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Study of Residents' Ongoing Behavioural Intentions for Regular Bus Travel

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ABSTRACT

With the emergence of novel transportation trends, regular buses have experienced a significant decline in passenger numbers. Consequently, it becomes imperative to conduct studies on passengers' intentions. This particular investigation employed a meticulously designed survey questionnaire to gather data, and developed a new model that integrates the theory of planned behaviour, technology acceptance model and expectation confirmation theory. The primary aim was to explore the key factors that influence residents' ongoing behavioural intentions towards regular public bus travel. Furthermore, a gender-based multi-group analysis was conducted to investigate the impact mechanism of gender differences on ongoing behavioural intentions. The new model demonstrates various degrees of positive or negative influences among the variables, thereby confirming its universal applicability. Moreover, the multi-group analysis reveals that compared to gender, travel satisfaction has a stronger impact on women's intentions, while travel attitude has a stronger impact on men's intentions to travel by certain mean of transport. Simultaneously, perceived behavioural control does not significantly affect persistent intention for women but has a significant positive impact on persistent intention for men. Furthermore, perceived ease of use does not significantly impact perceived usefulness for women but has a significant positive effect on perceived usefulness for men. These research findings bear great significance in promoting environmentally-friendly travel practices.

KEYWORDS

urban transport; ongoing behavioural intentions; planned behaviour; regular bus travel; multiple-group analysis.

1. INTRODUCTION

In recent years, the urban passenger transportation structure in China has undergone significant changes, leading to a decline in the passenger flow of conventional public transportation. This trend is particularly evident in cities that have recently introduced subway systems. The emergence of subways has had a substantial impact on conventional public transportation, resulting in a noticeable shift in passenger flow. Consequently, it has become imperative to explore strategies for mitigating this downward trend, ensuring the stability of passenger flow in conventional public transportation, and investigating the enduring behavioural intentions of conventional public transportation users. As an essential mode of transportation for urban residents, regular bus has garnered extensive support due to its inherent public welfare nature, serving as a testament to the conscientiousness of the city. Based on the development strategies of "bus priority" and "bus city", this study aims to investigate the long-term behavioural intentions of regular bus commuters.

Firstly, using Luoyang City as a case study, an in-depth analysis of the traffic characteristics of emerging subway cities will be conducted to clearly define the concept of such cities. Subsequently, a comprehensive discussion and analysis will be carried out on the passenger flow transfer relationship between subway systems and other modes of public transportation. Following this, a survey questionnaire will be designed from the perspective of residents' psychology and behaviour to collect data, which will then be organised, classified and subjected to reliability and validity tests. The travel behavioural characteristics of regular bus passengers will be analysed based on the collected data. Subsequently, a new model will be constructed and path relationship analysis will be performed to explore the key factors influencing residents' willingness to continue using regular bus services. In order to identify differences among respondents and enhance the relevance of research findings to real-life situations, a gender-based multi-group analysis will be conducted to examine the mechanism of gender differences in willingness to continue bus travel, as well as test the general applicability of the model. Finally, an investigation will be conducted on the attractiveness of public transportation and subways, exploring dynamic patterns of passenger flow transfer with regard to changes in passenger flow and changes in the general public's willingness to use these modes of transportation. Furthermore, a deeper exploration will be undertaken to identify the key factors influencing residents' sustained behavioural willingness to use regular public transportation. Policy recommendations will be provided for relevant departments from the perspective of regular public transportation. The primary objective of this research article is to address the existing research gap pertaining to the study of travellers' transportation behaviour and psychology. By adopting a distinctive perspective, the aim is to reinforce the significance of conventional public transportation.

