

An Analysis of a Relationship between Walking Conditions and Access Trip Behavior

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1.Synopsis

Nowadays a normalization movement is active for enhancing mobility of the old and handicapped people. For this reason, the road is needed to be safe and comfortable for everybody. Especially, improvement of walking space is critically important because walking is a foundation of mobility. However, it is common that spaces for pedestrians and cars are not separated. Therefore, pedestrians and cyclists might choose safer and more comfortable routes even though their distance is longer. This paper aims to clear the factors to affect route choice such as danger and uncomforte and grasp an influence of walking facility conditions to a choice of route and travel mode.

KEY WORDS: pedestrians and cyclists, route choice, mode choice

2.Introduction

This study handed out questionnaires for pedestrians and cyclists around the stations due to grasp people’s behavior and analyze a degree of influence to it. On choice of a course, We tried to know a relationship this with preparation of a walking space etc. by a comparison a major course with an alternative course. In addition, a relation experience of a change of a traffic vehicle with a degree of preparation of a walking space etc.

3.Survey Sample

This study conducted a survey of walking space awareness on pedestrians around Sakaihigashi Station (city center) and Izumigaoka Station (Newtown). A collection result of a questionnaire is in **Table-1**. We distributed the paper to pedestrians in answer to the traffic vehicle from their house to the station.

Table-1 Sample for analyzing

	Sakaihigashi				Izumigaoka			
	Walking	Bicycle	Bus	Total	Walking	Bicycle	Bus	Total
number of distribution	635	643	304	1582	672	398	384	1454
number of response	215	260	79	554	306	103	105	514
response rate	33.9%	40.4%	26.0%	35.0%	45.6%	25.9%	27.1%	35.4%

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4. Ruote Choice Factor

Figure-1 shows that about half the number's reason is the shortest route and the other's reason is expect it. And who is satisfied with a state course selects preparation conditions of a walking space etc. more than who is not. For this reason, the shortest course doesn't bring preparation conditions of a walking space etc., or the shortest and high preparation levels are never compatible. And who has an alternative course is about 35%, the major reason is a preparation condition of a walking space (**Figure-2**). This shows that a preparation condition of a walking space is a major factor in a choice of an alternative course.

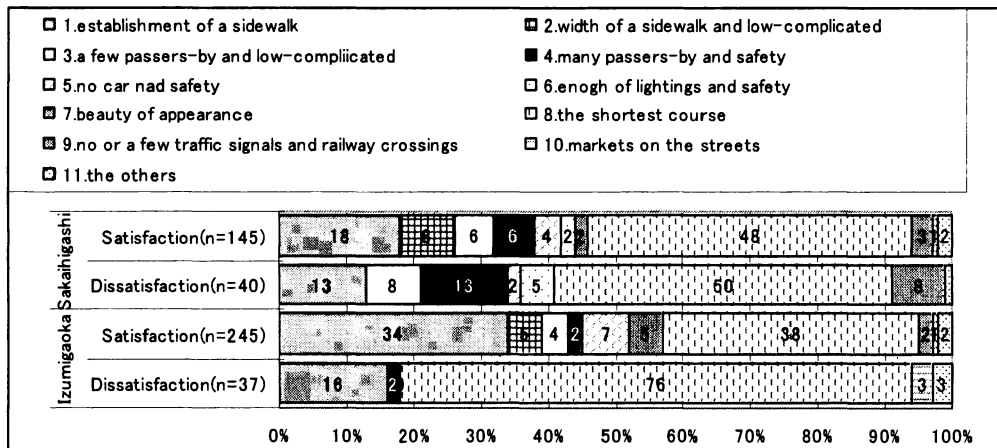


Figure-1 choice reason of a major course about people whose major traffic vehicle is walking

