

Effects of Socialization on Activity-Travel Behavior in Developing Countries: A Case Study of University Students in Metro Manila, the Philippines

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Abstract: The role of socialization has begun to attract attention in transportation planning. In this study, we investigated the effects of socialization on travel in the context of a developing country. We focused on university students' activity-travel behavior as influenced by the level and form of their socializing practices. We hypothesized that socialization would greatly affect the number of side-trips students took while returning home after class. Data were collected at pre-selected universities in Metro Manila. Path analysis results suggested that certain types of socialization had significant effects on the frequency of participants' side-trip as they were returning home. Furthermore, social network size had a significant effect on patterns of after-class activity travel. Overall, the results suggest that socialization provides sound motivation for trip generation and should be considered in transportation planning processes in developing countries.

Keywords: *social network, socialization, travel behavior, path analysis*

1. INTRODUCTION

The emergence of modern lifestyles has included dramatic changes in areas of work, leisure, and travel. According to Urry (2007, p. 24), the German sociologist Georg Simmel argued that people travel to social destinations (social activity-travel) for two reasons: (1) they are attracted to others for ulterior reasons and (2) they enjoy engaging in "free-playing sociability," namely forms of social interactions that are free from content, substance, and ulterior end. Such social interactions within certain social structures can produce obligations and expectations of reciprocity (Hibbitt et al., 2001), which will eventually allow individuals to exchange information and influence one another's behavior (Avineri, 2006). As interactions with acquaintances intensify (Brueckner, 2005), individuals may not behave as independent entities in society (Blumer, 1969).

Generally, in social life, the apparent need or obligation to travel emanates from the attractions and pleasures of socialization that are necessary for participation in social life. Tannenbaum and McLeod (1967) noted that the concept of socialization has been expanded from the socialization of children into their cultural environment to include "adult socialization" and a wider variety of phenomena (e.g., assimilation into various formal and less formal social roles).

Here, we use the term “socialization” to refer to the various forms of interaction or communication that university students typically perform with other social contacts, particularly through the use of information communication technology (ICT).

Although initial explorations of the effects of certain social factors on travel behavior have been conducted in some developed countries, this research agenda is relatively new. In a study in Switzerland, Axhausen (2003) hypothesized that travel behavior is mainly shaped by an individual’s social networks, made up of family, friends, and work associates. A social network is defined as a set of actors and the ties among them (Wasserman, 1994). People travel due to commitments to their families, friends, and work. Recent studies by Carrasco and colleagues (Carrasco et al., 2006; Carrasco and Miller, 2006) have examined social activity-travel within entangled social networks in Canada. Those studies analyzed the relationships among ICT, social networks, and activity-travel behavior, with particular focus on two concepts from sociology: social accessibility and agency. These concepts were found to be relevant to travel behavior.

By studying the relationships between social factors and travel behavior, we can investigate the social processes that initiate and harmonize with the functions of transport systems. For instance, patterns of visiting friends or other forms of movement (e.g., university or work patterns) might depend on the available transportation infrastructure (e.g., public roads and railway systems). Thus, social processes might orchestrate and blend with available transport systems. Traditional approaches to transport study have primarily examined economic motives (e.g., reducing travel cost or time) and psychological factors that depend mainly on personal motives. However, few studies have related social factors to travel behavior, and those studies have examined in the developed countries such as Switzerland and Canada. The present paper is pioneering in that it investigates social factors related to activity-travel behavior in a developing country.

The purpose of this study was to investigate the activity-travel behavior of university students as related to their patterns of socialization. This paper focuses on young cohorts in Metro Manila, the Philippines, for several reasons. First, Filipinos have been characterized as culturally sociable and as frequently keeping in touch with family and friends (Salazar, 2007). If people are sociable, we can suppose that the degree of socialization is high and can be examined for its relationship to activity-travel behavior. Second, as mentioned above, most prior studies relating travel behavior to socialization were based on experiences in developed countries (Axhausen, 2003; Carrasco et al., 2006; Carrasco and Miller, 2006). Third, according to Hyodo et al. (2005), young cohorts in Metro Manila travel more often than older cohorts, and thus provide a good opportunity for examining whether socialization influences their trip generation. We hypothesized that socialization might significantly affect young people’s travel behavior.