2. LITERATURE REVIEW

There are many existing studies focusing on the factors influencing the willingness to use conventional public transportation. Morteza Akbari et al. [1] used the theory of planned behaviour and an extended technology acceptance model (TAM) to study the predictive model of carpooling service usage intention in Iran. The results confirmed the interrelationships between perceived usefulness, subjective norms, satisfaction and behavioural intentions. but the effect of perceived ease of use on subjective norms was not significant. Yu Wang et al. [2] used an extended technology acceptance model (TAM) by incorporating three new constructs as theoretical frameworks. The results indicated a positive correlation between personal innovativeness, environmental awareness, perceived usefulness and consumers' intention to use carpooling services, while perceived risk had a negative correlation with intention and perceived usefulness. Huang Chunhui et al. [3] constructed a conceptual model of factors influencing travellers' willingness to travel and found that perceived relative advantage, perceived cost and perceived service quality had significant positive impacts on travellers' attitudes toward travel. Jian Yican et al. [4] studied the related variables, parameters, fit indices and the influence relationships among latent variables and variables in customised bus travel intention. They found that parking satisfaction had the most significant impact on travel intention, while perceived behavioural control, subjective norms and residents' travel characteristics had positive effects on passengers' travel intention. Subjective norms had the smallest impact on travel intention. Previous studies have not extensively explored the correlation between service quality [5] and passenger loyalty [6] towards public transportation. Numerous scholars both domestically and internationally have conducted significant research on the determinants influencing residents' travel mode choices. These determinants can be categorised as follows based on statistical analysis: (1) personal socio-economic attributes, encompassing respondents' gender, age, education, occupation, among others; (2) travel behaviour attributes, including travel mode and purpose; (3) environmental attributes, such as weather conditions and land information; (4) psychological latent variables, comprising attitudes, cognition, preferences and so forth.

This research examines the theory of planned behaviour and identifies subjective norms, perceived behavioural control and behavioural attitudes as significant influences on behavioural intention [7]. However, there is limited research on other factors affecting behavioural intention. Therefore, this study aims to inves-

tigate the factors affecting sustained behavioural intention among regular bus passengers by incorporating multiple theories. The findings will support efforts to enhance regular bus usage and contribute to building a strong transportation country.

3. MODEL CONSTRUCTION

3.1 Modelling theoretical basis

The theory of planned behaviour (TPB) is a psychological model that predicts individual intentions and behaviours. This theory suggests that individual behaviour intentions are jointly influenced by three key factors: subjective norms (SN), perceived behavioural control (PBC) [8], and attitude toward the behaviour (AB) [9]. These factors collectively determine an individual's behavioural tendency [10]. The usefulness of the TPB model lies in its ability to help people understand how continuous behaviours are formed. By understanding these factors, individuals can better control and change behaviours to achieve better outcomes.

The technology acceptance model (TAM) is a theoretical model used to analyse the important factors that influence user acceptance of new technology. This model consists of five influencing factors: external variables (EV) [11], perceived usefulness (PU), perceived ease of use (PEU) [12], attitude toward using (ATTU) and behavioural intention (BI) [13], which ultimately leads to the use of the system. The TAM is a concise and powerful theoretical model that has been extensively validated in previous research. Therefore, this study constructs a research model of sustained behavioural intention based on the TAM.

The expectancy-confirmation model (ECM) is a fundamental theory proposed by Oliver (1980) for studying consumer satisfaction [14]. It is used to explain how the difference between consumers' expectations and their actual experience of a product or service affects their satisfaction (SAT) [15] and willingness to buy. The model suggests that both consumers' expectations and actual experience of a product or service affect their satisfaction and willingness to buy, and that this effect is mediated by a variable called "expectation confirmation" (CON). The main concept is that consumers compare their pre-purchase expectations with post-purchase perceived performance (PP) to determine whether they are satisfied with the product or service, and satisfaction becomes a reference for future repurchase or use. The ECM holds a dominant position in predicting consumer behaviour.

3.2 Rationale for the construction of the model

The planned behaviour theory model, although useful in exploring behavioural intentions, is limited in its ability to accurately reflect user intentions. Therefore, it is necessary to integrate this model with other theories to provide a more comprehensive understanding. The technology acceptance model (TAM) can partially explain user intentions, but it was initially designed as a universal explanation for the use of information technology. As such, it requires modification and extension to account for different usage scenarios. The expectancy-confirmation model (ECM), while valuable, has two main shortcomings. Firstly, it lacks sufficient discussion on external factors, which are crucial for accurate prediction and explanation. Thus, it is essential to introduce external factors to enhance the model's completeness and accuracy. Secondly, to adapt to specific situations, the ECM should be supplemented with factors related to passengers' use of regular bus services [16]. In summary, combining multiple theories and addressing the limitations of individual models can lead to a more comprehensive understanding of user behavioural intentions.

