ISSN: 2688-8645

Modeling Mobile Phone Using Behavior during Acrossing Street based on the Theory of Planned Behavior and Offering Proposals

Zhichao Li[1]

[1]College of Transport & Communications, Shanghai Maritime University, Shanghai, China.

Abstract

Pedestrians using mobile phones across the street will not only affect traffic order, but also cause traffic accidents. This paper studies the influencing factors of pedestrians crossing the street with mobile phones when the road section is green. Firstly, based on the planned behavior theory (TPB), the hypothesis model of the influencing factors of pedestrian behavior in using mobile phones across the street is established, and the road environment factors are added to the original framework. Next, designing a questionnaire for these influencing factors, on the basis of questionnaire survey, exploratory factor analysis was carried out to form a formal questionnaire; After that, formal questionnaires were used to conduct the survey, and the questionnaire data are used to confirmatory factor analysis; Finally, Amos software is used to test the path and fit degree of the hypothesis model; The formal model of influencing factors of mobile phone used by pedestrians across the street is obtained after modification, and the significant influencing factors of mobile phone use by pedestrians across the street are judged according this, and then countermeasures are designed to reduce this unsafe behavior.

Keywords

Pedestrian, Using cell phones across the street, Theory of planned behavior, Survey by questionnaire, Structural equation model.

1. Introduction

Walking is the most basic way to transport people. Any pedestrian can become a participant in the traffic system without any form of censorship.Therefore, pedestrian traffic safety awareness is weak, violations will be more prominent, which will be a great threat to traffic order and traffic safety. At present, in China's traffic management, there is no effective management measures for pedestrian violations.

There are a lot of provisions about pedestrians violating various laws and regulations. For example, pedestrians are not responsible for collision with vehicles crossing the road with red lights, pedestrians will be punished for violations, disqualification for evaluation, and photos of people who cross the road are displayed in public.However, the unsafe impact caused by the use of mobile devices by pedestrians has not been paid attention to by the society. In recent years, more and more pedestrians use mobile phones when crossing the street, so it is necessary to study this bad social behavior.

2. Theory and Hypothesis Research Model of Planned Behavior

2.1. Theory of Planned Behavior

The theory of planned behavior was proposed by icek Ajzen. Ajzen research found that people's behavior is not completely determined by the individual, but under control. It has developed into a behavior theory research model - planned behavior theory. The theory of planned behavior is mainly composed of three important factors: behavior attitude, subjective norm and

ISSN: 2688-8645

perceived behavior control. These three points are the framework for scholars to summarize the theory of planned behavior, which is recognized by scholars in the international community.

2.2. Model Construction of Pedestrian Crossing Street with Mobile Phone

In order to study why pedestrians use mobile phones to cross the street under the green light, this paper uses the theory of planned behavior as the basic method, and adds road environmental factors on the basis of the theory of planned behavior already obtained by the predecessors in the traffic field. Although some people have studied the road environment, their understanding of the connotation of the road environment is different, and the road environment proposed by the traffic predecessors focuses on the road environment.In different ways of crossing the street, such as crossing the street twice, overpass, etc. The road environment studied in this paper focuses on the impact of different traffic facilities (traffic warning signs) on pedestrian crossing under the same crossing mode (road section).

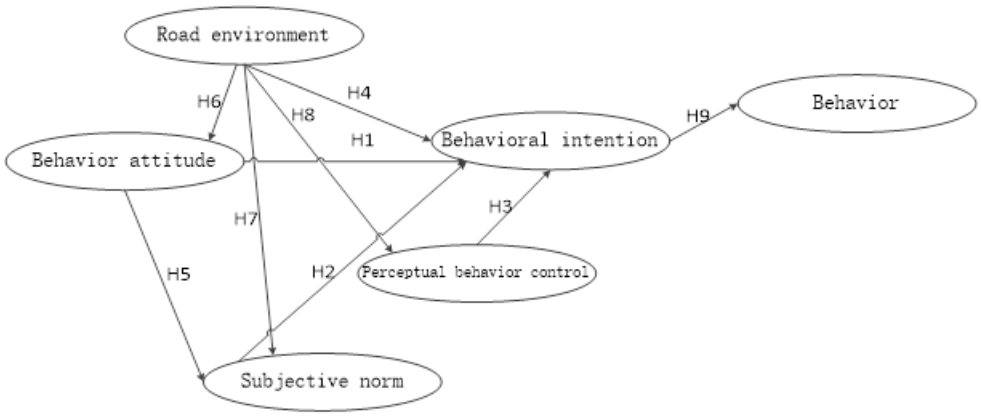

Figure 1. Structural model of pedestrian crossing street with mobile phone

Based on the above hypothesis model, this paper puts forward the hypothesis of the relationship between latent variables