We use the frequency of socialization later in this paper to analyze social activity-travel patterns versus overall trip frequency as students returned home after class. Generally, the only time that students could freely engage in socialization involving travel was after classes had ended for the day. Hence, the number of side-trips while returning home was used as the dependent variable, and was defined as the total number of side-trips taken between school and home. For example, after leaving school, a student might visit the sports club, go shopping, and then finally arrive home. Because trips to school generally followed a regular schedule, we did not consider those trips in this analysis.

To collect data on social activity-travel behavior and to examine social networks by travel behavior analysis, we followed the methodology proposed by Carrasco et al. (2006). Their method is based on an “egocentric approach,” whereby personal data are collected from individuals. The egocentric approach can reveal detailed characteristics of each respondent’s social network. For instance, respondents may reveal whom they consider to be their close friends and with whom they socialize more often. In other words, each respondent discloses his or her own social network. To untangle the composition of a social network, an “ego” and his or her “alters” should be defined. The respondent is the “ego” and has a network of friends, termed “alters.” In this paper, we use the terms ego/respondent and friends/alters interchangeably and apply the egocentric approach.

The remainder of this paper is structured as follows. Section 2 discusses the study framework and general hypothesis. Section 3 describes the survey design, research method, and some descriptive statistical results of the survey. Section 4 discusses the findings of the empirical model. Finally, Section 5 presents the conclusion and recommendations.

2. GENERAL HYPOTHESIS

A number of elements may lead to trip generation, including geographic, economic, psychological, and demographic characteristics; physical attributes; and attitudes regarding travel. We hypothesized that opportunities for socialization might be a factor that considerably affects the travel behavior of young cohorts in low-income regions like Metro Manila. On the basis of a review of current literature, we developed the conceptual model of socialization and travel frequency shown in Figure 1. Socialization may encompass an array of forms including physical interaction (face-to-face interaction), virtual interaction (e.g., cell phone call, text message), and a series of social contact extensions (social network). Trips also have various purposes and can be made for leisure, to return home, for shopping, or for work. As Carrasco et al. (2006) suggested, apart from physical attributes, social network attributes and frequency of interaction are propensity factors that help link a set of different potential causes for the

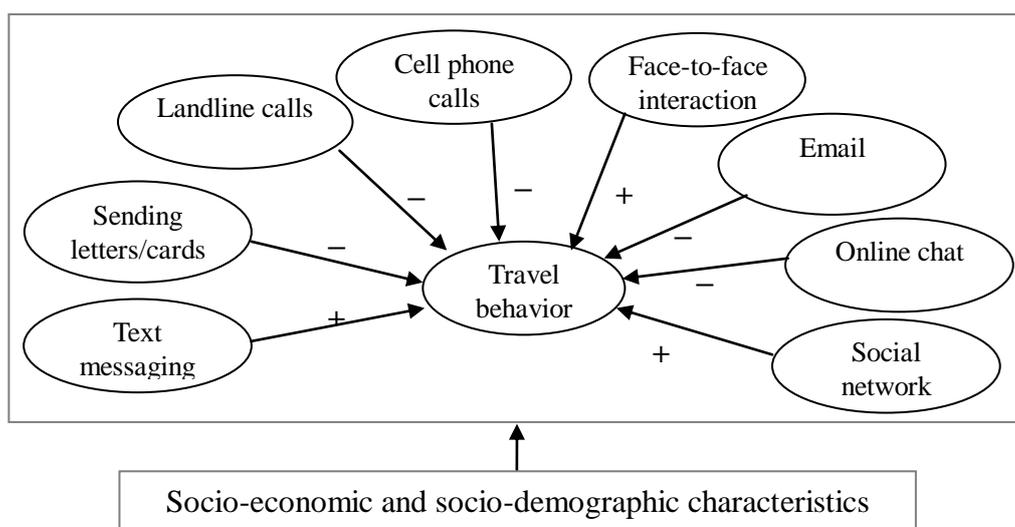


Figure 1 Proposed exploratory factors influencing after-class side-trips on the way home by university students

generation of social activities.

