

# **Exploratory Analysis of the Relationships Among Long Distance Travel, Sense of Place, and Subjective Well-Being of College Students**

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## Abstract

In this paper we explore the relationships among long distance travel, Subjective Well-Being (SWB), and Sense of Place (SOP) for a sample of 789 students at the University of California Santa Barbara (UCSB). SWB is measured using Satisfaction With Life Scale (SWLS) items developed by Diener. SOP is measured using an updated version of questions used in two studies in Santa Barbara, CA, that include latent factors representing place *attachment*, *dependence*, *identity*, *satisfaction*, *atmosphere*, and *community*. Long distance travel is measured using a retrospective question on the frequency of making trips that are longer than 50 miles per month away from the UCSB campus. The data used here include undergraduate and graduate students that participated in a survey in February, 2013. Using a Structural Equation Model (SEM) we find a significant and positive relationship between SOP and SWB indicating that students with a strong place emotions are also happier. In addition, traveling moderately often (1 to 4 times per month) is associated with higher SWB, while, traveling more often than 5 times per month leads to lower levels place *attachment*, *dependence*, *identity*, and *community*.

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## **1. Introduction**

Because they help bridge the gap between childhood and adulthood, universities tend to promote students' happiness and adjustment to their new surroundings. In order to do so, it is necessary for them to understand what factors and behaviors are key to students being happy in and becoming attached to the university environment. University students spend much of their time participating in activities on campus including schooling, socializing, and engaging in leisure activities. Universities make an effort to provide diverse opportunities for their students because these activities support students' happiness. Students' daily-lives are affected by the availability of appealing opportunities, and their happiness with the university environment helps determine how often they engage in long-distance travel to visit home or seek other opportunities. Frequent long-distance travel may make it harder for students to become attached to the university environment, which in turn affects their happiness at school. Because the university environment is new to almost all students and students tend to be about the same age and at similar stages of their life when they arrive, universities are an excellent location to test study the relationship between happiness, the development of place attachment, and long-distance travel behavior.

Subjective Well-Being (SWB) is defined as the degree of an individual's subjective belief in their quality of life. Diener et al., 1985, developed measurement scales and a latent structure for SWB that is based on two components: Satisfaction With Life Scale (SWLS), which measures cognitive SWB; and the Scale of Positive and Negative Experience (SPANE) that measures immediate desirable and undesirable experiences. In addition, the Flourishing Scale (FS) was recently introduced to capture the social-psychological aspects of SWB (Diener et al., 2009).

Previous attempts to empirically relate activity-travel behavior with SWB have revealed two types of relationships. On the one hand, there is an indirect correlation between travel and SWB that is mediated by activity participation. Since travel is generally considered to be a derived demand of activity participation, people travel in order to participate in activities that fulfill their specific needs (Ettema et al., 2010). Individuals' affective SWB and cognitive SWB are used to identify the relationship between activity types and SWB (Pychyl and Little, 1998; Oishi et al., 1999; Deci and Ryan, 2008; Waterman et al., 2008; Ravulaparthi et al., 2013). On the other hand, travel itself has a direct influence on affective SWB through the experience of driving a car and using public transit (Mokhtarian and Salomon, 2001; Stradling et al., 2007; Ravulaparthi et al., 2013). A comprehensive theoretical framework of SWB, activity participation, and travel is also emerging in travel behavior research (Ettema et al., 2010, De Vos et al., 2013). In this framework, global SWB is influenced by activity participation, affective factors, and instrumental factors, which originate from travel. In the empirical literature SWB is thought to vary from one day to the next and one week to another, and its sub-dimensions are affected in different ways by different events and experiences. For example, affective SWB is more sensitive to recent past episodes, and cognitive SWB is more affected by accumulated daily-experiences (Ettema et al. 2010, De Vos et al., 2013, Ravulaparthi et al., 2013). Moreover, the interaction with other persons plays an important role (Ravulaparthi et al., 2013).

Sense of Place (SOP) is the second aspect we examine here. The emotional connections between people and place(s) are built upon their experiences including social interactions as well as personal values and perceptions. Tuan (1977) developed Sense of Place theory to describe these subjective feelings on place. The sense of place towards one place is different among

different individuals, and it changes as a result of life experience (Berger & Luckmann 1967; Tuan 1977; Greider & Garkovich 1994; Eisenhauer et al. 2000; Stedman 2003).