Table 1. Model research assumptions

number	research hypothesis	Expected direction
H1	Behavior attitude has a significant positive effect on behavior intention	+
H2	Subjective norms have a significant negative impact on behavioral intention	-
H3	Perceptual behavior control has a negative effect on behavioral intention	-
H4	Road environment has a significant negative impact on behavioral intention	-
H5	Behavior attitude has a significant negative impact on subjective norms	-
H6	Road environment has a negative impact on behavior and attitude	-
H7	Road environment has a positive impact on subjective norms	+
H8	Road environment has a positive effect on perceptual behavior control	+
H9	Behavioral intention has a positive effect on behavior	+

ISSN: 2688-8645

Table 2. Observation model of pedestrian crossing model using mobile phone

Latent variable		Observation variables
Behavior attitude	C1	Do you agree that the use of mobile phones will cause adverse effects on urban traffic order
	C2	Do you agree that the use of mobile phones by pedestrians will cause traffic accidents
	C3	Do you agree that the use of mobile phones by pedestrians will have a negative impact on the construction of urban civilization
Road environment	B1	When the crosswalk is green, do you use your mobile phone to cross the street when the distance is long
	B2	When there is a green light at the crosswalk, will you use your mobile phone to cross the street when there are many people crossing the street
	B3	Do you use your mobile phone to cross the street when there are construction warning signs on the crossing section when the crosswalk has a green light
Perceptual behavior control	E1	When the function of your mobile phone is very simple, will you use it across the street
	E2	When you feel sick (cold), do you still insist on using your mobile phone across the street
	E3	When you cross the street with too many things, will you use your mobile phone across the street
	E4	When the law forbids pedestrians to use mobile phones across the street, do you use mobile phones across the street
	E5	When pedestrians cross the street using mobile phones, which will be punished, do you use mobile phones to cross the street
Subjective norm	D1	When your family members are crossing the street attentively, will you cross the street and use your mobile phone
	D2	When your friends are crossing the street attentively, will you use your mobile phone across the street
	D3	When all the people around you are crossing the street attentively, will you cross the street and use your mobile phone
	D4	Do you use your mobile phone to cross the street when your family is around you
	D5	Do you use your mobile phone to cross the street when your friends are using it
	D6	When all the people around you use mobile phones to cross the street, do you use mobile phones to cross the street
	D7	When most people around you use mobile phones to cross the street, do you use mobile phones to cross the street
	D8	When few people around you are using mobile phones to cross the street, do you use mobile phones to cross the street
Behavioral intention	F1	You like to use your mobile phone across the street
	F2	Would you like to use your mobile phone across the street
	F3	In the future, you are willing to continue to use mobile phones across the street
behavior	G1	You often use your mobile phone to cross the street
	G2	You often dissuade others from using mobile phones to cross the street
	G3	You may have a collision with others because you use your mobile phone to cross the street

ISSN: 2688-8645

2.3. Observation Model of Pedestrian Crossing Street Using Mobile Phone

There are six latent variables which can not be directly measured in the hypothetical model of pedestrian crossing the street by mobile phone, which need to be measured by corresponding observation variables. The corresponding relationship between latent variables and observation variables constitutes the observation model. It is shown in Table 2. below.

3. Distribution and Analysis of Questionnaire Survey

3.1. Design and Revision of Pre Questionnaire

3.1.1 Design of pre questionnaire survey

According to the previous research work of relevant scholars, a questionnaire about pedestrians crossing the street with mobile phone is made. The questionnaire is divided into three parts: age, education background, travel purpose and other personal statistical items; the second is the theoretical scale of planned behavior; the third is the road environment scale. In the formal questionnaire before the first pre questionnaire, small-scale survey. The following are the related items of the pre questionnaire:

a) Personal statistical characteristics

A1 your age

A2 your gender

A3 your education background

A4 what is the purpose of your trip

b) Road environment items

B1 when the crosswalk is green, do you use your mobile phone to cross the street when the distance is long

B2 when there is a green light at the crosswalk, when there are many people crossing the street, will you use your mobile phone to cross the street