The above theories each have their own shortcomings, and it is not effective to solely use one of these theories to study passengers' ongoing behavioural intentions. Therefore, this article combines the theory of planned behaviour, technology acceptance model and expectation-confirmation theory to construct a model of residents' regular bus ongoing behavioural intentions, as shown in *Figure 1* (in constructing the model, behavioural intention (BI) represents the specific behaviour of adopting bus travel, so it is used as the final end of the model, and the perceived performance (PP) variable is included in the bus travel behaviour with the indicator of being satisfied, so it is not considered separately). Based on the aforementioned theories and constructed model, the following hypotheses are proposed:

H1: ATT has a significant positive impact on willingness of continuous behaviour (WCB)
H2: SN has a significant positive impact on WCB
H3: PBC has a significant positive impact on WCB
H4: PU has a significant positive impact on WCB
H5: SAT has a significant positive impact on WCB
H6: PEU has a significant positive impact on ATT
H7: PU has a significant positive impact on ATT
H8: PU has a significant positive impact on SAT
H9: CON has a significant positive impact on SAT
H10: CON has a significant positive impact on PU
H11: PEU has a significant positive impact on PU
H12: EV has a significant positive impact on PU
H13: EV has a significant positive impact on PEU.

Table 1 – Variable symbol explanation

Variables (abbreviation)	Symbol	Explanation and clarification
Willingness of continuous behavioural	WCB1	I want to continue using regular buses for travel.
	WCB2	I'm willing to recommend to family, friends and colleagues.
	WCB3	It will be one of my important choices for transportation in the future.
Attitude toward the behaviour	ATT1	This mode of transportation is very good.
	ATT2	This mode of transportation is very affordable.
	ATT3	I prefer it compared to ride-hailing services and shared bikes.
Subjective norm	SN1	My relatives and friends often take the bus or suggest to me to take it.
	SN2	I will choose it based on the choices of the general public.
	SN3	I will choose it because of the encouragement from the media.
Perceived behaviour control	PBC1	I can afford the cost of it.
	PBC2	The traffic conditions in the city I am in are suitable for it.
	PBC3	Taking regular buses is an easily implementable task.
Perceived usefulness	PU1	I can think of the benefits of using regular buses for travel.
	PU2	Regular bus travel is quite useful for our daily life.
	PU3	Regular bus travel has enriched our travel options.
Perceived ease of use	PEU1	I think the steps to take a regular bus are easy.
	PEU2	I think it is relatively easy to catch a bus.
	PEU3	I think it is more convenient than ride-hailing cars or shared bicycles.
External variables	EV1	It is more affordable than ride-hailing services and shared bicycles.
	EV2	It provides a more pleasant commuting experience.
	EV3	It is a low-carbon, green and environmentally friendly travel option.
Confirmation	CON1	The advantages of it are a bit more than I expected.
	CON2	The actual experience is slightly better than what I expected.
	CON3	The service quality of it is slightly better than I expected.
Satisfaction	SAT1	Using regular buses is a good choice for transportation.
	SAT2	The experience of using regular buses for travel is pleasant.
	SAT3	The overall service quality of regular bus services is good.
	SAT4	I feel satisfied after using regular public transportation for travel.

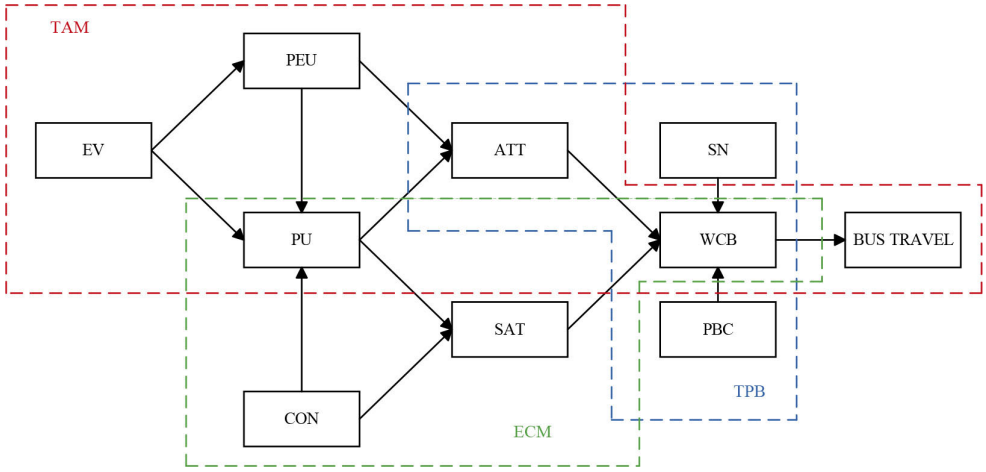

Figure 1 – Model basic framework

3.3 Variable design

This article employs a comprehensive set of 9 variables, encompassing intention to continue behaviour, travel attitude, subjective norm, perceived behavioural control, perceived usefulness, perceived ease of use, external variables, expectation confirmation degree and travel satisfaction. Drawing from established measurement scales in prior research, the measurement items were systematically modified to suit the context of regular bus travel investigations, yielding a total of 28 variable measurement items. The specific questionnaire measurement items and their corresponding variable symbols can be found in *Table 1*.