Although Tuan (1977) claimed that SOP is intangible and not clear enough to measure precisely, there have been many attempts to measure SOP and to identify its multitude of dimensions. Among these attempts, Jorgesen and Steaman (2001) successfully developed a measure of SOP, and used groups of attitudinal questions to build factors representing the SOP dimensions named *Attachment*, *Dependence*, and *Identity*. Deutsch and Goulias (2009) expanded the Jorgesen and Steaman (2001) theoretical framework by including three additional factors called *Satisfaction*, *Atmosphere*, and *Community*, and confirmed this six-factor structure with a case study of shopping destinations in the Santa Barbara area. In addition, Deustch et al. (2013) showed that different people display substantially different Sense of Place toward shopping places, and these differences are associated with their socio-demographics and mobility. This work also demonstrated that these latent variables are able to explain variation in activity and travel behavior.

SOP and SWB are also correlated in a positive way and a few studies focusing on specific dimensions for each of these multi-dimensional feelings reveal a variety of relationships among sense of community, place attachment, community satisfaction, and quality of life (Costanza et al. 2007; Theodori, G. L., 2001). Diverse latent structures have been used for these studies, Kutek (2011) employed the SWLS factor structure, and found the positive relationship between SWB and people's emotional bond to a community. Moreover, a recent study of Santa Barbara residents linked destinations to a variety of location attributes such as distance and cost, comfort, security, but also included decision making styles and interactions among persons engaging in the same activity and selecting locations to visit (Deutsch-Burgner et al., 2014).

Long distance travel is the third facet examined in this paper. Long distance travel demand modeling is receiving increasing attention partly due to the need to develop statewide simulation models. It is reported that more than 35 states have begun to develop this type of models in order to fulfill policy and development needs (Zhang et al. 2012; Cohen, Horowitz, & Pendyala, 2008; Giaimo & Schiffer, 2005; Horowitz, 2006, 2008; Souleyrette, Hans, & Pathak, 1996). These studies seek to explain the variation in long distance travel as a function of resident demographics and the supply of transportation. A few studies have also employed latent variables in the long distance travel behavior models such as emotional attachment to the destination (LaMondia & Bhat, 2012) and anticipated happiness at destination (Duarte et al. 2010), both of which are important emotional factors motivating people to travel. However, long distance travel can also be viewed as a source for SWB (e.g., traveling for fun or visiting friends or significant others) and as a modifier of SOP (e.g., a person may reassess the quality of her residence after traveling to a location with undesirable characteristics).

A college town is close to an ideal setting to test these relationships because students are at different stages of cognitive engagement with a relatively new location (the campus) and cognitive disengagement with their immediately previous residence, which is usually the parent's home in a different city (Chow and Healey, 2008, Qingjiu and Maliki, 2013). Understanding the relationship among SOP, SWB, and long distance travel of college students will help us build better predictive models but also to develop transportation services and campus services. Therefore, the objective of the analysis presented here is to investigate the triangular relationship among SOP, SWB, and long distance travel. With the results of this analysis, we answer the following research questions: 1) Which are the most significant relationships between SOP

dimensions and SWB? 2) Does the frequency of long distance travel influence SOP? 3) Does the frequency of long distance travel influence SWB?

The next section of this paper presents the survey design, data description and model specification. This is followed by a description of two estimated models treating long distance as a continuous variable and a set of indicators representing different levels of long distance travel. The paper concludes with a summary and discussion.

## **2. Survey Design and Data Used**

As mentioned above, a university campus is chosen as the place for measuring SOP because it is one of the most important and meaningful places for students in their transition from home to society (Chow and Healey, 2008, Qingjiu and Maliki, 2013). A campus provides a variety of services and opportunities facilitating a gradual transition to independent living as students move into adulthood. Moreover, a considerable amount of time is dedicated to formal and informal instruction on campus as well as in sports, social activities, maintenance, and leisure. Therefore, a campus is a meaningful place for all the students, but its meaning changes over time as students become more accustomed to the university and adulthood, which makes it a good place to measure the different dimensions of SOP and its relationship with SWB. For this study, the University of California Santa Barbara (UCSB), and its students serve as the study area and population, respectively. Because UCSB is located relatively far from large cities and densely populated areas, it is also a good location to observe long distance travel.

The population for this study is all 21,927 students enrolled at UCSB in the 2012-2013 academic year (UCSB Common Dataset, 2012-2013). Potential survey participants were randomly selected from the list of UCSB undergraduate and graduate students. An initial list of

8,454 recruits were selected and received a recruitment letter by email, and 954 students chose to participate in the survey during the two-week data collection period in February 2013. In this paper, the sample size was reduced to 789 because some respondents provided incomplete information in key variables.

The questionnaire included measures of SOP, SWB, and travel behavior. A total of 19 questions intended to capture SOP were based on the questionnaire proposed by previous studies (Jorgensen and Stedman, 2001; Stedman, 2003; Deutsch et al., 2013), and 5 items were used to measure the cognitive aspect of SWB. All of these questions are structured on a seven-point Likert scale from strongly disagree to strongly agree. The list of questions for SOP and SWB are reported in Table 1.