B3 when there is a green light at the crosswalk, will you use your mobile phone to cross the street when there are construction warning signs in the crossing section

c) Theoretical items of planned behavior

C1 do you agree that the use of mobile phones by pedestrians will cause adverse effects on urban traffic order

C2 do you agree that the use of mobile phones by pedestrians will cause traffic accidents

C3 do you agree that the use of mobile phones by pedestrians will have a negative impact on the construction of urban civilization

D1 when your family members are crossing the street attentively, do you cross the street and use your mobile phone

D2 do you use your mobile phone when your friend is crossing the street attentively

D3 when all the people around you are crossing the street attentively, do you cross the street and use your mobile phone

D4 do you use your mobile phone to cross the street when your family is around you

D5 do you use your mobile phone to cross the street when your friend is around you

D6 do you use mobile phones to cross the street when everyone around you is crossing the street

D7 when most people around you use mobile phones to cross the street, do you use mobile phones to cross the street

D8 when few people around you are using mobile phones to cross the street, do you use mobile phones to cross the street

ISSN: 2688-8645

E1 when the function of your mobile phone is very simple, will you use it across the street

E2 when you feel sick (cold), do you still insist on using your mobile phone across the street

E3 when you cross the street with too many things, will you use your mobile phone across the street

E4 when the law forbids pedestrians to use mobile phones across the street, do you use mobile phones across the street

E5 when pedestrians cross the street using mobile phones, this behavior will be punished. Will you use mobile phones to cross the street

F1you like to use your mobile phone across the street

F2 would you like to use your mobile phone across the street

F3 in the future, you are willing to continue to use your mobile phone across the street

G1 you often use your mobile phone to cross the street

G2 you often dissuade others from using mobile phones to cross the street

G3 you will collide with others because you use your mobile phone to cross the street

3.1.2 Revision of pre questionnaire survey

In the pre survey, a total of 80 questionnaires were distributed, and the reliability and validity of the questionnaire were analyzed to test whether the content of the questionnaire was reasonable and rigorous.

In the pre survey, a total of 80 questionnaires were distributed, and the reliability and validity of the questionnaire were analyzed to test whether the content of the questionnaire was reasonable and rigorous. The following is the reliability and validity test of the pre survey questionnaire, as shown in Table 3.

Table 3. Kmo and Bartlett test

Kmo sampling suitability quantity		.756
Bartlett sphericity test	Approximate chi square	1169.336
	freedom	253
	Significance	.000

The data obtained from the pre survey were input into SPSS software for analysis. The kmo value was 0.756, greater than 0.6, which met the standard, and the analysis was continued.

The advantages of exploratory factor analysis are as follows

1) It is easy to operate, just import the data directly into SPSS software and operate step by step to get the result.

2) When the questionnaire contains a lot of questions, exploratory factor analysis is very useful, which can more intuitively separate out the factors.

3) Exploratory factor analysis is not only the basis of other factor analysis tools, but also convenient to use with other tools.

The pre survey factors were extracted. Firstly, factor load analysis is carried out on the questionnaire, and several factors are found in the questionnaire from the factor load analysis.

ISSN: 2688-8645

Table 4. Composition matrix after rotation

	component					
	1	2	3	4	5	6
F1	.019	.050	.921	-.008	.029	-.006
F2	-.001	.163	.837	-.141	.044	.025
F3	-.047	.016	.830	.071	.082	-.092
G1	.028	.162	.090	.079	.819	.085
G2	-.093	.047	.087	.189	.841	.044
G3	.029	.110	-.014	.033	.882	.008
B1	-.163	-.047	-.109	.872	.097	.127
B2	-.066	.183	-.061	.867	.054	-.008
B3	.022	.083	.050	.814	.166	.141
C1	-.089	.154	-.051	.061	.050	.863
C2	-.017	-.071	-.022	.174	.009	.841
C3	-.144	-.043	.024	.008	.064	.870
D1	.866	.014	-.006	-.103	.020	-.081
D2	.842	.097	-.029	.003	-.120	.108
D3	.857	.082	.054	-.053	.017	-.038
D4	.812	.111	-.146	.033	.063	-.109
D5	.877	.000	-.112	-.023	.022	-.032
D6	.921	.063	.045	-.058	-.065	-.138
D7	.804	.065	.083	-.088	-.053	.007
D8	.843	.108	.035	.035	.120	-.103
E1	.129	.840	.021	.215	.090	-.012
E2	.152	.778	.147	.143	.171	.099
E3	.033	.816	.013	-.085	-.002	-.030
E4	-.036	.375	.325	-.097	.021	.064
E5	.241	.414	.042	.129	.249	-.081

3.2. Distribution and Recovery of Formal Questionnaire Survey

A)Objects of questionnaire survey

Pedestrian crossing at signalized section of urban road

B)Sample distribution and recovery

In this paper, the combination of field survey and online survey, online survey obtained 100 questionnaires, field survey obtained 201 questionnaires, a total of 301 formal surveys.