4. METHODOLOGICAL PROCEDURE

4.1 Description of sample feature distribution

At the end of 2022, Luoyang City will have 1.489 million civilian vehicles, an increase of 6.0 percent over 2021, and a population of 7.079 million. The survey was conducted among the residents of Luoyang City, with a total distribution of 3,250 questionnaires employing both online and offline methods. Out of these, 3,105 questionnaires were deemed valid, resulting in a commendable response rate of 95.6%.

In the present survey sample, there is a relatively balanced distribution of males and females, constituting 51.6% and 48.4% of the total population, respectively. Notably, the highest proportion is observed among middle-aged individuals (aged 41-65 years), accounting for 29.1%, whereas the lowest proportion is observed among individuals under 18 years old, constituting 20.4%. Detailed information can be found in *Table 2*.

4.2 Reliability check

Validity testing was performed by employing Cronbach's alpha coefficient, which is a widely used measure of internal consistency. The Cronbach's α values range from 0 to 1, with higher values denoting greater reliability and internal consistency. Coefficients below 0.6 are generally regarded as lacking reliability. Analysis of *Table 3* reveals that the coefficients obtained for each item ranged from 0.753 to 0.889, all of which surpass the threshold of 0.7, indicating a high level of data reliability.

In order to assess the suitability and soundness of the associations among influencing factors across different dimensions, as well as to investigate the linkage between observed variables and latent variables, a validity testing model was developed using AMOS26. The diagram of the validity testing model and the corresponding path coefficients are presented in *Figure 2*.

The model fit test results presented in *Table 4* demonstrate that the CMIN/DF (chi-square divided by degrees of freedom) value is 3.960, falling within the acceptable range of 3-5. Moreover, the RMSEA (root mean square error of approximation) value is 0.069, which falls within the desirable range of <0.08. Furthermore,

Table 2 – Description of the distribution characteristics

Variable	Options	Frequency	Percentage
Gender	Male	1163	51.6
	Female	1088	48.4
Age group	Under 18	460	20.4
	18-40	647	28.9
	41-65	654	29.1
	Over 66	481	21.3
Occupation	Business management	120	3.9%
	Civil service	142	4.5%
	Career	150	4.8%
	Business services	560	18.0%
	Migrant workers	566	19.6%
	Students	475	15.3%
	Professional/educational research	103	3.4%
	Self-employed	604	19.5%
	Retirees	316	10.1%
	Others	23	0.8%
Education level	Primary school	529	17.1%
	Junior high school	438	14.2%
	High school	694	22.4%
	College	502	16.1%
	Undergraduate	536	17.2%
	Postgraduate and above	405	13.0%
Frequency	1-3 times per week	634	20.5%
	4-8 times per week	1015	32.7%
	Five or more days per week	749	24.2%
	Occasionally or almost rarely	705	22.7%

Table 3 – Reliability analysis results

Variable	Cronbach's alpha	Number of items
WCB	0.779	3
ATT	0.753	3
SN	0.879	3
PBC	0.816	3
PU	0.870	3
PEU	0.868	3
EV	0.865	3
CON	0.852	3
SAT	0.889	4

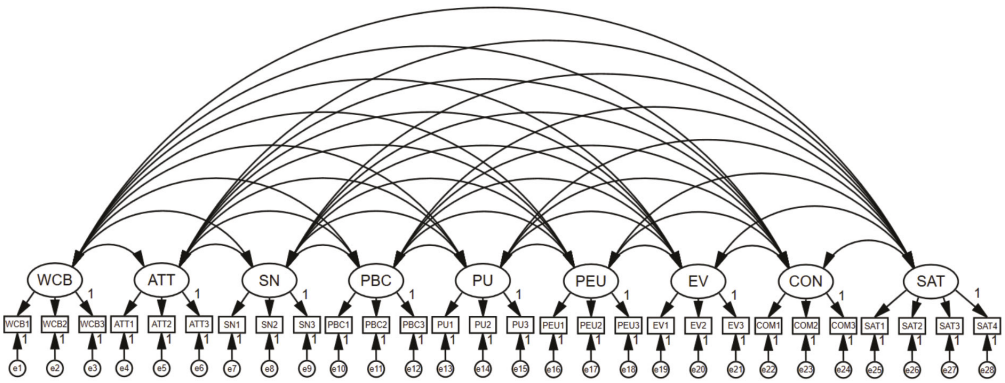

Figure 2 – CFA model

Table 4 – Model adaptation test results

Fitting criteria	Reference standard	Test results
CMIN/DF	1-3 is excellent, 3-5 is good	3.960
RMSEA	<0.05 is excellent, <0.08 is good	0.069
NFI	> 0.9 is excellent, > 0.8 is good	0.911
RFI		0.893
IFI		0.932
TLI		0.918
CFI		0.932

the test results for NFI, RFI, IFI, TLI and CFI all surpass the satisfactory threshold of 0.8, thereby indicating that the confirmatory factor analysis (CFA) model exhibits a commendable level of fit.