Long distance travel was measured by asking respondents for the number of times they took a trip longer than 50 miles in the previous month. A distance of 50 miles was set as the minimum for long distance trips to capture trips made by students who are not residents in close proximity of the UCSB campus and trips made occasionally by the students that reside on-campus or off-campus but in close proximity, which generally matches the reasons the California Household Travel Survey uses the same value. In order to capture the students' broad range of experience on campus and daily behavior, time as a registered student and average time on campus per day are also collected with intervals of 1 year and 2 hours respectively.

Table 2 provides a summary of respondents' characteristics. Of the final sample, 67.3% of respondents are female and 32.3% male, and 0.4% did not report their gender. The majority of the participants are undergraduate students; only 15.6% of them are identified as graduate students, and this proportion is similar to the population split for UCSB as a whole. Among the undergraduate students, upper-division participants are slightly more numerous (358). A

considerable proportion of the sample, 290 (36.8%) made no trips longer than 50 miles in the month before the survey took place. The majority of respondents reported making 1-2 trips longer than 50 miles are 330 (41.8% of the sample). The remainder of the sample made 3 or more long-distance trips, and a very small proportion traveled more than 5 times (46 respondents, 5.8% of sample). In terms of the average time on campus, most students spent at least 3 hours per day at school, and the most frequent answer is more than 6 hours per day.

### **3. Model Specification**

A structural equation model is employed to explore the relationship among six latent variables of SOP, one latent variable of SWB, and long distance travel. First, a measurement model of SOP and SWB factors of Table 1 is developed and confirmed. Then, a structural regression model is estimated with causal paths from long distance travel to the latent variables. A schematic of the full model can be found in Figure 1. Since long distance travel is measured with an ordinal scale, two versions of the model are created. The first treats long distance travel as a continuous variable and the second uses the categories of the long distance question to create three dummy variables (for 1-2 trips per month, 3-4 trips per month, and 5 or more). With these variables, it is possible to find the difference among groups in terms of long distance travel, and its relationship with SOP and SWB.

In order to evaluate the model fit, five indices are used: chi-square values with their results of significance test and Standardized Root Mean Square Residual (SRMR) as absolute fit indices, root-mean square error of approximation (RMSEA) as fit adjusting for model parsimony, and comparative fit index (CFI) and Tucker-Lewis Index (TLI) as comparative fit. The fit indices of the models in this paper (measurement model, continuous variable model, dummy variables

model) are reported in Table 3, and satisfy "good" model criteria of CFI, TLI > 0.95, SRMR, RMSEA < 0.05, insignificant result of chi-square test at the level of 0.05 (Hu and Bentler, 1999).

#### 4. Model Results

The measurement model (the model with only the factor structure and no observed independent variables) has seven latent variables with twenty-four indicators. This model has 231 degrees of freedom, which indicates that it is over-identified. This model has a high chi-square value, and is significant at the 0.001 level. This may indicate a model that is not able to reproduce the input data matrix sufficiently. However, the chi-square value is sensitive to sample size, and it is necessary to examine another absolute fit index SRMR, which for this model is 0.041 and smaller than its "good" model boundary of 0.05. Both CFI and TLI estimated from this model are higher than "good" model criteria of 0.950 as well as acceptable model criteria. The RMSEA value estimated from the model also satisfies the "good" model criterion of less than 0.5.

In terms of factor loadings (Table 4), most factors load well all of their components (> 0.65), but the satisfaction factor has slightly smaller loadings, ranging from 0.532 to 0.646 (Table 4). This indicates items corresponding to the satisfaction factor are not correlated well and is a reflection of the diversity of university services we attempt to explain with one factor. This measurement model is used as the base structure in testing the two different forms of the long distance variable used here. Table 5 and second column shows the correlation coefficients between SOP and SWB and they are all positive and significant at the 1% level. The highest correlation is found between SWB with the *Dependence* factor ( $r = 0.536$ ), followed by SWB with the *Attachment* factor ( $r = 0.528$ ). Except for the *Atmosphere* factor, all the other

correlations between the SOP factors and SWB are over 0.384, indicating strong positive correlation between people's emotions about UCSB and their happiness.

The three-way relationship among SOP, SWB, and long distance travel are estimated with a structural regression model. Table 5 shows the correlation coefficients between SOP and SWB when we add the long distance variable in its two forms creating two distinct structural regression models. The relationship between SOP and SWB is very similar to the measurement model with a slight increase in the values of correlations and no change in significance. Moreover, Table 3 shows that all model fit indices satisfied the good model criteria, and there are only slight changes in all of the model fit indices compared to the measurement model.