3.2.1 Confirmatory factor analysis

The main purpose of confirmatory factor analysis (CFA) is to determine the fitting degree of the impact factors in the hypothetical model with the model after combining the real data, so as to test whether the number of factors and the factor load of the observed variables are consistent with the expectations based on the pre-established theory, and requires that the confirmatory factor analysis can predict at least several factors, and which observation variables are significantly related to precipitation factors.

Confirmatory factor analysis was used to test the structural validity of the formal questionnaire, as shown in Figure 2.As can b seen from figure 2, there are six factors in total. Through confirmatory factor analysis, we can know the significance of the relationship between each factor, reflecting the degree of fitting with the original hypothesis model.

ISSN: 2688-8645

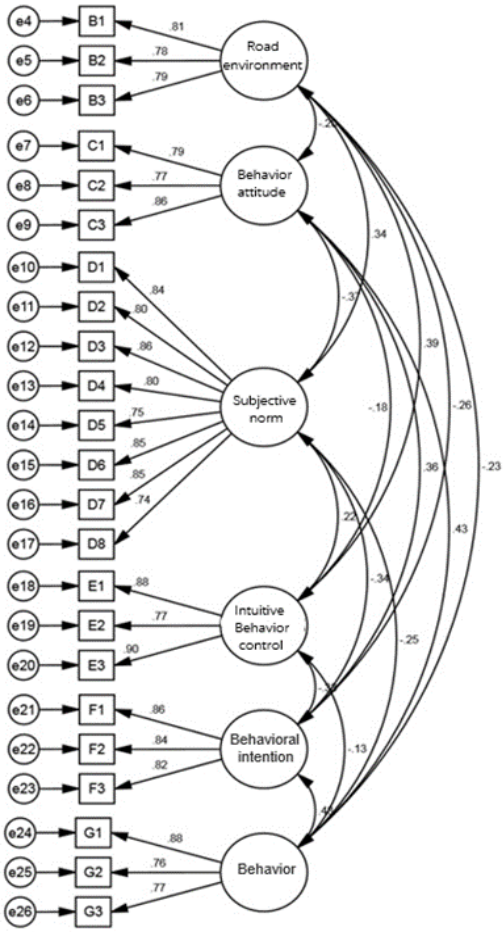

Figure 2. Confirmatory factor analysis chart

After inputting the data into Amos software, it is necessary to test the fitting degree of the hypothetical model. From Table 6, it can be seen that each fitting index conforms to the general research standard, so it can be considered that this model has a good matching degree.

Table 5. Fitting degree of confirmatory factor model

Model fitting index	Optimal standard value	Statistical value	Fitting situation
CMIN	——	309.341	——
DF	——	215	——
CMIN/DF	<3	1.439	good
SRMR	<0.08	0.036	good
GFI	>0.9	0.921	good
NFI	>0.9	0.931	good
IFI	>0.9	0.978	good
TLI	>0.9	0.974	good
CFI	>0.9	0.978	good
RMSEA	<0.08	0.038	good

It can be seen from table 7 that the standardized factor load of each measurement index of road environment, behavior attitude, subjective norm, perceptual behavior control, behavior intention and behavior is greater than 0.6, indicating that each variable has good convergence validity.

ISSN: 2688-8645

Table 6. Confirmatory factor analysis results

variable	Item	Factor load	CR	AVE
Road environment	B1	0.813	0.838	0.633
	B2	0.781		
	B3	0.793		
Behavior attitude	C1	0.788	0.848	0.652
	C2	0.769		
	C3	0.862		
Subjective norm	D1	0.844	0.939	0.66
	D2	0.796		
	D3	0.864		
	D4	0.796		
	D5	0.749		
	D6	0.848		
	D7	0.853		
	D8	0.739		
Perceptual behavior control	E1	0.883	0.888	0.727
	E2	0.772		
	E3	0.898		
Behavioral intention	F1	0.859	0.88	0.71
	F2	0.843		
	F3	0.825		
behavior	G1	0.879	0.847	0.649
	G2	0.765		
	G3	0.768		

Discriminant validity analysis is to verify whether there is statistical difference between the two factors. Items with different factors should not be highly correlated.