With the premise of a good fit of the CFA model, further tests were conducted to examine the convergent validity (AVE) and composite reliability (CR) of the scale dimensions. The standardised factor loadings of each measurement item on the corresponding dimension were calculated using the established CFA model. The AVE and CR values of each dimension were calculated using formulas. According to the standard requirements, the AVE value should be greater than 0.5, and the CR value should be greater than 0.7. The analysis results, as shown in *Table 5*, indicate that the AVE values for each dimension are all greater than 0.537, and the CR values are all greater than 0.774. Therefore, each dimension has good convergent validity and composite reliability.

Table 5 – Convergence validity and composite reliability test results

Path relationship			Estimate	AVE	CR	Path relationship			Estimate	AVE	CR
WCB	←	WCB3	0.767	0.555	0.787	PEU	←	PEU3	0.809	0.688	0.868
		WCB2	0.650					PEU2	0.851		
		WCB1	0.808					PEU1	0.827		
ATT	←	ATT3	0.596	0.537	0.774	EV	←	EV3	0.826	0.680	0.865
		ATT2	0.779					EV2	0.812		
		ATT1	0.806					EV1	0.836		
SN	←	SN3	0.846	0.709	0.879	CON	←	CON3	0.799	0.657	0.852
		SN2	0.824					CON2	0.786		
		SN1	0.855					CON1	0.845		
PBC	←	PBC3	0.801	0.590	0.812	SAT	←	SAT4	0.888	0.584	0.848
		PBC2	0.756					SAT3	0.716		
		PBC1	0.747					SAT2	0.716	0.584	0.848
PU	←	PU3	0.844	0.690	0.870			SAT1	0.772		
		PU2	0.837								
		PU1	0.811								

4.3 Pearson correlation analysis

By conducting Pearson correlation analysis, it was determined that a statistically significant correlation exists among all variables, with all correlations reaching a significance level of 99%. The correlation coefficient (r) between dimensions is positive, indicating a positive relationship between these dimensions. Notably, the dimension of external variables exhibits the highest correlation coefficient of 0.859 with expectation confirmation, suggesting a strong influence between these two dimensions. In contrast, subjective norms demonstrate a weak influence on travel satisfaction, as evidenced by a correlation coefficient of 0.212. For further details, please refer to *Table 6*.

Table 6 – Pearson correlation analysis results

Variable	WCB	ATT	SN	PBC	PU	PEU	EV	CON	SAT
WCB	1								
ATT	.819**	1							
SN	.571**	.656**	1						
PBC	.790**	.795**	.621**	1					
PU	.778**	.791**	.508**	.791**	1				
PEU	.799**	.797**	.509**	.793**	.843**	1			
EV	.805**	.802**	.483**	.798**	.808**	.835**	1		
CON	.788**	.782**	.488**	.774**	.792**	.837**	.859**	1	
SAT	.584**	.534**	.212**	.531**	.568**	.612**	.640**	.688**	1

*Key:** Significant correlation at the 0.01 level (two-tailed).*

4.4 Path relationship test

According to the research findings, the model structure diagram and path analysis results are shown in *Figure 3*. In addition, the results of the model fit test are presented in *Table 7*. Based on the analysis of the computational results, the modified model demonstrates good fit, indicating high adaptability and providing a foundation for further research.

