Traveling Behavior Model for Primary School

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Abstract. *The objective of this research was to develop an environmental traveling behavior model for primary school. The simple random sampling was employed to select the sample of 400 students from 5,220 students in Ampur Namsom, Udonthani Province. Questionnaire was used as instrument for data collection. Pearson Correlation and Path Analysis will be used for data analysis.The results revealed that psychological traits in terms of goal of life (GL) showed directly affected to inspiration of public consciousness in aspects of role model (RM) with .532, It also showed directly affected to traveling behavior (TB) and energy consumption behavior (EB) with .513 and .458. Moreover, psychological states (PS) in terms of religion belief (RB) showed directly affected to inspiration of public consciousness in aspects of role model (RM) with .567 and of role model (RM) also directly affected to traveling behavior (TB) and energy consumption behavior (EB) with .601 and .599. Considering on environmental education, environmental attitude (AT) showed directly affected to inspiration in aspects of role model (RM) with .575 and it showed also directly affected to inspiration in aspects of impressive environment (IE) with .638 and directly affected to traveling behavior (TB) and energy consumption behavior (EB) with .574 and 506. Energy consumption behavior (EB) showed directly affected to traveling behavior (TB) with .466.*

Key Words*: Development / Environmental Traveling Behavior / Model / Primary School*

1. Introduction

Regarding to rural community in Thailand, most of them are agriculturist but they are pulled to materialism or consumerism or capitalism in the age of globalization during three decades because it came from the political plan to change the country from agricultural country to be industrial country. Most of rural communities also have been trapped to globalization period without preparing to face with these situations of industrialization; therefore they have changed their lifestyles to be materialists, consumerists, and capitalist. The meaning of these can be concluded as followings. Materialism, hereby, is belief of favoring for material more than mind and spirit so it doesn't have the concept and meaning like as philosophic consideration, therefore, materialism is a mindset that views the consumption and acquisition of material goods as positive and desirable (Wikipedia.2001, & Thiengkamol, 2007). Consumerism is a social and economic order that is based on the systematic creation and fostering of a desire to purchase goods and services in ever greater amounts, and capitalism is an economic system in which the means of production are privately owned and operated for profit, usually in competitive markets (Wikipedia.2001, & Thiengkamol, 2007).

Consequently, most of rural people, they change the mean of transport from walk, cart, and bicycle to be motor bicycle and car tremendously. It is relevant to the numbers of motor bicycles that have registered more than two million a

year overall country. Finally, motor bicycle becomes a part of their living. Until, the economic crisis in 1997, they realize that their original livelihood of agriculture is still important for their basic needs. Besides, His Majesty the King, Bhumibol Adulyadej, has introduced the theory of self-sufficiency economy through New Theory for his peoples who are majority of agriculturist to comply and practice this theory. Most of them who were failure from the monoculture concepts and became indebted and bankrupt, have turn back to use the New Theory or other similar concept of Sustainable Agriculture covering Agroforestry Agriculture, Integrative Agriculture, Organic Agriculture, Non-toxic Agriculture, Natural Agriculture, Ecological Agriculture, and Buddhist Agriculture (Thiengkamol, 2009c). These concepts and principles have assisted a great number of Thai people have turned back to be able to stand on their own feet with sustainability again without trapping with capitalism. Nevertheless, they addicted with modern conveniences. Especially, rapid transportation like as motor bicycle, however, it also leads to higher accidence than prior period and causes of higher petrol consumption and green house gases released by combustion in both urban and rural areas.

The physical exercise gained from cycling is generally linked with increased health and well-being in according with the World Health Organization, physical inactivity is second only to tobacco smoking as a health risk in developed countries and this is associated with many hundreds of billions of dollars of healthcare costs such as the medical care costs of obesity in the United States are staggering with the costs totaled about 147 billion dollars in 2008 (World Health Organization, 2009, & Finkelstein, 2009). The WHO's report suggests that increasing physical activity is a public health 'best buy', and that cycling is a 'highly suitable activity' for this purpose (World Health Organization, 2009).

However, changing the ideas of Thai people to turn back to transport as prior time, it might be a difficult job but generally, Thai society pays respect to teachers so it might a good opportunity to use this strength though introducing this concepts of bicycle use in the school, particularly in primary school of rural areas of Thailand with the integration of better health concept of bicycle use by making them realization of present situation of young generation obesity. Therefore, giving education for young generation in the rural schools, it should be a way to accomplish of change them to use bicycle to conserve the natural resources and environment.