As can be seen from table 2.6, these latent variables have good discriminant validity, and the construction of the model is reasonable. The following needs to analyze and modify the hypothetical model.

Table 7. Discriminant validity

	Road environment	Behavior attitude	Subjective norm	Perceptual behavior control	Behavioral intention	behavior
Road environment	0.796					
Behavior attitude	-.178**	0.807				
Subjective norm	.303**	-.342**	0.812			
Perceptual behavior control	.355**	-.170**	.198**	0.853		
Behavioral intention	-.222**	.323**	-.305**	-.298**	0.843	
behavior	-.199**	.360**	-.215**	-.114*	.412**	0.806

ISSN: 2688-8645

4. Model Verification and Countermeasure Design

The structure of the model has been hypothesized, and the corresponding observation variables are written according to different potential variables. Through exploratory factor analysis of the pre survey and confirmatory factor analysis of the formal survey, the data of the questionnaire has been guaranteed. Next, the hypothesis model is verified and evaluated according to these data.

4.1. Model Checking and Modification

Next, we are ready to enter the structural equation stage. This paper uses Amos software to test the initial model and observe the degree of the hypothesis model fitting. Figure 3 shows the hypothetical model of the causes of pedestrian's; use of mobile phones.

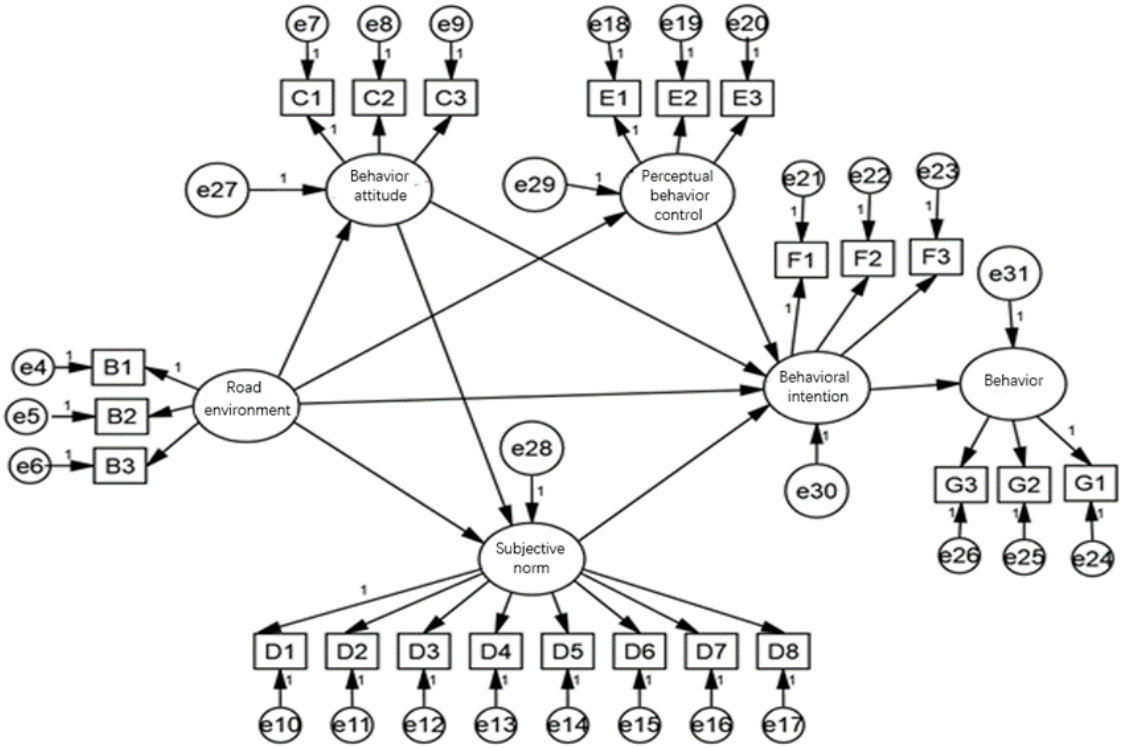

Figure 3. Initial model of pedestrian's behavior of using mobile phone to cross the street

4.1.1 Model checking

In the test stage of the model, the significance of the path coefficient is first tested to see the fitting effect of the model. The formal data is imported into Amos software in the correct format, and the path coefficient in each path is calculated to understand the influence degree and direction of each potential variable.