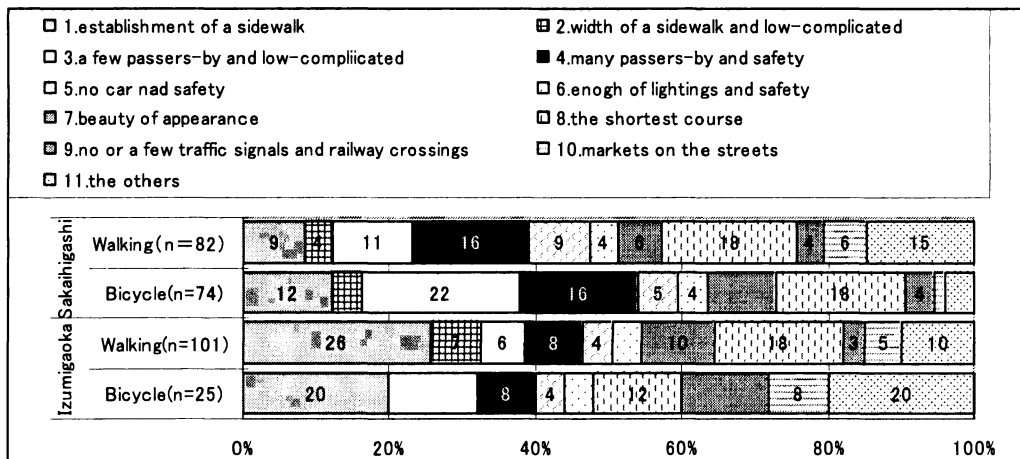


Figure-2 choice reason of an alternative course about people whose major traffic vehicle is walking

Table-2 shows that the number of a combination of choice's reason of a major course and an alternative course. Whose reason of a choice of a major reason is the shortest course selects an alternative course in various reasons. On the other hand, whose reason of a choice of a major reason is except the shortest course

also selects an alternative course in except the shortest course. For this reason, pedestrians are shared two types in a big way, that is to say, who values the time and who doesn't.

In a comparison between these areas, many people select a major and an alternative course in the same standard (diagonal elements in **Table-2**). This reason is thought that many courses to the station are in Sakaihigashi, but very few in Izumigaoka.

Table-2 choice reason of major and alternative routes

Sakaihigas hi	alternative course major course	establish and width of walking space	much traffic	appearance	time
	establish and width of walking space		15	15	3
much traffic		7	24	4	12
appearance		3	2	0	3
time		8	33	20	18

Izumigaoka	alternative course major course	establish and width of walking space	much traffic	appearance	time
	establish and width of walking space		20	13	7
much traffic		9	4	2	4
appearance		1	2	2	2
time		16	14	13	16

In addition, in Sakaihigashi, dissatisfaction for comfort of a walking space (**Figure-3**) is indicated mainly in dissatisfaction for major course and a reason of a change of a traffic vehicle, which reflects that many roads that width of is narrow can't deal with traffic and that poor of complicated conditions at a station square. On the other hand, in Izumigaoka, a station square and a walking space are enough, but safety of a walking space is indicated mainly.

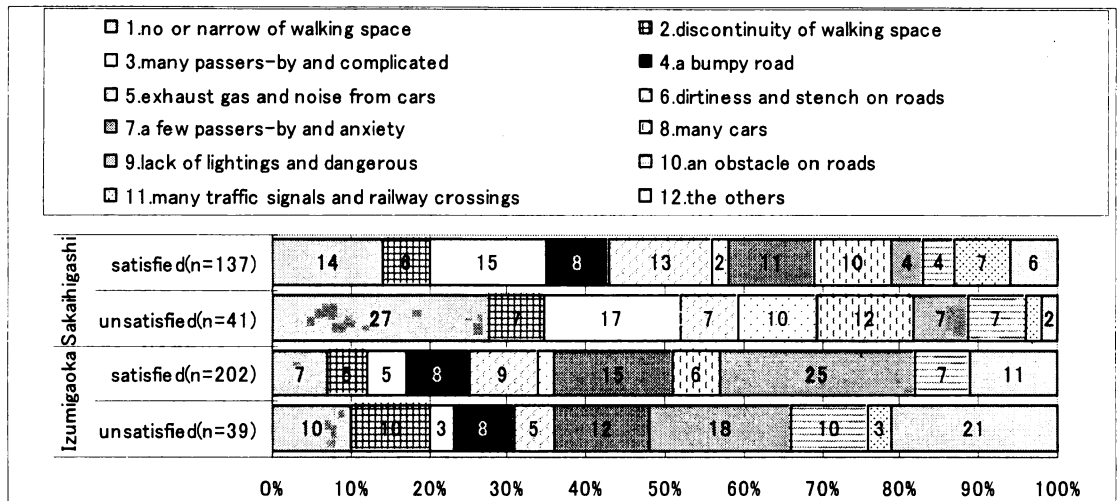


Figure-3 dissatisfaction of a major course about people whose major traffic vehicle is walking

5. Change of travel mode and a degree of preparation of a walking space etc.

About 30% of each all respondents have changed traffic vehicle ever (Figure-4). In change of traffic vehicle to faster moving speed as Walking→Bus, change reason isn't related to preparation of walking space, and in other case, change reason is related to as "narrow of walking space" and "complicated".