In the model with long distance travel as a continuous variable (Table 6, second column), most relationships between the frequency of long distance travel and the SOP factors are not significant at the 5% level except for the factor *Attachment*. The standardized coefficient of this path is  $\beta = -0.083$  ( $p = 0.022$ ), which indicates more frequent long distance travel decreases the magnitude of attachment to UCSB. The path coefficient between long distance Travel and Dependence is not significant at the level of 0.05, but its beta and p-value are -0.068 and 0.070 respectively. Although there is some variation, it is possible that the long distance travel decreases the factor of place *Dependence*.

The causal effect from long distance travel to the SWB is not significant at the level of 0.05, however, it is close to 0.05 (0.63). This means that there is positive causal relationship but different frequencies of long distance travel may increase or decrease SWB and justifies the need to perform the next analysis using dummy indicators.

All the correlation coefficients between SOP and SWB are positive and significant at the level of 0.001. The highest correlation is found between SWB with *Attachment* factor ( $r = 0.540$ ),

followed by SWB with *Dependence* factor ( $r = 0.538$ ). In addition, except for the *Atmosphere* factor, all the other correlations between the SOP factors and SWB are over 0.400, indicating strong positive correlation between people's emotional connection to place and their happiness.

Long distance travel was recorded as a categorical variable and its treatment as a continuous variable possibly leads to gross approximations. In order to find differences among the groups of different long distance travel frequency a set of dummy variables are used in this second structural regression model. Table 3 shows the fit indices, Table 5 and fourth columns shows the correlation coefficients between SOP and SWB, and in Table 6 the last three columns show the regression coefficients of the three dummy variables used here. All model fit indices meet the good model criteria with the dummy variable model and overall this model is an improvement over the model with long distance travel treated as a continuous variable.

All of the relationships between SOP factors and long distance travel show that a significant decrease in SOP factors is observed for people who travel the most often outside UCSB, which suggests that there is a threshold of long distance travel frequency above which a significant and negative impact on SOP is observed. Among students who travel 1-2 times or 3-4 times per month, there is no clear causal effect between long distance travel and SOP, which likely means there are multiple groups of students within these categories with substantially different SOP.

For the group of students who travel 5 or more times per month, the four path coefficients that are significantly different than zero are for *Attachment* ( $\beta = -0.144$ ,  $p = 0.000$ ), *Dependence* ( $\beta = -0.097$ ,  $p = 0.013$ ), *Identity* ( $\beta = -0.098$ ,  $p = 0.010$ ), and *Community* ( $\beta = -0.103$ ,  $p = 0.011$ ). All of these coefficients are negative, and the largest and strongest magnitude is also found in the path between the *Attachment* factor and the dummy variable corresponding to having taken more than

5 long distance trips in a month. This result suggests these students may be broken into four possible groups: 1) students who did not disengage with their place of origin; 2) students with multiple places they consider as a shared "home;" 3) students who experience loss of home; and 4) students who started developing strong emotions with a future home.

We tested the correlation between long distance travel and a variety of explanatory variables but due to the small sample size of the people making more than 5 long distance trips per month (46 students). Females dominated the sample, but represented an even larger majority of this group (39 females took more than 5 long distance trips, as opposed to 7 males), and this was the only major significant explanatory variable. Perhaps due to the small sample size, the dummy variable of 'having a plan for working in Santa Barbara' was not significant at 0.05 level, but the proportion of positive answers was relatively smaller than other groups (Yes 5 / No or Not determined yet 41). We also tested the on-campus stay duration and did not identify any significant differences between staying on campus for long periods and long distance travel (Table 7).

Long distance travel at moderate frequencies (1 to 2 times per month and 3 to 4 times per month) have significant positive relationships with SWB. In contrast, more frequent travel does not influence SWB and is not different than no long distance travel. This may be a result of the positive impact UCSB's attractiveness when one experiences other places of lesser attractiveness. This may also be another manifestation of the transition process described by Case (1996) in which UCSB becomes home (and therefore contributing positively to happiness) through journeys away from home but not when these journeys are very frequent or not frequent at all. Finally and in a similar fashion as the continuous variable model, the factors representing SOP are positively correlated with SWB.

## 5. Summary and Discussion

In this paper an exploratory analysis among long distance travel, SOP, and SWB for college students is developed and tested empirically. This is done using data from a purpose-designed internet based survey with a sample of 789 students at the University of California Santa Barbara (UCSB). SWB is measured using Satisfaction With Life Scale (SWLS) developed by Diener, while, SOP is measured using an updated version of questions used in previous studies in Santa Barbara, CA. Long distance travel is measured using a retrospective question on the frequency of traveling outside UCSB campus. The data used here include undergraduate and graduate students that participated in the survey in February, 2013. Using a Structural Equation Model (SEM) we investigate the relationship between two main factor structures representing SWB and SOP, and long distance travel.

