Modeling of The Determinants of The Image of The Destination As A Subsystem of The Peri-Urban Mobility Policies, The Transport of Zero Emissions of Carbon Dioxide To The Atmosphere And The *Habitus* of Transfer

Francisco Rubén Sandoval-Vázquez[1], José Marcos Bustos-Aguayo[2], Margarita Juárez-Nájera[3], Alfredo Barrera-Escobar[4] , María Luisa Quintero-Soto[5] and Cruz García-Lirios[6]

Abstract

The objective of the present work was to establish an exploratory factorial structure of the peri-urban mobility habitus. A non-experimental study was carried out with a non-probabilistic selection of 345 users of the metro public transportation system of Mexico City. The results show that the motivation of the trip is the determinant of the image of the destination, agreeing with the most recent findings, but complementary to the studies carried out around the habitus of peri-urban mobility.

Introduction

The objective of this paper is to establish the exploratory factorial structure of peri-urban mobility, understood as an observable *habitus* in 1) aesthesis (aesthetic dispositions), 2) hexis (expressive positions), 3) ethos (ethical dispositions), and 4) eidós (logical provisions)[1].

The *habitus* of mobility has been understood as four dispositions related to the logic of transfer, the aesthetics of displacement, the ethics around security and everyday expressiveness[2]. It is a process that is inherited in the interrelation between users, passers-by, bystanders, operators or spectators with respect to the quality of the public transport service, concessioned or private, as well as the image of the departure and arrival points of the transport units[3].

The ethical dispositions (ethos) refer to a series of learnings of the values and principles that guide a journey and the intentions of transfer in function of the image of a public destiny[4].

The logical dispositions (eidós) refer to abilities of appreciation of the environment, discursive positioning and appropriation of spaces with a purpose of cost and benefit[4].

The aesthetic dispositions suggest the inclusion of images and discourses related to a transfer, the transport units, the interrelation with the other actors involved in the process of intentional displacement[5].

The expressive dispositions (hexis) connote a series of subjective manifestations shared appreciations around the meaning of a transport and the places of destination, as well as the meanings around the purposes of transfer[6].

In this way, peri-urban mobility has been analyzed from the meanings and the appropriation of means of transport as symbolic scenarios of safety, comfort, leisure, recreation or coexistence[7].

However, the structure of factors that involves a multidimensional process such as the peri-urban mobility *habitus* suggests at least the exploration of the relationships between indicators such as; tastes, preferences, expectations, needs, perceptions, appreciations, appropriations, uses and customs around the system of collective transport and public destinations[8].

Establishment of mobility zero carbon dioxide emissions into the atmosphere

The Intergovernmental Panel against Climate Change, established in 2006 the estimation of mobility from the variables of transfer time, transport and length of displacement.

It is possible to appreciate that the variables of average transfer time and speed allude to the mobility competencies of transporters and users, as well as to the logistics of the infrastructure and the transport system[9].

In this way, the calculation of emissions of carbon dioxide into the atmosphere has been proposed as a management tool that, in the case of the Organization for Economic Cooperation and Development (OECD), in its report for 2015, there is a gap between its member countries and the other regions.

[1] UAEM, Cuernavaca (México)

[2] UNAM, Zaragoza (México)

[3] UAM, Azcapotzalco (México)

[4] UAEMEX, Izcalli (México)

[5] AMEIDT, Nezahualcóyotl (México)

[6] CEPS, Huehuetoca (México)

Therefore, at the local level, municipalities and communities are exposed to the increase in carbon dioxide emissions and their effects on environmental public health, such as the prospective 2040 scenario in which the mobility of freight transport Feeding service economies will intensify and will be the main challenge for climate change policies and zero emissions programs.

This is how the study of peri-urban mobility is central to the administration of public, environmental and food security in a city and the communities around it [10].

Theory of periruban mobility

A theoretical approach to the problem highlights the variables that include three matrices related to *habitus,* human capital and decision making regarding the use of public transport.

It is possible to notice that the study of peri-urban mobility is centered on the use of the means of transport which depends on the decision-making and this socio-cultural and socio-cognitive variables that would explain the prevalence of one type of transport over others, overcrowding and conflicts between operators and users at the time of transfer, but studies of peri-urban mobility highlight four main factors.

In this way, the *habitus* of peri-urban mobility is the result of the relationships between the four factors provided that the collective transport system facilitates the interrelation towards a public, historical and significant center for the actors involved [11].

This is so because the system of collective transport is not only a scenario of symbols and meanings around public centers. In addition, it is a scenario of interrelation between different actors that are not limited to security or quality of service [12].

However, the quality of the collective transport service is also the result of its efficiency, effectiveness and effectiveness [13]. Therefore, it is necessary to observe the factors that allow us to anticipate a conflict-free scenario [14]. Or, at least a safe public service that translates into user confidence in the system and its administration [15].

