective pilot project and

supported to expand riding services nationwide. The main considerations of the participants toward the pilot project were because paratransit was accessible, affordable, safety, timely, and supportive. Regarding timely issue, the study of Chiu (2015) supported that using paratransit could help people with disabilities saving their time compared to commuting with the fixed route transportation systems. In the study of Shen (2012), it was found that using paratransit could reduce trip costs for the passengers with disabilities. For safety issue, Rosenbloom (2007) pointed out that paratransit services were clearly meant to provide a safety transit system, so the passengers with disabilities would feel more safety taking paratransit than traveling with public transportation. As revealed in this study as well as pinpointed by numerous previous studies, it is clear evidence that paratransit is the most accessible mean of transportation for people with disabilities. However, lack of funding, lack of resources and lack of legal authorization were the challenging issues for maintaining as well as expanding the services. In United States, public or private entities are eligible to receive federal financial assistance from the department of transportation (U.S. Department of Transportation, 2007). In contrast, there is no legal obligation to provide financial assistance for operating such complementary transportation as paratransit in Thailand. Resulting of no financial assistance from government, it leads to lack of resources in particular to hire fulltime staffs and purchase the accessible vehicles. In the issue of legal authorization, the 2005 ministerial rule of the Department of Public Works and Town and Country Planning mandated that all public buildings must be accessible for people with disabilities and elderly (Royal Gazette, 2005). Nevertheless, it is not entered into force for public transportation. Moreover, Thailand, as a state party of United Nations and committed to CRPD, provides public transportation systems without taking consideration to the principles of accessibility, universal design and reasonable accommodation as guided in CRPD. Although Thai Congress has enacted several regulations to ratify on CRPD, most of regulations focus on the improvement of education and employment rather than accessibility to public transportation. Even in the policies of the Fund for Promotion and Development Quality of life of Disabled Persons, there is no support to establish the accessible transportation systems.

## 5. LIMITATION

The pilot project on paratransit for people with disabilities and elderly in Thailand was initiated on the basis of personal experience of the founder of the National Institute of Developmental Transit for Disabilities and Elderly in Thailand and his colleague. As seen the successful implementation of paratransit in United States, it becomes the considerable inspiration to install paratransit in Thailand, that leads to the initiative of a pilot project on paratransit in Nakorn Ratchasima. Although the pilot project was highly successful in terms of making concrete contribution toward people with disabilities and elderly in the service areas, there were several limitations and challenges existing throughout the project implementation. Lack of funding, lack of resources and lack of legal authorization were the most challenging issues during the project implementation. While funding and resources were mainly/partially contributed from the founder, legal issues were daily done through negotiation with police officers, governmental staffs, and security safeguards to allow the vehicles in dropping off the pedestrians at the accessible areas. These are some challenging examples restricted the work of the project in particular to expand the services nationwide. Regarding limitation of research, The data was solely collected from the service providers and only five pedestrians who received the services through qualitative approach—individual interview. In fact, four out of five participants were pedestrians with visual impairment. Due to having small number of participants, the results might produce narrow perspectives on the project implementation and the findings might not be generalizable to other cases. Because the project involved with several agencies both public and private sectors, it is recommended for future research to include participants from related public and private sectors as well as people with disabilities and elderly who have no experience using paratransit, in order for the research findings to generate comprehensive ideas and probably discover valuable recommendations.

## 6. CONCLUSIONS AND RECOMMENDATION

The complementary transportation like paratransit has been proven as an accessible mean of transportation for people with disabilities and elderly people (Chiu, 2015; Lazo, 2016; Rosenbloom, 2007; Shen, 2012; Turkel, 2016). In addition to being accessible transportation, all participants of this study agreed that paratransit was affordable, safety, timely and supportive. They also supported that paratransit should be available nationwide. However, it

might be difficult to expand the services countrywide and even maintain the services due to lack of funding, lack of resources and lack of legal authorization. To put idea into practice, it is suggested that as a state party committed to CRPD, Thai government should pass the laws assuring the accessibility to public transportation of people with disabilities and elderly people. The government should also have affirmative actions to support the initiatives of complementary transportation like paratransit. The initiatives should be promoted among public, private and nonprofit agencies with financial assistance.

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