The path coefficient test is the key point of structural equation model test. Path test can reflect the correlation degree of each factor most intuitively. This paper uses Amos software to calculate the model path, and the output data is shown in Table 8.

ISSN: 2688-8645

Table 8. Path coefficient test of initial model

route			Standardization coefficient	Coefficient of non standardization	S.E.	C.R.	P	hypothesis
Behavior attitude	<---	Road environment	-0.205	-0.191	0.064	-3.001	0.003	establish
Subjective norm	<---	Road environment	0.281	0.323	0.072	4.474	* * *	establish
Subjective norm	<---	Behavior attitude	-0.312	-0.386	0.078	-4.97	* * *	establish
Perceptual behavior control	<---	Road environment	0.402	0.515	0.085	6.093	* * *	establish
Behavioral intention	<---	Road environment	-0.067	-0.084	0.09	-0.924	0.356	Not established
Behavioral intention	<---	Behavior attitude	0.262	0.351	0.09	3.897	* * *	establish
Behavioral intention	<---	Subjective norm	-0.181	-0.197	0.072	-2.731	0.006	establish
Behavioral intention	<---	Perceptual behavior control	-0.224	-0.218	0.064	-3.392	* * *	establish
behavior	<---	Behavioral intention	0.489	0.474	0.062	7.596	* * *	establish

Table 9. Paths with P value greater than 0.05 in the initial model

Path relation	Estimate	S.E	C.R	P
Behavioral intention < --- road environment	.100	0.09	-0.924	0.356

4.1.2 Model modification and retest

The path test of the above results shows that the p value of the initial model does not meet the requirements, so the model needs to be modified.

Among them, the path "behavior intention < --- road environment". In the actual survey, it is found that most people think that the impact of road environment changes on people is different from person to person, especially adults, who think that they adapt to the changes of surrounding road conditions and the complexity of road conditions quickly. The data also show that the road environment will only have a certain degree of impact on the pedestrian's subjective norms and perceptual behavior control, but can not directly affect people's behavior intention. Therefore, this path is deleted.

Then observe the fitting degree of the initial model. From the index of the model, we can see whether the overall model fitting degree needs to be modified in other aspects. The adaptation index of the initial model is shown in table 10.

Table 10. Adaptation index of initial model

Fitting test index	Index standard value	Model results	Is it up to standard
CMIN/DF	<3	1.524	accord with
RMSEA	<0.1	.042	accord with
IFI	>0.9	0.973	accord with
TLI	>0.9	0.969	accord with
CFI	>0.9	0.972	accord with

ISSN: 2688-8645

As can be seen from the above table, the fitting degree of the initial model is good, but one of the paths is not significant, so this path is deleted to form the modified structural equation model. As shown in Figure 4.