A model that fits the data well shows strong correlation among SWB, SOP, and travel behavior. SOP and SWB are positively correlated, indicating that students with higher levels of place attachment, dependence, identity, satisfaction, atmosphere, and community are also happier with their life. Similarly, students taking between 1 and 4 long distance trips per month also show more happiness with their life. In contrast, students with no long distance travel and students with very frequent travel tend to display less satisfaction with their lives either because they do not succeed in fulfilling their needs or long distance travel is a burden. Frequent long distance travel also negatively impacts place attachment, dependence, identity, and community, which may explain why fewer of them wish to remain in the Santa Barbara area after graduation. Due to the low number of students in who took at least 5 long distance trips, there were no significant explanatory variables except gender.

In terms of policy implications, all the items used in the six SOP factors are actionable and UCSB can strategically improve a variety of services that enhance student life and therefore student happiness with life. In addition, moderately frequent long distance travel promotes SWB, while frequent long distance travel inhibits the formation of SOP. These two relationships support the hypothesis that students' happiness and emotional connection to UCSB can be explained in part by travel behavior.

Although this study successfully showed important emotional aspects that should be considered in travel behavior and proposes SOP and SWB as measures of travel outcomes, there are a few limitations. First, the long distance travel experience should be modeled in more detail to include travel frequency and travel distances, travel time, types of activities, duration of activities, and social groups with whom travel takes place. Second, each destination and its attractiveness should be included and compared to UCSB. Third, a better measurement setting than the one used in this paper is a longitudinal survey that examines the evolution of travel behavior, SOP, and SWB as the students' progress in their career.

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## References

- Berger, P.L., Luckmann, T. (1967). *The social construction of reality*. Garden City, NY: Anchor Books.
- Case, D. (1996). Contributions of journeys away to the definition of home: An empirical study of a dialectical process. *Journal of Environmental Psychology*, 16(1), 1-15.
- Chow, K., & Healey, M. (2008). Place attachment and place identity: First-year undergraduates making the transition from home to university. *Journal of Environmental Psychology*, 28(4), 362-372.
- Cohen, H., Horowitz, A., & Pendyala, R. (2008). *Forecasting statewide freight toolkit*. IShington, DC: Transportation Research Board.
- Costanza, R., Fisher, B., Ali, S., Beer, C., Bond, L., Boumans, R., ... & Snapp, R. (2007). Quality of life: *An approach integrating opportunities, human needs, and subjective well-being*. *Ecological Economics*, 61(2), 267-276.
- De Vos, J., T. Schwanen, V. Van Acker, and F. Witlox (2013). *Travel and Subjective Well-Being: A Focus on Findings, Methods and Future Research Needs*. *Transport Reviews* Vol. 33, Iss. 4, 421-442
- Deci, E.L., Ryan, R.M., 2008. *Hedonia, eudaimonia, and well-being: an introduction*. *Journal of Happiness Studies* 9, 1–11.
- Deutsch, K., & Goulias, K. (2009). *Investigating the Impact of Sense of Place on Travel Behavior Using an Intercept Survey Methodology*.
- Deutsch, K., Yoon, S. Y., & Goulias, K. (2013). *Modeling travel behavior and sense of place using a structural equation model*. *Journal of Transport Geography*, 28, 155-163.
- Deutsch-Burgner, K.E., Ravulaparthi, S. K., and K.G. Goulias (2014) Place Happiness: It's Constituents and the Influence of Emotions and Subjective Importance on Activity Type and Destination Choice. Paper accepted for presentation at the *93rd Annual Meeting of the Transportation Research Board, IShington, D.C.*, January 12-16, 2014, and publication in *Transportation*. Also published as GEOTRANS Report 2013-07-02. Santa Barbara, CA.
- Diener, E. D., Emmons, R. A., Larsen, R. J., & Griffin, S. (1985). *The satisfaction with life scale*. *Journal of personality assessment*, 49(1), 71-75.
- Diener, E., Wirtz, D., Tov, W., Kim-Prieto, C., Choi, D., Oishi, S., & Bisnis-Diener, R. (2009). *New measures of well-being: Flourishing and positive and negative feelings*. *Social Indicators Research*, 39, 247-266.
- Duarte, A., Garcia, C., Giannarakis, G., Limão, S., Polydoropoulou, A., & Litinas, N. (2010). *New approaches in transportation planning: happiness and transport economics*. *NETNOMICS: Economic Research and Electronic Networking*, 11(1), 5-32.
- Eisenhauer, B. W., Krannich, R. S., & Blahna, D. J. (2000). *Attachments to special places on public lands: An analysis of activities, reason for attachments, and community connections*. *Society & Natural Resources*, 13(5), 421-441.
- Ettema, D., Gärling, T., Olsson, L. E., & Friman, M. (2010). *Out-of-home activities, daily travel, and subjective well-being*. *Transportation Research Part A: Policy and Practice*, 44(9), 723-732.
- Giaimo, G.T., & Schiffer, R. (Eds.). (2005, August). *Statewide travel demand modeling: A peer exchange*. *Transportation Research Circular, #E-C075*. IShington, DC: Transportation Research Board.