We hypothesized that the number of face-to-face interactions might positively affect social activity-travel. For instance, repeated face-to-face interactions should eventually lead to travel to another location for co-present meetings with family members or friends. As Urry (2003) noted, the sense of normal co-presence of family members requires intermittent travel so that family members can keep in touch. We assumed here that email and online chatting are often used to communicate with distant connections or a sparsely distributed social network and could substitute for long-distance travel; hence, these communication technologies would reduce travel. Sending letters or cards might also reduce travel. However, the rise of electronic information technology has decreased the popularity of letters and cards among young people. Cell phones are now ubiquitous in Metro Manila, although calls are more expensive and thus rarer than text messages. We assumed that cell phone use would result in diminished travel. The same effect on travel was assumed for landline calls. Most Filipino families rely more heavily on cell phones than on landline phones. Landline phones are more inflexible to use, are limited to one-to-one talk, and often do not produce an archived entry (Larsen et al., 2005), making them a less appealing tool among university students for organizing activities. At the same time, the existence of a social network was expected to increase travel. Logically, a larger network should mean greater chances to travel. This presumption is supported by the suggestion of Carrasco et al. (2006) that an individual's communication and social activity patterns emerge and can be partially inferred from his or her social networks.

We constructed our hypothesis on the relationship between socialization and travel based on Urry's (2003) suggestion that transport is mostly a means to certain socially patterned activities. Apart from opportunities for socialization, socio-economic and socio-demographics might also have significant causal effects on travel. Section 4 describes the model specifications in greater detail.

3. SURVEY METHOD

We collected survey data in the Philippines, focusing mainly on university students in Metro Manila. The survey was randomly conducted from 19 to 21 March 2007 during daytime in a university setting; this setting was chosen to make it easy for the respondents to answer the questionnaire as university students. Only students present during the day of the survey were given the questionnaire; survey sheets were not taken home to be completed at another time.

3.1 The Sample

The survey objective was to gain information on the travel activity patterns of students from state and private universities in Metro Manila. We pre-selected four universities for the pilot survey: two state universities, the University of the Philippines (UP) and Polytechnic University of the Philippines (PUP); and two private universities, De La Salle University (DLSU) and Far Eastern University–East Asia College (FEU-EAC). All of the universities were located within Metro Manila. In total, we distributed and collected 304 surveys. The surveys of 7 respondents who did not own or did not use cell phones were excluded from the analysis, decreasing the total sample number to 297. The sample total was further trimmed to 287 samples after thorough rechecking of the completed surveys.

Table 1 lists and summarizes descriptive statistics for the respondents. The average age of the respondents was nearly 20 years old, placing them in the age group of 15–24 year olds; this age group makes up approximately 21% (2,061,407) of Metro Manila’s total population of 9,932,560 (National Statistics Office of the Philippines, 2000). The survey sample included more males (71.1%) than females (28.9%). Similar number of surveys were obtained at each of the four targeted universities: 29% (83 surveys) from DLSU-Manila, 22% (63) from FEU-EAC, 24% (70) from PUP-Manila, and 25% (71) from UP-Diliman. The distribution of samples with respect to the type of university (i.e., state or private) was also fairly equal: 49% (141) from state universities and 51% (146) from private universities. The mean number of friends in a social network for a single respondent was approximately 24 people; this included all categories of friends (i.e., friends for important matters, friends for socializing, friends for advice, and friends for small matters).

