

Utilization possibility of an extremely ultra-compact electric personal mobility vehicle for active elderly people

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Summary

An extremely ultra-compact electric personal mobility vehicle (eUc-PM) is a new kind of mobility vehicles. It is expected that eUc-PM contribute to realization of eco-friendly mobility in cooperation with public transportation for active elderly people. So Test-ride event of eUc-PM was conducted to evaluate their acceptability. It is expected that this new eUc-PM have a possibility to change active elderly people's mobility.

Keywords: demonstration, Japan, mobility, scooter, tricycle

1 Introduction

In recent years, new kinds of mobility vehicles are developing all over the world. They have a possibility to make whole concept of people's mobility different [1] [2]. "An extremely ultra-compact electric personal mobility vehicle (eUc-PM)" is one of them. In this study, we describe eUc-PM as a compact and lightweight single passenger vehicle which people can carry on the public transportation. It is expected that eUc-PM contribute to realization of eco-friendly mobility in cooperation with public transportation. Moreover, because the mobility of elderly people in Japanese local area are strongly depending on a passenger car driving by their-self, it is also expected that eUc-PM support independent mobility and life after giving up driving a passenger car. So we conducted test-ride event of eUc-PM to study their acceptability.

2 Test-ride event

The test-ride event was conducted for three days from 28th to 30th July 2015 in "Toyota Ecoful Town", Japan. Figure1 shows the overview of "Toyota Ecoful Town" which have a 300m long round pathway. 67 elderly people who are over 65 years old participated in this events. eUc-PM is broken into some categories such as electric-assist bicycle, electric bike and so on. In this event, participants rode on a mobility scooter (so called "senior-car" in Japan) type of eUc-PM. For comparison, participants rode on a conventional mobility scooter which can run on public road according to Japanese law. Figure2 shows the two types of mobility scooter they rode. Figure3 show the appearance of the test-ride.

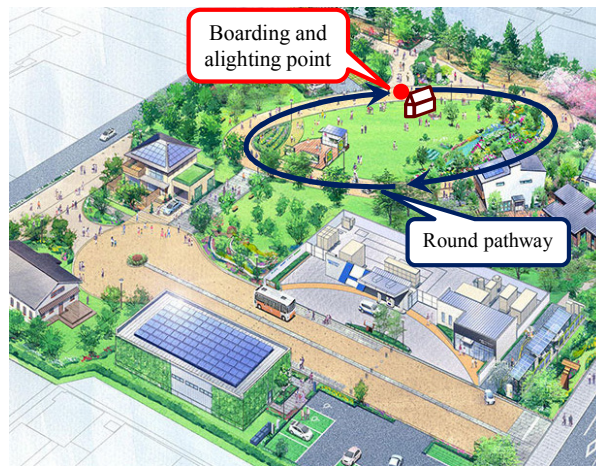


Figure1: overview of "Toyota Ecoful Town"



Ride mode

Folded mode

(a) eUc-PM (mobility scooter type)



(b) conventional mobility scooter

Figure2: Two types of mobility scooter used in this test-ride event



Figure3: Appearance of the test-ride

The acceptability of mobility scooter eUc-PM for active senior who usually drive a passenger car was evaluated. Two evaluation point were below.

- Whether do the eUc-PM have a possibility to change participants' usual mobility or not? and what kind of mobility scene do participants' think that the eUc-PM is useful for?
- Some elderly people said that "I don't want to ride on a conventional mobility scooter, because of neighbors' eyes that they think I became old-age or physically-disabled." Whether do participants think that this new eUc-PM can sweep away such a negative image?

3 Results

3.1 Possibility to change the mobility

Table1 shows the merits to use eUc-PM occasionally. The participants answered a questionnaire after they received an explanation about the merit. Figure4 shows the results. 82 % of participants strongly agreed or agreed with the questionnaire about “It's important to increase the choices of mobility means other than private passenger car.” 72% of participants strongly agreed or agreed with the questionnaire about “you want to decrease your driving of passenger car as much as possible.” it is indicated that almost participants have a possibility to change their mobility.

Table1: Merit to use eUc-PM occasionally

1.	Earth-conscious by usage of an electric vehicle and public transportations (bus and / or train)
2.	Healthy by getting physical activities
3.	Relaxing by mobility with different observing point than usual
4.	Risk reduction of being an assailant in traffic accident by avoidance of driving
5.	Contribution to activation of public transportation service
6.	Enable to learn how to ride on the public transportation while their health is still good