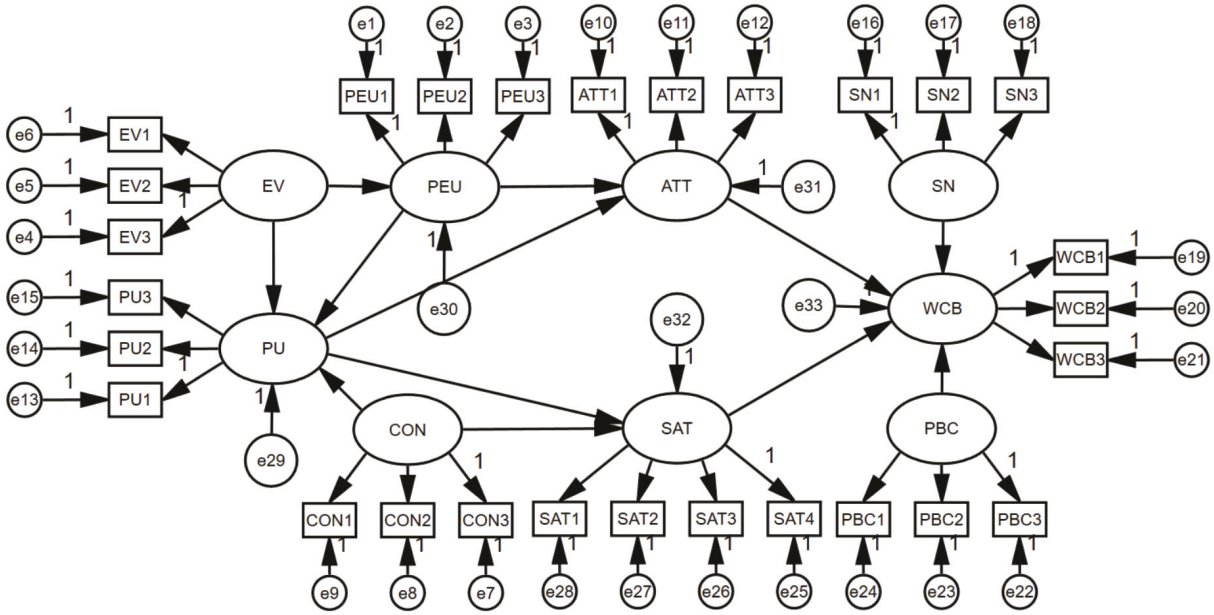

Figure 3 – Model diagram of ongoing behavioural intentions

Table 7 – Model adaptation test results

Fitting indicators	Reference standard	Test results
CMIN/DF	1-3 is excellent, 3-5 is good.	3.931
RMSEA	<0.05 is excellent, <0.08 is good	0.069
NFI	> 0.9 is excellent, > 0.8 is good	0.907
RFI		0.894
IFI		0.929
TLI		0.919
CFI		0.929

4.5 Multiple group analysis

By developing and implementing diverse gender analysis frameworks, we aim to investigate potential substantial disparities among male and female groups of passengers. Prior to conducting multigroup analysis, it becomes imperative to assess the adequacy of the model in relation to the empirical data and to examine the measurement invariance across different groups, ensuring consistent interpretation of the measured variables within these distinct groups.

As exemplified in *Table 8*, three distinct test models were established for the model, namely the measurement weights model, structural weights model and measurement residuals model. Each model underwent invariance tests incorporating additional conditions such as equal loading, equal covariance and equal error variance. The outcomes of these tests are illustrated in *Table 9* whilst maintaining a good model fit.

Table 8 – Results of multi-group analysis fit test

Model	CMIN/DF	NFI	RFI	IFI	TLI	CFI	GFI	AGFI	RMSEA
Unconstrained	2.473	0.077	0.828	0.791	0.681	0.928	0.828	0.791	0.049
Measurement weights	2.418	0.079	0.828	0.796	0.7	0.929	0.828	0.796	0.048
Structural weights	2.401	0.082	0.828	0.8	0.713	0.928	0.828	0.8	0.048
Measurement residuals	2.356	0.083	0.823	0.805	0.748	0.927	0.823	0.805	0.047

Table 9 – Invariance Test

Model	del-ta-CMIN	del-ta-DF	del-ta-NFI	del-ta-RFI	del-ta-IFI	del-ta-TLI	del-ta-CFI	del-ta-GFI	del-ta-AGFI
Measurement weights	8.849	19	0.002	0	0.005	0.019	0.001	0	0.005
Structural weights	26.347	31	0.005	0	0.009	0.032	0	0	0.009
Measurement residuals	86.776	70	0.006	-0.005	0.014	0.067	-0.001	-0.005	0.014

In this study, compared to the unconstrained model, the chi-square value of the measurement weighted model increased by 8.849. However, its p-value is 0.976, exceeding the significance level of 0.05. Hence, these results suggest that the measurement weighted model successfully underwent the invariance test. Analogously, it can be inferred that both the structural variance model and the measurement error model also passed this invariance assessment, signifying that the alterations observed in relation to the mechanical model are not statistically significant.