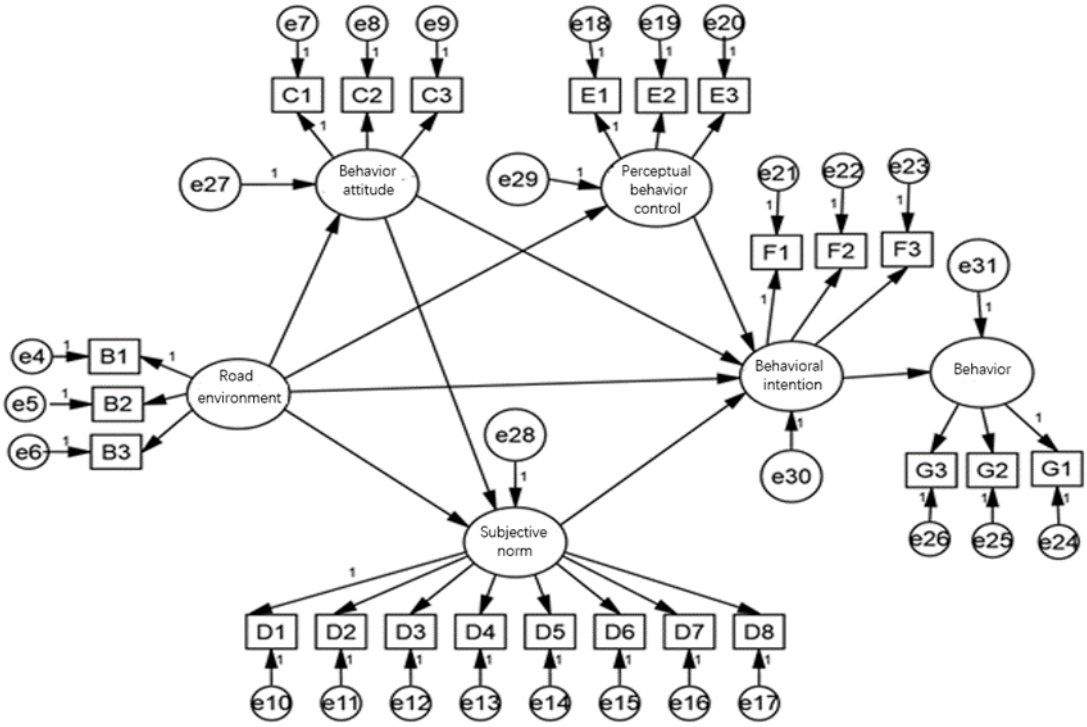

Figure 4. Structural model after modification

Since the original model has been modified, it is necessary to conduct a new model fitting test for the model, as shown in table 11.

Table 11. Modified model fitting degree

Model fitting index	Optimal standard value	Statistical value	Fitting situation
CMIN	——	337.628	——
DF	——	222	——
CMIN/DF	<3	1.521	qualified
SRMR	<0.08	0.055	qualified
GFI	>0.9	0.915	qualified
NFI	>0.9	0.924	qualified
IFI	>0.9	0.973	qualified
TLI	>0.9	0.969	qualified
CFI	>0.9	0.973	qualified
RMSEA	<0.08	0.042	qualified

It can be seen from the above table that each fitting index conforms to the general research standard, so it can be considered that this model has a good matching degree.
Therefore, the modified model can be used as the basis for subsequent hypothesis testing.

ISSN: 2688-8645

4.2. Theoretical Hypothesis Test

It can be seen from the previous article that the modified model has a good fitting degree. When studying the behavior of pedestrians using mobile phones across the street, this paper puts forward four potential variables affecting the behavior intention, and puts forward nine hypotheses. According to the software operation, the hypothesis is verified respectively. The results are shown in table 12.

Table 12. Revised model path coefficient

route			Standardization coefficient	Coefficient of non standardization	S.E.	C.R.	P	hypothesis
Behavior attitude	<---	Road environment	-0.207	-0.193	0.064	-3.039	0.002	establish
Subjective norm	<---	Road environment	0.281	0.323	0.072	4.47	* * *	establish
Subjective norm	<---	Behavior attitude	-0.312	-0.386	0.078	-4.957	* * *	establish
Perceptual behavior control	<---	Road environment	0.403	0.518	0.085	6.121	* * *	establish
Behavioral intention	<---	Behavior attitude	0.266	0.356	0.09	3.961	* * *	establish
Behavioral intention	<---	Subjective norm	-0.199	-0.215	0.069	-3.121	0.002	establish
Behavioral intention	<---	Perceptual behavior control	-0.249	-0.242	0.058	-4.139	* * *	establish
behavior	<---	Behavioral intention	0.488	0.473	0.062	7.574	* * *	establish

As can be seen from table 7, all the other hypotheses are valid except H4.The

From the above hypothesis test, we can see that:

a) In the framework of planned behavior theory, the more positive the pedestrian's attitude towards using mobile phone across the street, the higher the probability of using mobile phone when crossing the street;

b) Secondly, we can know from the hypothesis test that the outside world has a significant impact on the behavior of using mobile phones in crossing the street. The more restrained the outside world is on the use of mobile phones, the lower the intention of pedestrians to cross the street;

c) At the same time, the test shows that the stronger one's perceptual behavior control ability, the lower their intention to cross the street to use mobile phones.

d) After hypothesis testing, it is also found that road environment has a significant impact on subjective norms and perceptual behavior control in the framework of planned behavior theory. However, the relationship between road environment and pedestrian's attitude towards using mobile phones across the street is not significant, which indicates that if a person has a positive attitude towards using mobile phones across the street, even if the road environment is more complex, he willStill use mobile phones to cross the street. This shows that when designing countermeasures against the behavior of pedestrians using mobile phones across the street, we should not pay too much attention to the impact of road environment on pedestrians, only restrict pedestrians from road facilities, and ignore the attitude of individuals to this behavior.