- Greider, T., & Garkovich, L. (1994). Landscapes: *The social construction of nature and the environment*. Rural sociology, 59(1), 1-24.
- Horowitz, A.J. (2006). *Statewide travel forecasting models* (NCHRP Synthesis #358). IShington, DC: Transportation Research Board.
- Horowitz, A.J. (2008). White paper: Statewide travel demand forecasting. NCHRP Project 08-36, Task 76c, National Cooperative Highway Research Program. Washington, DC: Transportation Research Board.
- Hu, L. T., & Bentler, P. M. (1999). *Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives*. Structural Equation Modeling: A Multidisciplinary Journal, 6(1), 1-55.
- Jorgensen, B. S., & Stedman, R. C. (2001). *Sense of place as an attitude: Lakeshore owners attitudes toward their properties*. Journal of environmental psychology, 21(3), 233-248.
- Kutek, S. M., Turnbull, D., & Fairweather, Schmidt, A. K. (2011). *Rural men's subjective well-being and the role of social support and sense of community: Evidence for the potential benefit of enhancing informal networks*. Australian Journal of Rural Health, 19(1), 20-26.
- LaMondia, J. J., & Bhat, C. R. (2012). *A conceptual and methodological framework of leisure activity loyalty accommodating the travel context*. Transportation, 39(2), 321-349.
- Mokhtarian, P.L., Salomon, I., 2001. *How derived is the demand for travel? Some conceptual and measurement considerations*. Transportation Research Part A: Policy and Practice 35 (8), 695–719.
- Oishi, S., Diener, E.F., Lucas, R.E., Suh, E.M., 1999. *Cross-cultural variations in predictors of life satisfaction: perspectives from needs and values*. Personality and Social Psychology Bulletin 25, 980–990.
- Pychyl, T.A., Little, B.R., 1998. *Dimensional specificity in the prediction of subjective well-being: personal projects in pursuit of the Phd*. Social Indicators Research 45, 423–473.
- Qingjiu, S., & Maliki, N. Z. (2013). Place attachment and place identity: Undergraduate students' place bonding on campus. *Procedia-Social and Behavioral Sciences*, 91, 632-639.
- Ravulaparthi S. K., K. G. Goulias, S.Y. Yoon, and A. Polydoropoulou (2013) Transport Mobility, Activity, and Subjective Well-being. In *Travel Behaviour Research: Current Foundations, Future Prospect* (Roorda, M. and E. Miller eds), Lulu Publishers, USA.
- Souleyrette, R.R., Hans, Z.N., & Pathak, S. (1996, November). *Statewide transportation planning model and methodology development program*. Ames: Iowa State University.
- Stedman, R. C. (2003). *Is it really just a social construction?: The contribution of the physical environment to sense of place*. Society & Natural Resources, 16(8), 671-685
- Stradling, S.G., Anable, J., Carreno, M.(2007). *Performance, importance and user disgruntlement: a six-step method for measuring satisfaction with travel modes*. Transportation Research Part A 41, 98–106.
- Theodori, G. L. (2001). *Examining the Effects of Community Satisfaction and Attachment on Individual Well-Being*. Rural Sociology, 66(4), 618-628.
- UCSB Institutional Research, Planning & Assessment (2013), 2012-2013 *Campus Profile*, [http://bap.ucsb.edu/IR/campusprofile/Campus\\_Profile\\_2012\\_updated.pdf](http://bap.ucsb.edu/IR/campusprofile/Campus_Profile_2012_updated.pdf)
- Tuan, Y. F. (1977). *Space and place: The perspective of experience*. U of Minnesota Press.
- Waterman, A.S., Schwartz, S.J., Conti, R., 2008. *The implications of two conceptions of happiness (hedonic enjoyment and eudaimonia) for the understanding of intrinsic motivation*. Journal of Happiness Studies 9, 41–79.

Zhang, L., Southworth, F., Xiong, C., & Sonnenberg, A. (2012). *Methodological Options and Data Sources for the Development of Long Distance Passenger Travel Demand Models: A Comprehensive Review*. *Transport Reviews*, 32(4), 399-433.