3.2. The Questionnaire

3.2.1 The main body of the questionnaire

The first part of the questionnaire was composed of five sections. The first section inquired about socio-demographic information, including type of residence, daily allowance, and family size. The second section obtained information on mobile phone. Questions included whether the respondents owned a cell phone, how many cell phones they owned, how many of their friends had cell phones, and whether respondents and their friends used the same cell phone network. The use of similar mobile phone networks may impact the frequency of texting because most mobile phone companies offer pricing promotions for certain quantities of text messaging. The third section canvassed respondents on their perceptions of travel, communication, and friends. For instance, one question asked whether respondents felt that communication (using a mobile phone) encouraged them to travel. Another question asked respondents if they felt that communication (using a mobile phone) encouraged them to make or widen their set of friends. The fourth section was divided into two parts. The first part was designed to reveal the frequencies of typical social interactions, such as text messaging, cell phone calls, landline calls, online chatting, sending email, sending letters, acquaintances, and

Table 1 Descriptive statistics of the respondents (N = 287)

Age	M =19.96, SD =1.328
Gender	
Male	204 (71.1%)
Female	83 (28.9%)
University	
DLSU-Manila	83 (28.9%)
FEU-EAC	63 (22.0%)
PUP-Manila	70 (24.4%)
UP-Diliman	71 (24.7%)
Type of university	
State university	141 (49.1%)
Private university	146 (50.9%)
Type of residence	
Parents’ house	152 (53.15)
Not parents’ house (e.g., dormitory)	134 (46.85)
Social network composition	M = 23.45, SD = 13.03

M: mean, SD: standard deviation

face-to-face interactions were considered. The frequency of text messages was determined by asking respondents how many text messages they sent daily, how many people they usually sent text messages to per day, and to whom they usually sent text messages. Frequencies of other forms of socializing were determined in the same way as for text messages. The second part of the fourth section focused on the frequency of social activities of the ego and his or her alters. For instance, survey questions asked about the frequency of shopping, dining, or attending meetings with friends; how many persons participated in each activity; for whom the activity was conducted; and with whom each type of activity was conducted. Objectives of this section were supposed to interpret alters by name and to reveal ego-alter interactions and activities. Finally, the fifth section asked about daily travel behavior on weekdays and weekends and for school and leisure trips. Questions included the number of trips to the university, number of side-trips taken while returning home, travel time to the university, the mode used to travel to the university, and the fare for travel.

3.2.2 The name generator

The second part of the questionnaire was mainly for name generation, as shown in Figure 2. Name generation is crucial task for eliciting the social network of respondents. Name generation requires respondents to recall all of their friends; this process is known as the egocentric approach. Name generation can be used to measure the strength of ties between egos and alters and between alter-alter pairs (Carrasco et al., 2006).

For our survey, we refer to the egocentric process as the name generator, which simply elicited names for members of the respondent's (ego) circle of friends (alters). Friends were classified into four types: (1) friends for important matters, with whom the respondents could discuss important issues or problems; (2) friends for socializing, with whom they could go out for social activities, such as to play sports or go to parties; (3) friends for advice, from whom they could seek advice or counsel for issues such as school matters and job opportunities; and (4) friends for small services, from whom the respondents could borrow small amounts of money, class notes, or equipment. Thirty blank spaces were provided for each type of alter, but respondents were not required to fill all the blank spaces. The respondents were also asked to categorize each alter by age and relationship. Although other characteristics could be added, such as occupation or organizational affiliation, it is reasonable to assume that student respondents would have friends who were students also. Thus we reduced the characterization of alters to age and relationship only.

1. "From time to time people talk about important personal matters with other people, for instance, you have problems at school, with their parents or in other related situations. **Who are the people with whom you discuss personal matters that are important to you?**"
Name only some significant persons.



Name of friends (for important matters)

1. _____			11. _____			21. _____		
2. _____			12. _____			22. _____		
3. _____			13. _____			23. _____		
4. _____			14. _____			24. _____		
5. _____			15. _____			25. _____		
6. _____			16. _____			26. _____		
7. _____			17. _____			27. _____		
8. _____			18. _____			28. _____		
9. _____			19. _____			29. _____		
10. _____			20. _____			30. _____		

3. From time to time people ask other people for advice when a major change happens in your life (for instance selecting a job change or something similar). **Who are the people you usually ask for a advice when such major change happens in you life?**
Please write the names of these people in the space provided.