5. DISCUSSION

5.1 Discussion of the results of hypothesis testing

The analysis results and hypothesis testing results are shown in *Table 10*. In the process of testing the path hypothesis relationship, it was observed that ATT had a significant positive impact on WCB (β=0.961, $p<0.001$), thus supporting the hypothesis H1; SN also had a significant positive impact on WCB (β=0.067, $p<0.001$), thus supporting the hypothesis H2. PBC similarly had a significant positive impact on WCB (β=0.004, $p<0.001$), thus supporting the hypothesis H3; PU had a significant positive impact on WCB (β=0.206, $p<0.001$), thus supporting the hypothesis H4. SAT also had a significant positive impact on WCB (β=0.011, $p<0.001$), thus supporting the hypothesis H5. Additionally, PEU had a significant positive impact on ATT (β=0.272, $p<0.001$), thus supporting the hypothesis H6; PU also had a significant positive impact on ATT (β=0.308, $p<0.001$), thus supporting the hypothesis H7. Furthermore, PU had a significant positive impact on SAT (β=0.246, $p<0.001$), thus supporting the hypothesis H8; CON had a significant positive impact on SAT (β=0.267, $p<0.001$), thus supporting the hypothesis H9. However, the impact of CON on PU was not significant (β=0.266, $p<0.01$), therefore not supporting the hypothesis H10. Similarly, the impact of PEU on PU was also not significant (β=0.677, $p>0.05$), therefore not supporting the hypothesis H11. EV had a significant positive impact on PU (β=0.447, $p<0.05$), thus supporting the hypothesis H12. Finally, EV also had a significant positive impact on PEU (β=0.986, $p<0.001$), thus supporting the hypothesis H13.

Table 10 – SEM path relationship test results

Assuming	Path relationship	Estimate	S.E.	C.R.	P	Conclusion
H1	WCB←ATT	0.961	0.224	4.117	***	Support
H2	WCB←SN	0.067	0.057	1.053	***	Support
H3	WCB←PBC	0.004	0.237	0.019	***	Support
H4	WCB←PU	0.260	0.363	2.022	***	Support
H5	WCB←SAT	0.011	0.124	0.094	***	Support
H6	ATT←PEU	0.272	0.24	5.5	***	Support
H7	ATT←PU	0.308	0.249	1.33	***	Support
H8	SAT←PU	0.246	0.018	1.449	***	Support
H9	SAT←CON	0.267	0.06	2.155	***	Support
H10	PU←CON	0.266	0.164	1.595	0.205	Unsupported
H11	PU←PEU	0.677	0.42	3.85	0.193	Unsupported
H12	PU←EV	0.447	0.048	8.300	**	Support
H13	PEU←EV	0.986	0.041	24.489	***	Support

*Key: *P<0.05, **P<0.01, ***P<0.001.*

5.2 Discussion of the results of multiple group analysis

After verifying the measurement invariance of the model, the model was executed to ascertain inter-group disparities in the pathways. The findings are presented in *Table 11*. In the gender-based multiple group analysis, notable contrasts exist in the associations between travel attitude and intention to continue utilising (β>0, P<0.001), travel satisfaction and intention to continue utilising (β>0, P<0.001), subjective norm and intention to continue utilising (β>0, P<0.001), as well as external variables and perceived usefulness (β>0, P<0.001). No significant variations are observed in other pathways.

Table 11 – Multigroup analysis results

Path relationship			Male				Female			
			Estimate	S.E.	C.R.	P	Estimate	S.E.	C.R.	P
PEU	←	EV	0.996	0.055	18.042	***	1.031	0.054	18.967	***
PU	←	EV	0.273	0.357	0.765	0.444	1.177	0.475	2.48	0.013
PU	←	CON	0.15	0.195	0.769	0.442	0.395	0.256	1.541	0.123
PU	←	PEU	1.102	0.174	6.324	***	0.127	0.372	0.342	0.732
SAT	←	CON	0.202	0.097	2.092	0.036	0.144	0.101	1.429	0.153
SAT	←	PU	-0.055	0.039	-1.422	0.155	-0.048	0.042	-1.141	0.254
ATT	←	PU	8.067	10.873	0.742	0.458	0.457	0.262	1.743	0.081
ATT	←	PEU	8.891	10.692	0.832	0.406	0.621	0.234	2.652	0.008
WCB	←	ATT	2.093	1.111	1.884	***	0.95	0.357	2.664	***
WCB	←	SAT	1.882	1.741	1.081	***	1.98	1.901	1.042	***
WCB	←	PBC	0.839	1.116	0.752	**	0.267	0.457	0.584	0.559
WCB	←	SN	0.027	0.141	0.192	***	0.091	0.096	0.943	***