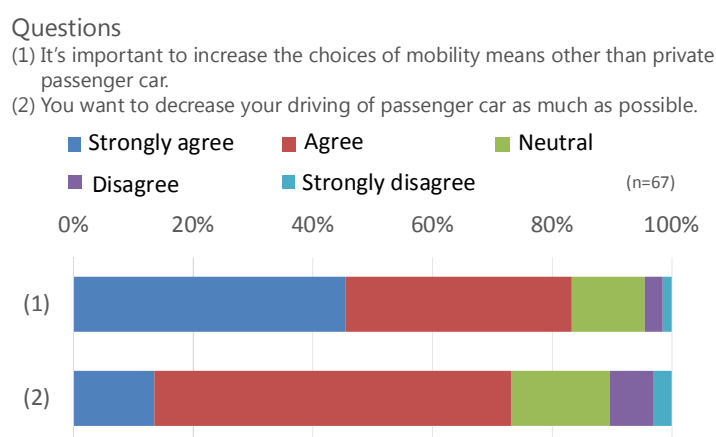


Figure4: Participants' mind after receiving the lecture

3.2 Sweeping away of negative image

Some elderly people said that "I don't want to ride on mobility scooter, because of neighbors' eyes that they think I become old-age or physically-disabled." However, after test-ride to compare this new eUc-PM to conventional mobility scooter, more than half of participants felt that this new eUc-PM could sweep away such a negative image (Figure5).

Question

- Some elderly people said that "I don't want to ride on conventional senior cars, because of neighbors' eyes that they think I become old-age or physically-disabled." However this new extremely ultra-compact electric mobility can sweep away such a negative image.

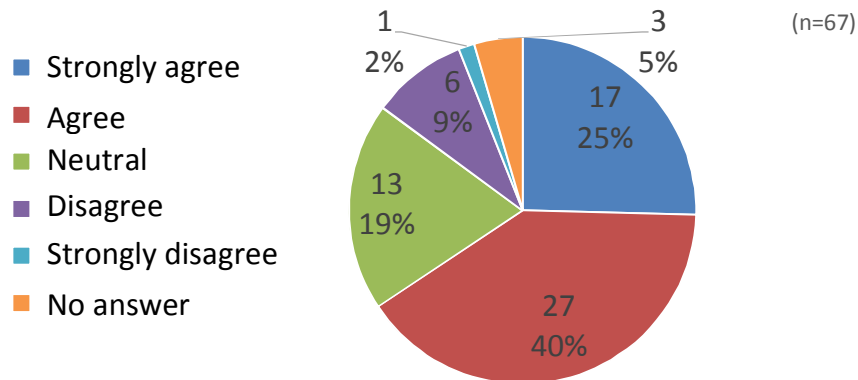


Figure5: Sweeping away of negative image by this new mobility

3.3 Target as early adopters

The results of a questionnaire also shows that elderly people, who drive a passenger car for short distance trip, have high purchase intention of eUc-PM. And a younger part of elderly people, who is 65 - 69 year-old, consider to decrease their own driving of passenger car as much as possible. it is expected that a younger part of elderly people who have strong dependence for their mobility on their own driving passenger car are targets as early adopter of eUc-PM. The use of eUc-PM generate wide choice of mobility connected with eUc-PM. Thus, after they will give up driving a passenger car, it is also expected that eUc-PM support independent mobility and life.

4 Conclusions

It is expected that this new eUc-PM have a possibility to change people's mobility and support independent mobility and life after giving up driving a passenger car. However, the statement about application of eUc-PM in cooperation with public transportation is rare. Hereafter, concrete manner of utilization in cooperation with public transportation should be offered (Figure6).

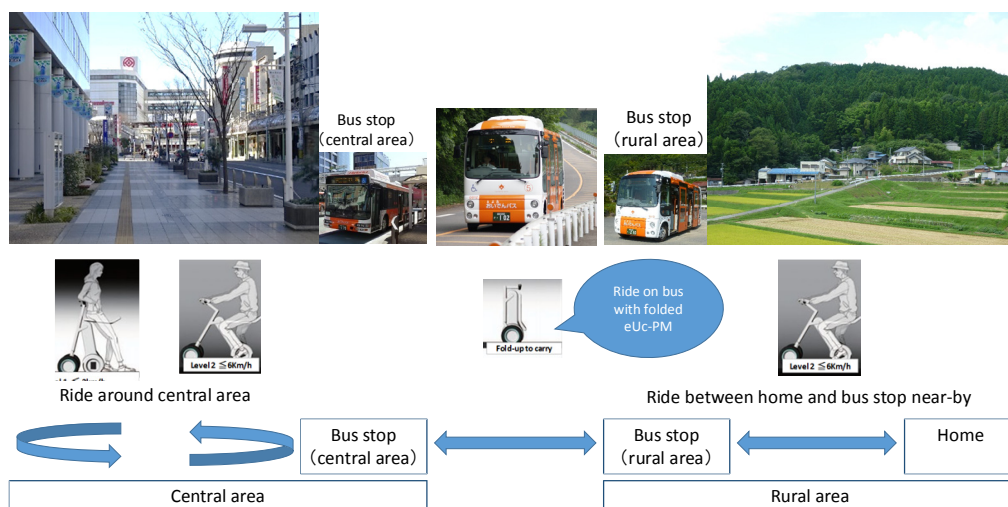


Figure6: Image of application of eUc-PM in cooperation with public bus

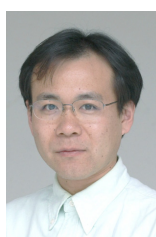
Acknowledgments

We express our gratitude to all participants and co-operators who joined in this test-ride event during the hot summer in Toyota city, Japan.

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