Name of friends (for advice)

1. _____			11. _____			21. _____		
2. _____			12. _____			22. _____		
3. _____			13. _____			23. _____		
4. _____			14. _____			24. _____		
5. _____			15. _____			25. _____		
6. _____			16. _____			26. _____		
7. _____			17. _____			27. _____		
8. _____			18. _____			28. _____		
9. _____			19. _____			29. _____		
10. _____			20. _____			30. _____		

2. Sometimes you socialize with other people, for example, you visit them, you take vacation together or go to dinner, movies, etc. **Who are those people you usually socialize with?**
Please write the names of these people in the space provided.



Name of friends (for socializing)

1. _____			11. _____			21. _____		
2. _____			12. _____			22. _____		
3. _____			13. _____			23. _____		
4. _____			14. _____			24. _____		
5. _____			15. _____			25. _____		
6. _____			16. _____			26. _____		
7. _____			17. _____			27. _____		
8. _____			18. _____			28. _____		
9. _____			19. _____			29. _____		
10. _____			20. _____			30. _____		

4. From time to time people borrow something from other people, for instance, a small sum of money, or a piece of equipment, or ask for help with small jobs in or around the house. **Who are the people you usually ask for this kind of help?**
Please enter names of these people in below open spaces.



Name of friends (for small services, like mga nagpapauang)

1. _____			11. _____			21. _____		
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<p style="text-align: center;">Age</p> <p>Please write the in the <u>first box</u> provided the <u>number</u> that corresponds to the age range of your friend</p>	<p style="text-align: center;">Relationship</p> <p>Please write the in the <u>second box</u> provided the <u>letter</u> that corresponds with your relation to your friend.</p>
1. 15-20	a. Family member
2. 21-25	b. Relative
3. 26-30	c. Friend
4. 31-35	d. Acquaintance
5. 36-40	e. Colleague/officemates/affiliation mates
6. >40	f. Classmate

Figure 2 Sample of name generator used in the survey

The right side of Figure 3 shows the number of side-trips on the way home, which the model shows to be directly affected by the frequency of text messaging, the number of people with whom an individual interacts face to face, and the size of the social network. These causal relationships are summarized as follows:

- (1) The frequency of text messaging per day (TX) had a direct effect on the number of people with whom participants engaged face to face per day (FTF) and number of social contacts (SOCNET), extracted from the name generator survey.
- (2) The frequency of online chatting per day (CHA) had a significant direct effect on the number of social contacts (SOCNET).
- (3) The number of people with whom participants engaged face to face per day (FTF) had a direct effect on the number of side-trips taken on the way home (TRIHOM).
- (4) The number of social contacts (SOCNET) had a positive effect on the number of side-trips taken on the way home (TRIHOM).
- (5) The number of people with whom participants engaged face to face per day (FTF) and the number of social contacts (SOCNET) mediated the relationships among the number of side-trips taken on the way home (TRIHOM), the frequency of text messaging (TX), and the frequency of online chatting (CHA).

Table 2 gives the means and standard deviations for the selected variables.

Table 2 Descriptive statistics of the variables used for path analysis (N = 287)

Variables (Definitions)	Mean	Standard Deviation
TRIHOM (number of side-trips taken on the way home)	2.71	1.74
SOCNET (number of social contacts, extracted from the name generator survey)	23.5	13.0
TX (frequency of text messaging per day)	55.8	50.1
FTF (number of people with whom participant engaged face to face per day)	63.8	48.2
CHA (frequency of online chatting per day)	16.3	29.4

The socialization and number of side-trips model (Figure 3) is a recursive-path model, which can be expressed in general form by the following structural equation:

$$\mathbf{y} = \boldsymbol{\beta}\mathbf{y} + \boldsymbol{\lambda}\mathbf{x} + \boldsymbol{\zeta}, \tag{1}$$

where

\mathbf{y} = $p \times 1$ vector of observed dependent variables measured without error,

$\boldsymbol{\beta}$ = $m \times m$ matrix of coefficients relating p dependent variables to one another,

\mathbf{x} = $q \times 1$ vector of observed independent variables measured without error,

$\boldsymbol{\lambda}$ = $m \times n$ matrix of coefficients relating q independent variables to p dependent variables,

and

$\boldsymbol{\zeta}$ = $p \times 1$ vector of errors in the equation.