Especially, the people are not satisfied with bus who exchanged bus into bicycle. And the past study indicates bus and bicycle compete with each other. For the reason, this study researched possibility of shift from bus to bicycle, which cleared that many people think so (Table-3). Major factor of shift is, in Sakaihigashi, "wide of walking space width and uncomplicated" and "establishment of walking space" and in Izumigaoka, cancellation of slopes", after all bus service is more needed.

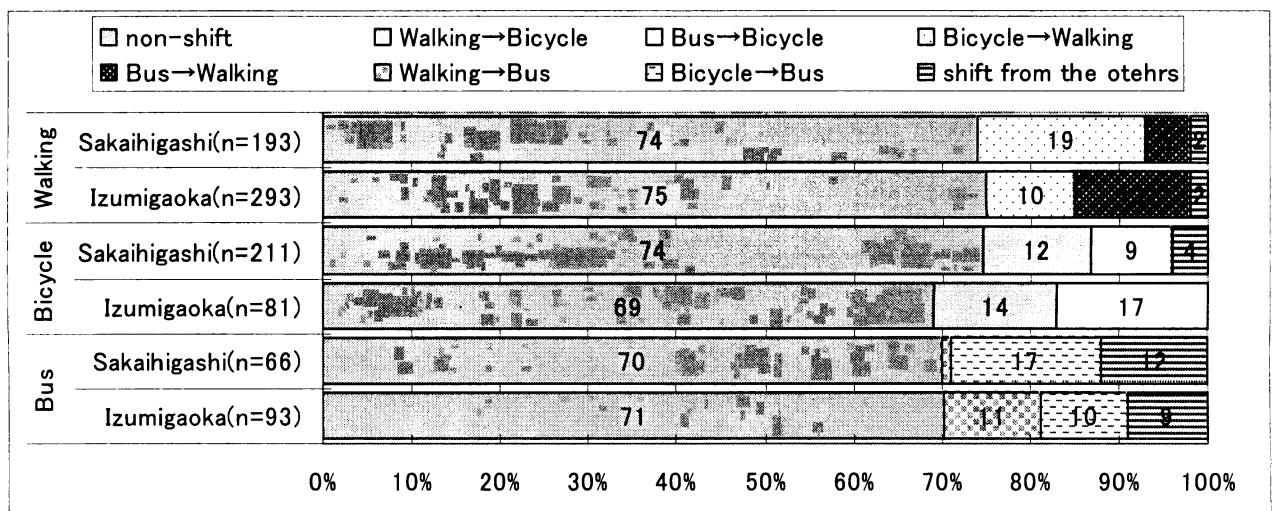


Figure-4 Ratio of change of travel mode

Table-3 Change of travel mode

moving speed	shift of vehicle	relevance preparation of facility with factor of change of vehicle
slow→fast	Walking→Bus	almost nothing because of difference of access distance relevance with characteristic of a region road (Izumigaoka)
	Walking→Bicycle	the shortest time is more important than preparation of facility
fast→slow	Bus→Walking	a good point of walking is selected
	Bicycle→Walking	a good point of walking is selected relevance with bicycle's traveling environment
compatible	Bicycle→Bus	bicycle's traveling environment(safety) is bad. (Sakaihigashi)
	Bus→Bicycle	bus is convenient because of characteristic of a region road (Izumigaoka) poor bus service

6. Conclusion

For the reason of choice of major routes, about half the number point out not shortest but preparation of a walking space etc. Therefore, type of movement decision could be classified into two; one regards time as important and the other doesn't. This indicates that preparation of a walking space etc is regarded as more important than supposition and it influences behavior characteristic. Besides, for the reason of choice of major course, shift of traffic mode is much selected and for the reason of shift of traffic vehicle, preparation of a walking space etc is also much selected. For this reason, choices of course and traffic vehicle are affected by preparation of facilities.

For further research, we will proceed to establish models for each behavior type, which can evaluate effects of improvement of walking space around the stations. To achieve this goal maps on which respondents sketch their major routes will be utilized.

Reference

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