Until, the Tenth National Economic and Social Development Plan of Thailand, it included the principle of participation of every sectors in Thai society and aimed to set Thai citizen as center of development in order to accomplish a sustainable economic and society based on the moral and ethics for living and conservation of natural resources and environment. These assisted to develop the quality of life of Thai people in various aspects that was consistent to principle of sustainable development in accordance to concept of conference of environment and development of United Nation since 1992. In Agenda 21 of global action plan mentioned that "Sustainable development is development which meets the needs of the presented without compromising the ability of future generations to meet their own needs." (Office of National Economic and Social Development Plan, 2010, Watkinson, 2009, WCED, 1987, Volker, 2007, & Thiengkamol, 2011e).

Generally, it is widely accepted that the sustainable society, economics, education, and environment, therefore it needs to develop the quality of people before to consider to other aspects of development. Therefore the human is the origin of development in all aspects, then they will be impacted by the results of those development. The human is accepted to be a centered development of all aspects in society (Punthumnavin, 2008).

To study on human behavior, it is emphasized on the stage of perception and evaluation on stimulants and intervention factors that occurred from the stimulants that must occur before the behavior expression afterward. However, in studying of human geography, it revealed that both physical and biological features are the stimulants to make people express their behavior in different approaches of place, surrounding people, and experience. These are unable to ignore since the human and environment are deeply and tightly related to each other, while environment plays a role as stimulant to make human to perform different activities. These activity expressions are influenced by these environments, and it causes the change in the environment. Therefore, the human behavior was expressed by environmental influencing and also caused to make a change of environment. This might be called as environmental behavior characteristics (Suwan, M., 2006). The ability of understanding about behavioral occurrence or expression of human, it leads to predict and control the undesirable behavior or promote and build the desirable behaviors. Studying on cause of human behaviors, there are different main guidelines. In this study, the researcher was interested in Interactionism model. In 1997 the academics in psychology, leading by David Magnusson and Norman S. Endler, proposed the textbook called "Personality at the crossroads" that compiled the theories of human behavior on integration of mind and states together (Punthumnavin, 2008, Magnusson, & Endler, 1997, Magnusson, 1999, Magnusson, 2001).

Additionally, from the literature reviews of behavioral science, it was found that the research was done on factors and causes that affected behavior of conservation of natural resources and environment relating to psychological traits, psychological states, and environment. At present, it is very rarely and there is no research is holistically integrative done about environmental education when it compared with other aspects of relating factors affecting to behaviors, especially,

environmental traveling behavior for global warming alleviation (Thiengkamol, 2011i, Thiengkamol, 2011j, & Jumrearnsan, & Thiengkamol, 2012).

Nevertheless, Inspiration of public consciousness proposed by Thiengkamol, should be paid attention for natural resources and environment conservation. She stated that public consciousness or public mind based on inspiration from insight and inspiration different from motivation because inspiration needs no rewards or admirations. Inspiration of public consciousness or public mind, especially, for natural resources and environment conservation, one doesn't receive any reward, admiration or complement for ones act for natural resources and environment conservation. Inspiration might occur due to appreciation in a person as role model or idle, events, situations, environment, and media perceived such movies, book, magazine, and internet. (Thiengkamol, 2009a , Thiengkamol, 2009b , Thiengkamol, 2011a, Thiengkamol, 2011e, Thiengkamol, 2011f, Thiengkamol, 2011i, & Thiengkamol, 2011j).

Environmental education process aimed to change human behavior based on knowledge and understanding, awareness and consciousness raising, values, belief, attitude, and behavioral change (Elliot, R., 1995; Thiengkamol, N., 2011e). Therefore, it should be provided through every level of schools in Thailand, particularly, in the rural area of country because it is not only save the world from global warming but also provide the better quality of life with exercise by riding. This is congruent to the sustainable development principle that aimed to develop the responsible global young generations to minimize the fossil energy consumption by practicing through daily living of traveling to conserve energy for next generations. Especially, Thiengkamol mentioned about environmental education and psychological factors are able to adjust the environmental behavior whether consumption, behavior, recycling behavior, energy conservation behavior and traveling behavior though inspiration of public mind or consciousness (Thiengkamol, 2011e, Thiengkamol, 2011f, Thiengkamol, 2011i, & Thiengkamol, 2011j). Furthermore, form research findings revealed that after training with Participatory Appreciation Influence and Control (PAIC) the participants will gain more knowledge and understanding, raise awareness, and change attitude and behavior in environmental conservation, therefore these are congruent to different studies on environmental education volunteer building, environmental education network development, development of food security, development of energy security, development of network for natural resources conservation, strengthening community through energy conservation and political competency development for women (Thiengkamol, 2004, Thiengkamol, 2005a, Thiengkamol, 2005b, Thiengkamol, 2010b, Thiengkamol, 2011b, Thiengkamol, 2011c, Thiengkamol, 2011f, Thiengkamol, 2011g, Thiengkamol, 2011h, Thiengkamol, 2011i, & Thiengkamol, 2011j)

