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Basic Research on the Safety of Vehicles Traveling on the Sidewalk from the Perspective of Pedestrians

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In Japan, the new traffic rule corresponding to various means of transportation is being promoted, and ensuring safety in an environment where vehicles traveling on the sidewalk and pedestrians coexist has become an important issue. In this study, an experiment for a stand-up personal mobility driving on a real sidewalk and a questionnaire survey for pedestrians who passed by the mobility were conducted. Table1 shows the properties of tested stand-up personal mobility. Fig.1 shows the appearance of tested stand-up personal mobility with subjects.

The general pedestrians responses to the questionnaire were obtained from a wide range of generations, although there was a tendency that people who were aged 60 and over is small and proportion of women is slightly larger. Fig.2 shows the evaluation of the safety of the passenger stand-up personal mobility, and Fig.3 shows the factors that are emphasized when evaluating the safety. Approximately 60% of general pedestrians gave a positive evaluation as "very safe" or "slightly safe." Among the age range from 30 to 74 years old, younger people tended to have an impression of safety. In terms of the factors to be emphasized when evaluating, the tree factors which were "pedestrian congestion" (the number of people on the sidewalk), "ppedestrian width" and "mobility speed" had high proportion of "important" and "slightly important" accounted for more than 60%. On the other hand, not much emphasis was placed on being a “standing ride.”

In order to increase the acceptance of the coexistence of pedestrians and personal mobility vehicles on pedestrians, it is important to consider not only the requirements related to vehicle specifications but also the conditions related to the pedestrians environment.

Table1 Properties of Tested Personal Mobility

vehicle size	length	700 mm
	width	450 mm
	height	1,200 mm
	step height	160 mm
max speed		6 km/h
mileage per charge		approx. 14 km
charging time		approx. 2.5 hours
crew requirements	stature	140 -185 cm
	body weight	less than 100 kg

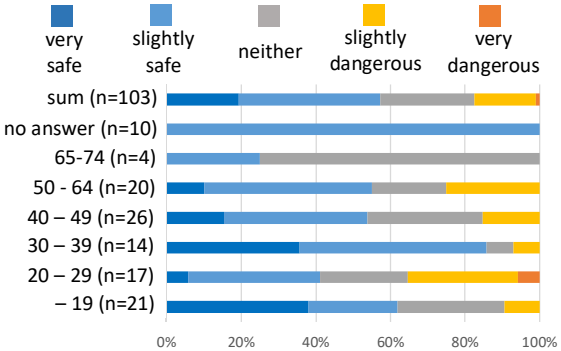

Fig.2 Safety Evaluation of Responding General Pedestrian

Fig.1 Tested Personal mobility and Subjects

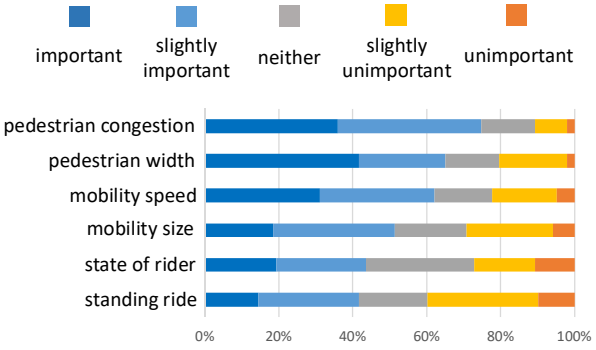

Fig.3 Important Factor of Responding General Pedestrian