The path model is also presented as

$$\begin{bmatrix} \text{FTF} \\ \text{SOCNET} \\ \text{TRIHOM} \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ \beta_{31} & \beta_{32} & 0 \end{bmatrix} \cdot \begin{bmatrix} \text{FTF} \\ \text{SOCNET} \\ \text{TRIHOM} \end{bmatrix} + \begin{bmatrix} \lambda_{11} & 0 \\ \lambda_{21} & \lambda_{22} \\ \lambda_{31} & 0 \end{bmatrix} \cdot \begin{bmatrix} \text{TX} \\ \text{CHA} \end{bmatrix} + \begin{bmatrix} \zeta_1 \\ \zeta_2 \\ \zeta_3 \end{bmatrix}. \quad (2)$$

Certain types of socializations were suggested to have a direct influence on number of side-trips. The frequency of side-trips on the way home directly related to how much the university students socialized face to face, how often they sent text messages, and the size of their social network. Those who made several side-trips before reaching home were those who had more frequent face-to-face interactions with several people and who sent text messages more often. Sending text messages is expected to have a direct and significant effect on the number of people with whom a respondent interacts face-to-face as well as on the size of the social network. Srinivasan and Raghavender (2006) suggested that cell phone users who reported increased personal (face-to-face) meetings associated with cell phone use had a greater propensity to make unplanned stops during travel. Hence, we assumed that the frequency of text messaging would induce more side-trips. Moreover, increased use of text messaging might lead to changes in the location, timing, and duration of people's activities, and widespread use of this technology will likely be associated with new spatio-temporal patterns of activity and travel (Kwan, 2002; Dijst, 2004). Text messaging can help to nurture established friendships and also to find and experiment with new friendships and amorous relationships through friendship extensions in a social network.

Furthermore, frequent side-trips can be expected when the size of the social network is large. For instance, if a person has several sets of friends, he or she may have more chances to make side-trips than a person with only a few sets of friends. Grasping a social network is a complicated task, but it is important in understanding travel behavior. By using a customized name generator, we were able to collect information on respondents' social networks in a straightforward manner that was also methodologically feasible. As shown in Figure 2, the list of friends are sorted into four categories: friends for important matters, friends for socializing, friends for advice and friends for small matters. The social network variable is defined as the sum of these four categories of friends.

Figure 3 also reveals the role of online chatting as it directly affects social network size. This role may be more effective in a sparsely distributed circle of friends (especially for friends who live in different countries), for whom text messaging is less likely because of high costs and online chatting would allow for interaction at a more reasonable cost. Online chatting could also enhance interactions among large groups and sparsely distributed social contacts. In this model, only the frequency of text messaging has a direct effect on the number of people with whom an individual engages in face-to-face interactions. For university students, a convenient way to arrange a meeting with someone personally may be to communicate with that person first through text messaging, followed by the actual meeting in person as a form of positive response.

4.2 Results and discussion

Path analysis was performed to estimate how university students' patterns of socialization affect their activity-travel behavior. Figure 3 presents the path analysis that gave the best-fit model.

The goodness-of-fit index (GFI) for the suggested model was 0.933, which is greater than appropriate minimum value of 0.90 suggested by Bollen (1989). The GFI adjusted for degrees of freedom (AGFI) was 0.833, which is also higher than the suggested tolerable AGFI value of 0.80 (Cole, 1987). Hence, both the GFI and AGFI results suggest good fit of the data to the model. Figure 3 also provides supplementary goodness-of-fit indices, together with the comparative fit index (CFI), the normed fit index (NFI), and the non-normed fit index (NNFI). CFI was 0.934, NFI was 0.928, and NNFI was 0.891. The NFI and CFI values exceed the 0.90 cutoff (Loehlin, 1998, p. 71), whereas the NNFI value is close to the 0.90 cutoff, indicating a fit very close to the acceptable level between the model and the data.