Method

Are there significant differences between the theoretical dimensions of the perception of mobility with respect to the specification of the relationships between those dimensions reported in the state of the question?

Null hypothesis: There will be significant differences between the theoretical dimensions with respect to the specification of their relationships

Alternative hypothesis: There will be no significant differences between dimensions and relationships.

A non - experimental study was conducted with a probabilistic selection of 345 users who move from suburbs to urban centrality in the public transport system; Metro, Trole, Metrobús and Bus of the CDMX Table 1 .

Source: Prepared with the study data

The Self-Report of Peri-urban Mobility (AMP-28) was constructed from the Destination Image Differential of [16] and the Olague Travel Motivation Scale (2015).

The Self-Report of Peri-urban Mobility included two dimensions for the image of the destination (emotional and cognitive aspects) and two dimensions for the motivation of travel (aspects of impulse and attraction)

The average speed and the transfer time were registered in a self-report of the user, comparing with the reports of the transfer systems, as well as the traffic regulations regarding the speed limit of Mexico City.

The surveys were carried out in the computer posts of the public transport system facilities. The confidentiality and anonymity of the respondents was guaranteed in writing, as well as the fact that the results of the study did not affect their economic status.

The information was processed in the Statistical Package for Social Sciences (IBM-SPSS-AMOS by its acronym in English version 25.0).

Crombach's alpha was estimated for the internal consistency of the Travel Motivation Scale (alpha of, 880) and Sperman Brown (, 618) for the Destination Image Differential [17].

The adequacy was established with the KMO statistic (, 742) and the sphericity with the Bartlett test $X2 = 213.2$ (34gl) p =, 000 [18].

The validity was established with an exploratory factorial analysis of principal axes with promax rotation. The correlations between the factors with Pearson r, as well as the covariances to observe the relationships between the factors [4].

Contrasting the model with adjustment parameters; GFI, CFI and residual; RMSEA [4].

Results

Table 2 shows the statistical descriptions of the instrument that measured the motivation factors of the trip and image of the destination, indicating a consistency higher than the required of, 700 (respective alphas of, 750 and, 780)

R = Reactive, M = Medium, D = Deviation, S = Sweedness, K = Kurtosis, A = Crombach's alpha by removing the value of the item. Adequacy (KMO =, 782), Sphericity $X^2 = 346.34$ (56gl) p =, 000. Method: Main axes, rotation: Promax. F1 = Motivation of the Trip (25% of the total variance explained), F2 = Image of the destination (22% of the total variance explained). All items are answered with any of five options ranging from 0 = "not likely" to 5 = "quite likely".

Source: self made

The motivation of the trip determined the image of the destination (, 70) and had low covariances with sex (-, 09), age (-, 18), schooling (-, 04) and income (, 02).

The adjustment and residual parameters $X2 = 214.6$ (45gl) p =, 007; GFI =, 995; CFI =, 997; RMSEA =, 007 suggest the non-rejection of the null hypothesis relative to the adjustment of the theoretical relations between the variables with respect to the empirical observations.

Discussion

The contribution of the present work to the state of the matter lies in the establishment of an exploratory factorial structure of the relationships between the factors that the literature

Table 1. Sample descriptive

	Age	Scholarship	Entry	Civil status
Female	M = 24.3	Postgraduate 5%; Bachelor 15%;	M = 3451.2 SD	Single 56%; Marriage 23%;
	SD = 1.2	Baccalaureate 24%, Secondary 46%	= 243.1	Another 21%
Male	M = 26.1	Postgraduate 8%; Bachelor 20%;	M = 4233.1 SD	Single 67%; Marriage 17%;
	SD = 1.5	Baccalaureate 31%; Secondary 41%	= 126.3	Another 16%

Table 2. Instrument descriptions

R	M	D		K	A	F1	F2
R1	4.3	92	1.0	1.9	, 72		,3. 4
R2	4.5	, 97	1,2	1,8	, 74		, 36
R3	4.0	, 89	1.1	1,8	71		, 37
R4	4.1	, 80	1.1	1.6	, 73		, 30
R5	4.2	, 94	1.1	1,8	, 74		, 38
R6	4.5	, 96	1.1	1.9	76		, 39
R7	4.2	, 93	1.1	1.6	, 78	, 36	
R8	4.3	91	1,5	1.7	, 79	,45	
R9	4.5	, 93	1,5	1.7	70	,35	
R10	4.6	92	1,5	1,8	.71	,36	
R11	3.7	, 99	1.1	1.9	, 72	,47	
R12	4.3	90	1.1	1,8	, 73	46	
R13	4.1	, 93	1,2	1.6	, 74	,45	
R14	4.4	, 95	1.4	1.7	, 75	,43	

identifies as the determinants of the quality of the system, but the type of non-experimental study, the type of sampling non-probabilistic and the type of statistical analysis limit the results to the research scenario, suggesting the contrast of the model in other collective transport systems such as metrobus or mexibus.