Most of rural community in Thailand locates not near to school to walk but it is not far from school to travel with bicycle. In the real situation, most of them usually travel with motor-bicycle that is an essential factor affected to the greenhouse gases emission. It is obviously seen from the number of motor bicycle was registered over two million per year (Department of Land Transport, 2011). Therefore, if the primary school teachers and parents realize to create an environmental traveling behavior for their children by changing to travel with bicycle instead of motor bicycle. It leads to the great dynamic change of petrol fuel consumption. Finally, the greenhouse gases emission will be decreased successfully for rural area of Thailand. Moreover, it will decrease household expense and build their good health as well.

Therefore, this research was designed to study by covering all factors relating as mentioned above, it would be able to develop a model of environmental behavior that happened from inspiration of public consciousness that was affected by psychological traits, psychological states, and environmental education process.

2. Objective

The objective of this research was to develop environmental traveling behavior model for primary school

3. Methodology

The research design was implemented in steps by step as follows:

1) The populations were 5,220 primary school students of the second semester in academic year 2011 of primary school in Ampur Namsom, Udonthani Province. The 400 primary school students were collected by simple random sampling from different schools of Ampur Namsom, Udonthani Province with the same proportion.
2) The research instrument was the questionnaire and it was used for data collecting. The content and structural validity were determined by Item Objective Congruent (IOC) with 5 experts in the academic fields of environmental education, psychology, social science and social research methodology. The reliability was done by collecting the sample group from 40 primary school students from Ampur Ban Phue, Udonthani Province. The reliability was determined by

Cronbach's Alpha. The reliability for psychological traits was .847 and psychological states was .915, environmental education was .926, inspiration was .855, behavior was .839 and the whole questionnaire was .969.
The descriptive statistics used were frequency, percentage, mean and standard deviation. The inferential statistics used Pearson Correlation and Path Analysis for data analysis.

4. Results

4.1 General Characteristics of Sample Group

The sample group of this study was 400 primary school students were collected by simple random sampling from different schools of Ampur Namsom, Udonthani Province with the same proportion. Most of them were female with 209 students (52.25%), most of them had Grade Point Average (GPA) between 2.50-2.99 with 181 students (45.25 %), mean to school used motor bicycle with 334 (84.25 %). Majority of father occupation was agriculturist with 332 peoples (82.50%) and mother was agriculturist with 332 peoples (78.75%). Most of father and mother had education level at primary school with 330 (83.00%) and 289 (72.25%). Average of family income was 15,237 Baht per year as presented in table 1.

Table 1 Demographic Characteristics of Sample Group

Characteristics		**Secondary School Students**	
		Frequency	**Percent**
Sex	Male	191	47.75
	Female	209	52.25
Class	Level 1	62	15.5
	Level 2	73	18.2
	Level 3	71	17.8
	Level 4	70	17.5
	Level 5	66	16.5
	Level 6	62	15.5
GPA			
	1-<2.50	103	25.75
	2.50-<2.99	181	45.25
	3.00->=3.00	116	29.00
Mean of Travel to School			
	Walk	32	8.00
	Bicycle	29	7.25
	Motor Bicycle	337	84.25
	Car	2	0.50
Father' Occupation			
-Agriculturist		332	82.50
-Government Officials		2	0.50
-Private Business		2	0.50
-Employee		16	4.0
-General Hire		50	12.50
Father Education Level			
-Primary School Level		330	83.00
-Secondary School Level		56	14.00
-High School Level/ Vocational Certificate		10	2.50
-Bachelor		2	0.50
-Master or higher		2	0.50
Mother' Occupation			
-Agriculturist		315	78.75
-Government Officials		3	0.75
-Private Business		11	2.75
-Employee		16	4.00
-General Hire		55	13.70
Mother Education Level			
-Primary School Level		289	72.25

-Secondary School Level -High School Level/ Vocational Certificate -Bachelor -Master or higher	76 31 4 -	19.00 7.75 1.00 -
Average Family Income per year 15,237 Baht		
Total	**400**	**100**

4.2 Comparison of Demographic Characteristics on Inspiration of Sample Group

Comparison of traveling behavior among different demographic characteristics of sample in terms of sex, Grade Point Accumulation (GPA), and Mean of Travel to School of sample group presented as follows:

4.2.1 Comparison of Traveling between Different Sexes of Sample Group

The demographic characteristics of sample in terms of sex, the comparison of traveling behavior between different sex of sample group was revealed that it was highly statistical significance (p<.01) as shown in table 1.