Figure 3 also presents the standardized coefficients and their t-values. In addition to text messaging, which showed a strong and significant direct effect on the number of side-trips while returning home ($p < 0.01$), chatting online also had a somewhat significant effect on the number of social contacts. Some types of socialization had a positive and significant effect on the number of side-trips taken on the way home. The frequency of text messaging had a direct and significant positive effect on the number of people with whom participants interacted face to face per day, as well as on the number of social contacts. This suggests that frequent interaction through text messaging may lead to more face-to-face encounters and would enhance the set of social contacts.

In addition, the number of people with whom participants interacted face to face and the number of social contacts both had direct and significant positive effects on the number of side-trips taken while returning home. This result implies that such travel facilitates face-to-face interactions with a large number of social contacts. The composition of a social network also affects by socializing activities such as text messaging and online chatting. For example, a person sending text messages to a large social network may be more likely to send more text messages per day. Sending larger numbers of text messages, in turn, may lead to a greater likelihood of face-to-face interaction, social networks would likely expand and more social trips would be generated. The influence of text-messaging frequency on number of side-trips while returning home can also be seen through its effect on the number of people with whom one interacts face to face and the number of social contacts. These results indicate that text messaging is an important functional form of socializing for university students in Metro Manila and facilitates the generation of physical trips.

In the past, socialization and its importance for transportation infrastructure and planning policies have been overlooked. However, the concept of socialization is now attracting research interest in the field of transportation, particularly as ICT is making communication readily available and literally at people's fingertips and is also relevant to their travel behavior. Consequently, the unseen growth of various forms of socialization could eventually be translated into forms of trips that were previously overlooked in forecasting travel. From the transportation perspective, path analysis could provide suggestions for transportation planning, especially in developing regions where the current facilities, in both ICT and transportation, require more attention. This study of university students in Metro Manila has shown that socialization can affect travel behavior; specifically, socialization was found to be an inducing factor and catalyst to undertake social activity travel. Although socialization may be perceived as having a small overall effect on travel in a zone, when the effects are combined, socialization could have large impacts on transportation infrastructure and policies. The results of this study indicate that socialization motivated university students to engage in social activity trips. The approach used here and the results should contribute to transportation planning processes.

5. CONCLUSION AND FUTURE WORK

This study investigated the relationship between socialization and activity-travel behavior, measured by the frequency of side-trips made while returning home after university classes. We found that certain types of socialization had significant effects on trip frequencies among university students in Metro Manila. The analysis of data gathered from the perspective of university students in Metro Manila indicated that various forms of socialization play important roles in trip generation. For the number of side-trips made while heading home, direct and positive effects were found for the number of people with whom one interacts face to face per day, the frequency of text messaging, and the size of social networks. On the other hand, the number of people with whom one interacts face to face and social network size mediated the relationship among text messaging, chatting online, and side-trips on the way home. The results of this study also imply that technologically mediated forms of communication (e.g., text messaging, online chatting) are modes of socialization employed by university students, although online chatting by itself does not appear to contribute to the generation of trips.

Overall, the results imply that the opportunity to socialize is a sound motivation for trip generation even in developing countries and should be considered when constructing transportation planning policies. From the viewpoint of Metro Manila, text messaging serves a vital role in daily undertakings and it is not only inexpensive, but also convenient to use. Daily activities of individuals, in personal or other matters, have become closely tied to the culture of sending text messages. Hence, to better understand activity-travel behavior and motivation, the incorporation of variables related to socializing is worthwhile as part of transportation planning and research.

This study can be extended in a number of ways. First and foremost, the effects of other forms of socialization on travel patterns should be explored in greater detail. Second, the analysis should be generalized to the general population. For example, Padayhag and Fukuda (2009) analyzed the social activities of university staff members and workers and the relevance of these activities to daily travel behavior. Third, the characteristics of ICT use, planning time, and social participation should be explored in future research.

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