**Table 1****Indicators of Sense of Place and Subjective Well-being with Corresponding Survey Questions**

Indicators	Questions
Attachment1	UCSB is a place that I feel a strong connection with
Attachment2	UCSB makes me feel relaxed
Attachment3	UCSB is a place I care a lot about
Attachment4	I would be disappointed if UCSB never existed
Attachment5	UCSB makes me feel happy
Dependence1	I cannot picture myself being a student at another school
Dependence2	UCSB is the best place for doing the things that I enjoy most
Dependence3	UCSB is vital for the lifestyle I enjoy
Identity1	UCSB is a good reflection of my identity
Identity2	UCSB says a lot about me
Satisfaction1	The education I receive at UCSB is good value for the money
Satisfaction3	Food options at UCSB are many and offer variety
Satisfaction6	There are many housing options at UCSB
Satisfaction9	There is adequate time to get from one class to another
Satisfaction10	UCSB has good technology infrastructure (wi-fi,computer labs, etc.)
Atmosphere1	UCSB has visually appealing landscape
Atmosphere2	At UCSB I enjoy good balance between plants, art and buildings
Community1	There is a culture of tolerance at UCSB
Community2	UCSB has a good social atmosphere
SWLS1	In most ways my life is close to my ideal.
SWLS2	The conditions of my life are excellent.
SWLS3	I am satisfied with my life.
SWLS4	So far I have gotten the important things I want in life.
SWLS5	If I could live my life over, I would change almost nothing.

**Table 2****Descriptive Statistics of the Sample**

	Frequency (n=789)	%
Gender		
Male	255	32.3
Female	531	67.3
No response	3	0.4
Academic standing		
Undergraduate students (Lower division)	308	39.0
Undergraduate students (Upper division)	358	45.3
Graduate Students	123	15.6
Number of Registered Years		
Less than 1 year	202	25.6
1 year	30	3.8
2 years	200	25.3
3 years	141	17.9
4 years	162	20.5
5 years	19	2.4
More than 5 years	31	3.9
Missing	4	0.5
Average on-campus-hour per day		
Less than 1 hour	8	1.0
1 - 2 hours	28	3.5
3 - 4 hours	235	29.8
5 - 6 hours	188	23.8
More than 6 hours	321	40.7
Missing	9	1.1
Frequency of Long distance travel in a month		
None	290	36.8
1-2	330	41.8
3-4	123	15.6
5-10	34	4.3
11-25	7	0.9
26-50	0	0.0
More than 50	5	0.6