Table 2 Comparison of Traveling Behavior between Different Sexes of Sample Group

Sex	Number (n)	Mean	S.D.	t	Sig.
Male	191	3.312	.657	3.890	.000**
Female	209	3.865	.626		

** Statistically Significant at the .01 level

4.2.2 Comparison of Traveling Behavior n among Different GPA of Sample Group

The demographic characteristics of sample in terms of GPA, the comparison of traveling behavior among different GPA of sample group was revealed that it was no difference among different GPA of 1-<2.50, 2.50-<2.99 and 3.00->=3.00 with statistical significance (p>.05) as presented in table 2.

Table 3 Comparison of Traveling Behavior among Different GPA of Sample Group

Source of Variation	Sum of squares	df	Mean Square	F	Sig.
Between Group Within Group Total	2.398 395.015 3397.413	2 397 399	1.199 .955	1.256	.325

* Statistically Significant at the .05 level

4.2.3 Comparison of Traveling Behavior among Different Mean of Travel to School of Sample Group

The demographic characteristics of sample in terms of mean of travel to school included walk, bicycle, motor bicycle and car, the comparison of traveling behavior among different mean of travel to school of sample group was revealed that it was highly statistical significance (p<.01) as presented in table 3.

Table 4 Comparison of Inspiration among Different Mean of Travel to School of Sample Group

Source of Variation	Sum of squares	df	Mean Square	F	Sig.
Between Group Within Group Total	76.308 360.756 437.064	3 396 399	25.436 .911	27.923	.000**

** Statistically Significant at the .01 level

The LSD Multiple Comparison was used for analysis of each pair of traveling behavior among different mean of travel to school of sample group. The differences of mean travel to school included walk, bicycle, motor bicycle and car, determination of the mean score differences of mean travel to school, it illustrated that walk and bicycle, walk and car were no statistical difference (p>.05, and p>.05), while walk and motor bicycle, bicycle and motor bicycle, and motor bicycle and car were statistical difference (p<.01) respectively. Additionally, bicycle and car was statistical difference (p<.05) as shown in table 5.

Table 5 LSD Multiple Comparison of Traveling Behavior among Different Mean of Travel to School of Sample Group

Each Pair of Variables	Mean Diff(I-J)	Std. Error	Sig.	95% Confidence Interval	
				Lower Bound	Upper Bound
Walk and Bicycle	-.17657030	.11311055	.235	-.2821211	.1566788
Walk and Motor Bicycle	-.77620318(*)	.10991595	.000**	-.9629691	-.5326198
Walk and Car	.15854614	.11331045	.162	-.2727797	.1708599
Bicycle and Motor Bicycle	-.61765703(*)	.10811055	.000**	-.9125211	-.4823256
Bicycle and Car	.19455213(*)	.11244126	.045*	-.9006443	-.4930247
Motor Bicycle and Car	.52645521(*)	.12112135	.000**	-.7896411	-.5361325

4.3 Environmental Traveling Behavior Model for Primary School

The results revealed that psychological traits in terms of goal of life (GL) showed directly affected to inspiration of public consciousness in aspects of role model (RM) with .532, It also showed directly affected to traveling behavior (TB) and energy consumption behavior (EB) with .513 and .458.

Moreover, psychological states (PS) in terms of religion belief (RB) showed directly affected to inspiration of public consciousness in aspects of role model (RM) with .567 and role model (RM) also directly affected to traveling behavior (TB) and energy consumption behavior (EB) with .601 and .599.

Additionally, psychological traits in terms of goal of life illustrated directly affected to inspiration in aspects of impressive environment (IE) with .527 and psychological states in terms of religion belief (RB) illustrated directly affected to inspiration in aspects of impressive environment (IE) with .562 while impressive environment (IE) showed directly affected to traveling behavior (TB) and energy consumption behavior (EB) with .604 and .453. Moreover, religion belief (RB) illustrated directly affected to behavior (TB) and energy consumption behavior (EB) with .544 and 456.