[19 20–25] established as determinants of satisfaction the motivation of the trip and the image of the destination in tourist centers which had high correlations with the socioeconomic variable of income, the sociocultural variable of schooling and the sociodemographic variable of age, but in the present work the sociocultural, sociodemographic and socioeconomic variables had low correlations both with the motivation of the trip and with the image of the destination, suggesting the inclusion of other sociocognitive factors, even when the PIGCC warns that the time displacement and average speed are essential in the calculation of CO_2 emissions

Conclusion

The present work opens the discussion about the relationships between the factors suggested by the PIGCC and those established in a review of the updated and specialized literature in which the travel time and the average speed when linked to the motivation of the trip determined spuriously to the image of destiny.

It is necessary to explore the inclusion of other sociocognitive factors such as *habitus* and satisfaction that are part of a deliberate, planned and systematic process in the use of zero-emission transport such as the metro, Metrobus, trolley, tram or bicycle.

References

1. García C. The beliefs, conflicts and conjunctures that have been impeding representativeness and sustainable governance in Mexico. Gazette of. Anthropology. 2008;24(2):1–12.
2. García C. The structuring of sustainability. Delos. 2011;5(10):1–12.
3. García C, Carreón J, Bustos J, Hernández J. Socio-psychological systems of sustainable governance. Sustainability. 2013;9:1–31.
4. Carreón J, Hernández J, García C. Perceptual differences before the risk to the agglomerations in public transport and concession. Delos. 2014;7(21):1–17.
5. Hernandez J, Carreon J, Morales M, Aguilar J, Garcia C. Sociopolitical omplejidad public transport. Implications for sustainable local development. Reason & Word. 2014;86:1–27.
6. Limón GR, B B, J J, M, García C. Governance of climate change: Specification of a model of attitudes towards the governments of climate change. Political Science. 2017;30:1–31.
7. Llamas B, Bustos J, García C. Specification of a model for the study of the mobility habitus. Academic Research Without Borders. 2018;27:1–25.
8. Martinez E, Martínez M, C G. Governance of perception and intention to vote in favor of bike ways. International Journal of Environment Agriculture, and Biotechnology. 2018;3(3):1–9.
9. García C, Juárez M, Bustos J. Specification of a model for the study of local governance. Synchrony. 2018;22(73):459–472.
10. Amemiya M, Valdés O, Espinoza F, García C. Specification of a model for the study of sustainable local development. Eureka. 2018;15(1):136–157.
11. Quintero M, Rivera B, Garcia C, Sandoval FF, O, Molina H. Model of awareness for sustainability. vol. 6; 2018.
12. Rivera B, García C, García E, Rosas F, Limón G, Carreón J, et al. Contrast of a model of political distrust. Psycho.

2015;7(1):1–9.

13. Rivera B, Limón G, Sandoval F, García C. Model of perception of risks, benefits and intention to vote in favor of bicycle lanes. Political Science. 2018;33:1–25.

14. Observational ethnography of rational horizons in a magical locality in central Mexico. Political Science. 2017;31(5):1–14.

15. Villegas E, Rosas F, García C. Social Works a quality of life and well-being subjective. International Journal of Research in Humanities and Social Studies. 2018;5(6):35–48.

16. Olague J. The image of the destination and the motivation of the trip as determinants of the satisfaction and loyalty of urban leisure tourism in Monterrey, Mexico. Autonomous University of Nuevo León; 2015.

17. Carreón J, Hernández J, Morales M, García C. Sociopolitical complexity of public transport. Tlatemoani. 2014;15(1):1–22.

18. García C. Sustainable thinking Synchrony; 2007.

19. Virkar A, Mallya P. A review of dimensions of tourism transport affecting tourism satisfaction. Indian Journal of Commerce & Management Studies. 2018;9(1):72–80.

20. García C. Theory of sustainable behavior for local development. Clivajes. 2018;5(9):75–94.

21. García C, Carreón J, Hernández J, Rivera BA, J, Rosas F. Perceptual differences before the risk to the agglomerations in the public transport and conesionado. Iberoforum. 2015;10:112–131.

22. García C, Carreón J, Hernández J, Salinas R, Aguilar J. Governance of institutionalized entrepreneurship in the face of climate change based on the establishment of a public agenda. Without Frontier. 2015;8(20):1–15.

23. Organization for Economic Cooperation and Development (2015). Report of the member countries. New York: OECD;.

24. Intergovernmental Panel on Climate Change (2006) Report on the status of the issue. New York: UN;.

25. Rosas F, Goméz D, C G. Specification of a model for the study of mobility perception. Eureka. 2018;15:1–11.