*Key: *P<0.05, **P<0.01, ***P<0.001.*

Specifically, within the female passenger group, the path coefficient of travel satisfaction on intention to continue utilising (β=1.980) surpasses the path coefficient of travel satisfaction on intention to continue utilising within the male group (β=1.882), elucidating that the impact of travel satisfaction on intention to continue utilising is more robust among female passengers compared to male passengers. Conversely, within the male passenger group, the path coefficient of travel attitude on intention to continue utilising (β=2.093) exceeds the path coefficient of perceived usefulness on intention to continue utilising within the female passenger group (β=0.950), indicating that the influence of travel attitude on intention to continue utilising

is stronger amongst male passengers than female passengers. The effect of perceived behavioural control on intention to continue utilising is statistically insignificant for female passengers (P>0.05). However, in the male passenger group, perceived behavioural control positively affects users' intention to continue utilising (P<0.01). Perception of usability has no significant impact on the perceived usefulness of female passengers (P>0.05). However, in the male passenger group, perception of usability has a positive and significant impact on perceived usefulness.

6. CONCLUSION

This article presents a novel approach by integrating the traditional theory of planned behaviour, the technology acceptance model and the expectation confirmation model. The integration of these three models results in the development of a new theoretical framework. This framework aims to understand the factors influencing individuals' intentions to continue using public transportation, particularly focusing on regular bus travel behaviour. The study considers both the behavioural aspects and psychological factors that may arise when residents adopt public transportation. Using Luoyang City as a case study, questionnaire data are collected to analyse the path relationships and test hypotheses. The study aims to explore the influencing factors and mechanisms behind regular bus passengers' intentions to continue using public transportation. Additionally, gender-based group analysis is conducted to examine potential differences in influencing continuous behaviour intention between male and female passengers. The research also investigates if the hypothesis model is applicable to different groups simultaneously.

The findings indicate that, with the exception of expectation confirmation and perceived ease of use, all other variables exhibit a positive and statistically significant influence on perceived usefulness. Moreover, when considering gender-based differences, travel satisfaction exerts a stronger impact on the intention to continue using public transportation among female passengers compared to male passengers. Conversely, perceived behavioural control does not significantly affect the intention of female passengers to continue using public transportation, but it does have a positive and significant effect on the intention of male passengers. Additionally, the influence of travel attitude on the intention to continue using public transportation is more pronounced among male passengers than female passengers. Furthermore, while perceived ease of use does not significantly impact perceived usefulness for female passengers, it does have a positive and significant effect on male passengers.

The present study aims at addressing the limitations of traditional behaviour and psychology models, which are confined to solving individual problems under specific circumstances and lack generalisability. To this end, we propose a novel model that integrates the theoretical frameworks of these existing models, amalgamating their respective strengths. Empirical results derived from our application of this new model validate its feasibility. Additionally, our analysis, based on field surveys, not only captures the essence of real-world contexts but also demonstrates the enhanced generalisability of this new model, which effectively leverages the advantages of the three aforementioned models. The research findings offer valuable theoretical support for implementing public transportation priority policies and provide invaluable insights for sustaining public transportation passenger flow.

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居民常规公交出行持续行为意愿研究

摘要：

在交通新形势影响下，常规公交流失大量的客流，对乘客持续行为意愿的研究成为破局的关键。本文设计调查问卷收集数据，结合计划行为理论、技术接受模型及期望确认理论等构建新的模型来探究影响居民常规公交出行持续行为意愿的关键因素，并在此基础上进行基于性别的多群组分析，研究性别差异对持续性为意愿的影响机理，同时检验模型的普遍适用性。结果表明：出行态度、主观规范、知觉行为控制、感知有用性、出行满意度均对持续行为意愿有正向显著影响；感知有用性和期望确认程度通过出行满意度间接对持续使用意愿有正向显著影响；期望确认程度与感知易用性对感知有用性影响不显著。多群组分析发现相对性别而言出行满意度对女性持续使用意愿影响更强烈，而出行态度对男性持续使用意愿影响强烈；同时，知觉行为控制对女性持续使用意愿影响不显著，但对男性持续行为意愿有正向显著影响；感知易用性对女性感知有用性影响不显著，但对男性感知有用性有正向显著影响。研究结论对发展绿色出行有重要意义。

关键词：

城市交通；持续行为意愿；计划行为理论；常规公交出行；多群组分析