Considering on environmental education, environmental attitude (AT) showed directly affected to inspiration in aspects of role model (RM) with .575 and it showed also directly affected to inspiration in aspects of impressive environment (IE) with .638 and directly affected to traveling behavior (TB) and energy consumption behavior (EB) with .574 and 506. Energy consumption behavior (EB) showed directly affected to traveling behavior (TB) with .466.

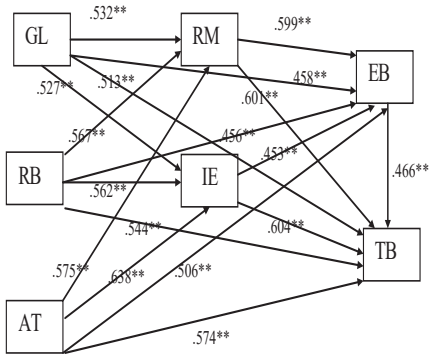

Diagram 1: Environmental Traveling Behavior Model for Primary School
** Statistically Significant at the .01 level

5. Discussions

The findings illustrated that for the demographic characteristics of sex, GPA, and field of study, the female had better traveling behavior with mean score of 3.612 and male with mean score of 3.865. This might indicate that the female might be easily to stimulate to have inspiration of public mind or public consciousness for changing the traveling behavior easier than male. After testing with Independent t-test, it was found that the mean score of female is higher than male with statistically significant ($p<.01$). The result of comparison of the inspiration of traveling behavior among different GPA of sample group was revealed that it was no statistical significance ($p>.05$). This might explain that there are no differences of the inspiration of traveling behavior among different GPA of students, therefore whether they got low, moderate or high, the same traveling behavior. Moreover, the comparison of inspiration among mean travel to school of study of sample group was revealed that it was highly statistical significance ($p<.01$).

Moreover, the comparison of traveling behavior among different mean travel to school of sample group was revealed that it was highly statistical significance ($p<.01$), then the LSD Multiple Comparison was used for analysis of each pair of traveling behavior among sample group. It illustrated that walk and bicycle, walk and car were no statistical difference ($p>.05$, and $p>.05$), while walk and motor bicycle, bicycle and motor bicycle, and motor bicycle and car were statistical difference ($p<.01$) respectively. Additionally, bicycle and car was statistical difference ($p<.05$). Considering on the mean difference in table 5, it was found that walk and bicycle and walk and car showed no statistically different at level of .05. It might conclude that the primary school students used mean of travel to school with walk, bicycle and car with the similar frequency but they used walk and motor bicycle, bicycle and motor bicycle, motor bicycle and car were statistical difference ($p<.0.1$, $p<.0.1$ and $p<.0.1$). It indicated that they used motor bicycle more often than walk, bicycle and car when considering on mean differences of three pairs. It might be explained that in the rural area of Thailand, most of them used motor bicycle and this pertinent to the amount of motor bicycle was registered over two million per year (Department of Land Transport, 2011). These results also pertinent to different researches of Jumrearnsan, and Thiengkamol, (2012), and Thiengkamol, (2005a, 2005b, 2010b, 2011b 2011c, 2011g, 2001j, 2012a, & 2012b) including concept proposed by Thiengkamol about environmental education and psychological factors are able to adjust the environmental behavior whether consumption, behavior, recycling behavior, energy conservation behavior and traveling behavior though inspiration of public mind or consciousness (Thiengkamol, 2011e, Thiengkamol, 2011f, Thiengkamol, 2011g, Thiengkamol, 2011i, & 2011j).

From environmental traveling behavior model for primary school as presented in diagram 1, the results illustrated that if we want to develop primary school students to have environmental behavior with energy decreased behavior for rural region likes as Ampur Nansom, Udorn Thani Province, we might use the religion belief, especially, most of them are Buddhist to understand the impact of energy consumption with fossil fuel that might cause harmful effect to health and green house effect occurrence in present that they faced with climate change in the Summer Season in this year (2011) with cold weather instead of hot weather. This has not happened before in the past since Thailand locates in Tropical Rain Forest. Moreover, parents and teacher should perform role model for their children and students. Nevertheless, environmental education in term of attitude also illustrated affected to traveling behavior so we might use environmental education process to educate them in the school by integrated through every subjects. These findings were also congruent to studies of Thiengkamol, (2005a, 2005b, 2010b, 2011b and 2011c, Thiengkamol, 2011g, Thiengkamol, 2011h, Thiengkamol, 2012a, & Thiengkamol, 2011b).

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