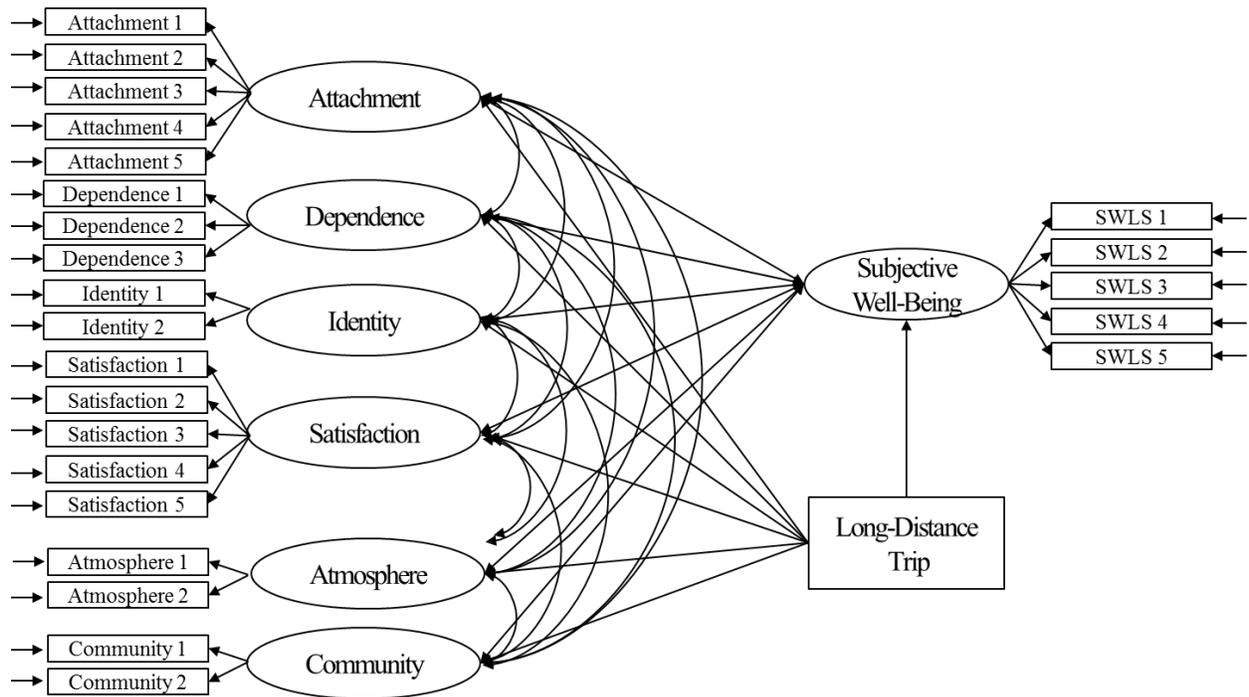
**Table 3**

**Fit Statistics of the Models.**

Model	$\chi^2$	<i>df</i>	CFI	TLI	RMSEA (90% CI)	SRMR
Measurement Model	707.707***	231	0.964	0.957	0.050(.046 .054)	0.041
Continuous LDT Model	725.408***	248	0.963	0.955	0.049(.045 .054)	0.042
Dummy LDT Model	762.138***	282	0.963	0.954	0.046(.043 .050)	0.039

*Note.*  $\chi^2$  = chi-square test of model fit; CFI = comparative fit index; TLI = Tucker-Lewis index; RMSEA = root-mean square error of approximation; SRMR = standardized root mean square residual.

\*\*\**p* < .001 \*\**p* < .010 \**p* < .050



**Figure 1. The Schematic of the Structural Model**

**Table 4****Factor Loadings of the Measurement Model**

	Attachment	Dependence	Identity	Satisfaction	Atmosphere	Community	SWLS
Attachment1	0.887						
Attachment2	0.801						
Attachment3	0.922						
Attachment4	0.764						
Attachment5	0.909						
Dependence1		0.668					
Dependence2		0.878					
Dependence3		0.892					
Identity1			0.956				
Identity2			0.930				
Satisfaction1				0.532			
Satisfaction2				0.623			
Satisfaction3				0.646			
Satisfaction4				0.583			
Satisfaction5				0.627			
Atmosphere1					0.704		
Atmosphere2					0.888		
Community1						0.664	
Community2						0.890	
SWLS1							0.862
SWLS2							0.807
SWLS3							0.902
SWLS4							0.737
SWLS5							0.673

**Table 5****Correlation Coefficients between SOP and SWB**

	Measurement Model	Continuous Variable Model	Dummy Variables Model
Subjective Well-Being			
With Attachment	0.528	0.540	0.537
Dependence	0.536	0.538	0.535
Identity	0.427	0.433	0.432
Satisfaction	0.456	0.461	0.460
Atmosphere	0.278	0.280	0.281
Community	0.384	0.407	0.403

*Note.* All coefficients are significant at the level of 0.001

**Table 6****Standardized Path Coefficients from Long distance Travel to SWB**

Coefficients	Continuous variable Model	Dummy variables Model		
		1-2 times	3-4 times	> 5 times
From Long distance Travel				
to Sense of Place				
Attachment	-0.083*	0.008	0.015	-0.144***
Dependence	-0.068	0.050	-0.019	-0.097**
Identity	-0.046	0.005	0.008	-0.098**
Satisfaction	-0.046	0.026	-0.028	-0.051
Atmosphere	0.016	0.036	-0.019	0.014
Community	-0.037	0.025	0.044	-0.103**
to Subjective Well-Being	0.069	0.085*	0.098*	0.022

\*\*\* $p < .001$  \*\* $p < .010$  \* $p < .050$

**Table 7****Cross Table of Long distance Travel with Individual Characteristics**

Frequency of Long Distance Travel	None	1-2	3-4	>5	Total
<b>Gender</b>					
Male	97	108	43	7	255
Female	191	222	79	39	531
No response	2	0	1	0	3
<b>Academic standing</b>					
Undergraduate students (Lower division)	141	125	32	10	308
Undergraduate students (Upper division)	117	148	68	25	358
Graduate Students	32	57	23	11	123
<b>Number of Registered Years</b>					
Less than 1 year	75	85	28	14	202
1 year	13	14	1	2	30
2 years	87	85	21	7	200
3 years	50	55	26	10	141
4 years	57	63	32	10	162
5 years	2	10	6	1	19
More than 5 years	5	17	7	2	31
Missing	1	1	2	0	4
<b>Average on-campus-hour per day</b>					
Less than 1 hour	0	5	3	0	8
1 - 2 hours	6	11	9	2	28
3 - 4 hours	85	99	44	7	235
5 - 6 hours	75	71	27	15	188
More than 6 hours	122	139	39	21	321
Missing	2	5	1	1	9
<b>Having a plan to live or work in Santa Barbara after graduation</b>					
Yes	34	44	23	5	106
No	92	129	50	19	290
Have not decided yet	161	151	50	20	382
missing	3	6	0	2	11