ISSN: 2688-8645

4.3. Countermeasure Design

a) First of all, according to the modified model, we can know that the subjective norms have a significant impact on pedestrian's; mobile phone crossing behavior, and the stronger the subjective norms, the weaker the intention of pedestrians to use mobile phones. Therefore, we can take a few correct demonstration of pedestrian crossing at the road crossing, and then set up an LED display screen at the crossing place to play these good demonstrations in turn. Such a good demonstration will give people who want to cross the street to use mobile phones a psychological pressure, thereby reducing the frequency of pedestrians using mobile phones across the street.

b) Secondly, through the analysis, we can also know that the attitude of pedestrians also has an important impact on the behavior of pedestrians. We can hold more than a few lectures on the harm of using mobile phones when pedestrians cross the street through the neighborhood committee, so as to put an end to this kind of behavior from the ideological root of pedestrians. In the survey, it is also found that most of the people who use mobile phones to cross the street are young people, and even some people use mobile phones to watch TV plays while crossing the road. You can contact the Communist Youth League of the school and ask them to organize an activity related to the use of mobile phones by pedestrians crossing the street. The idea of not using mobile phones across the street can be reflected in some forms that young people like, such as sketches and plays. At the end of the activity, let the students pledge to fight against the behavior of pedestrians crossing the street using mobile phones.

c) Finally, it is found that perceptual behavior control has a significant effect on behavioral intention, and the stronger the perceptual behavior control ability of pedestrians, the less frequency they use mobile phones across the street. It is possible to impose fines on pedestrians using mobile phones when crossing the street. If this behavior has an impact on the normal traffic order of the city, it can be regarded as a negative model. Not only will it be fined, but also it will be put on the LED display screen at the road crossing to give a warning to the passers-by behind.

d) Among the factors of road environment, we also find that the more complex the road environment is, the more cautious pedestrians are about using mobile phones when crossing the street. The more complex the road environment is, the stronger one's perceptual behavior control is, and the stronger the control power of one's own behavior is. With the help of visual 3D zebra crossing, the road environment at the crossing place can be deliberately complicated. Even if some pedestrians want to use mobile phones to cross the street, but in the face of this visual 3D crossing environment, the control ability of pedestrian's; perceptual behavior will be strengthened, and the probability of using mobile phones to cross the street will be reduced.

5. Conclusion

Based on the theory of planned behavior, this paper studies the problem of modeling pedestrian's behavior of using mobile phone when crossing the street.

a) This paper studies the behavior of pedestrians using mobile phones when crossing the street. After analyzing the data, it is found that within the framework of the original planned behavior theory, the behavior attitude of pedestrians has an impact on the subjective norms. This shows that if the pedestrian's attitude towards something is very firm, the external pressure on him will be reduced.

b) Based on the original theoretical framework of planned behavior, it is found that pedestrian's behavior attitude, subjective norm and perceived behavior control have significant influence on behavior intention.

ISSN: 2688-8645

c) In this paper, the road environmental factors are added to the hypothetical model. Although some scholars have studied the road environment factors in the theoretical framework of planned behavior, they focus on different ways of crossing the street, such as overpass. The road environment studied in this paper refers to the impact of different road traffic facilities on pedestrians in the same crossing mode. Through data analysis, it is found that the road environment factors defined in this paper do have an impact on the behavior attitude, subjective norms and perceived behavior control of pedestrians.

References

[1] Li Ling, Xie Zhi. Psychological analysis of pedestrian traffic safety [J]. Think tank era, 2018 (50): 205-206.

[2] Shi Jiangwei. Research on pedestrian crossing behavior at intersections [J]. Practical automobile technology, 2018 (19): 193-196.

[3] Shalini Rankavat, Geetam Tiwari. Pedestrian's perceptions for utilization of pedestrian facilities – Delhi, India [J]. Transportation Research Part F: Psychology and Behaviour, 2016(02), 005.

[4] Li Gaofeng. Analysis of urban traffic anomie behavior and Research on improvement countermeasures based on planned behavior theory [D]. Chang'an University, 2016.

[5] He Yongming, Shang Qingpeng, Wang Shuang. Research on urban pedestrian crossing traffic safety warning system [J]. Transportation technology and economy, 2018, 20 (04): 9-12.

[6] Li Bao, Jin Zhiying, Wang Hong, Zhu cong.analysis of pedestrian violation behavior at signalized intersections based on planned behavior theory [J]. Journal of Wuhan University of Technology (Transportation Science and Engineering Edition), 2018, 42 (04): 691-695.