

**THE ENVIRONMENTAL BELIEF STUDY: A SURVEY ON THE DIFFERENCE  
AMONG UNIVERSITY STUDENTS**  
(*Studi Pemahaman Lingkungan Survei Perbedaan Persepsi Diantara Mahasiswa*)

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**Abstract**

This study is aimed at knowing the perspective among university student especially in terms of gender and country category towards environmental beliefs (concern). The study with quantitative methods used a close-ended online survey. Data analysis was performed by using Software Package for the Social Science (SPSS version 10). Several tools of analysis are used in this study including Independent sample T-test. The results of the survey have indicated that there is a difference in the sensitiveness between female and male towards certain variable of environmental concern, namely *Man over Nature* and there is no difference in preference between male and female among university student towards certain variables of environmental concern, i.e. *Balance of nature*. But, in terms of country category, in general there is a different sensitiveness between student from developed and developing country towards environmental concern.

Keywords: environmental belief, university students, perspective.

**Abstrak**

*Studi ini bertujuan untuk mengetahui perbedaan persepsi mahasiswa (dengan kategori jender dan Negara) terhadap pemahaman lingkungan. Studi ini dilakukan melalui pendekatan kuantitatif dengan menggunakan survey tertutup online dan data dianalisis dengan menggunakan SPSS versi 10 termasuk uji independent sample. Hasil dari penelitian ini menunjukkan bahwa terdapat perbedaan yang nyata dalam kepekaan terhadap lingkungan antara jenis kelamin laki-laki dan perempuan terhadap variabel tertentu dari kepedulian terhadap lingkungan terutama variabel dominansi manusia terhadap alam. Namun demikian tidak ada perbedaan yang nyata antara laki-laki dan perempuan terhadap variabel dari persepsi lingkungan yaitu keseimbangan terhadap alam. Dalam hal kategori negara, secara umum dinyatakan terdapat perbedaan yang nyata antara mahasiswa yang berasal dari negara maju dan berkembang terhadap kepedulian lingkungan.*

*Kata kunci: pemahaman lingkungan, mahasiswa, perspektif.*

**INTRODUCTION**

People's awareness and consciousness of the natural environment has been steadily increasing over the past three decades. As concern for environmental quality increase and the ecological crisis continues, there has been a re-

newed interest among environmental psychologists and researchers alike to examine factors influencing environmental behavior (Blake, 2001). Research efforts have focused more on the use of multiple-item measures of environmental behavior versus single-items, thereby improving the reliability of those measures and

increasing the application of advanced statistical methods (Van Liere and Dunlap, 1981).

Earlier research into environmental behavior has focused on the assumption that knowledge is linked to attitudes and attitudes to behavior, a linear model (Cottrell 1993). This thinking suggests that if people become more "knowledgeable about the environment and its associated issues.... they will, in turn, become more aware of the environment and its problems and, thus, be more motivated to act toward the environment in more responsible ways" (Hungerford and Volk, 1990).

To date, researchers have examined the relationship of several variables (i.e., environmental attitudes, intention to act, and knowledge of the issues) with responsible environmental behavior. According to Hines, Hungerford, and Tomera (1987), predicting responsible behavior is not a simple process. It appears to involve a number of variables, none of which are likely to operate without correlating with others. In response to this, they proposed a model of responsible environmental behavior that includes a combination of variables that correlate with each other and contribute to the prediction of responsible behavior.

Hungerford and Volk (1990) built on Hines *et al.*'s ideas by proposing a behavior flow chart that made a distinction between three variable categories of entry-level variables, ownership variables, and empowerment variables, assumed to correlate within a complex linear fashion and influence behavior. Entry-level variables are those that have been good predictors or have been related to responsible environmental behavior and, in turn, serve as a prerequisite to other variables in the model. Ownership variables such as personal investment in issue resolution and verbal commitment depict those indicators that seem very personal to the point where the individual appears to own the issues. Finally, empowerment variables are used since they are crucial in the training of responsible citizens in the environmental dimension. According to Hungerford and Volk (1990), "these variables give human beings a sense that they can make changes and help resolve im-

portant environmental issues" (p. 12).

McGuire (1992) examined environmental attitudes among college students in a study that investigated the relationship between the affective (environmental concern) and cognitive components (verbal intentions) of an attitudinal construct. Findings indicated that environmental concern was a reasonable predictor of environmental behavioral intention and that socio-demographics had relatively little or no influence on environmental attitudes. His study and many others in environmental education have focused on the cognitive to affective aspects or the affective component's relationship with the cognitive component; however, not many studies have focused on a total attitudinal model to examine predictors of proactive behavior. Meanwhile, much of the environmental behavior literature suggests examining or testing a more complete model of proactive behavior in an attempt to understand factors that may influence behavioral change (McGuire, 1992).

Meanwhile Honnold (1984) states that the global concern on environmental issues and a global desire to conserve and protect natural areas have given rise to new pattern in holiday taking as well as tourism product preferred by tourists. The travel market will place emphasis on the environmental and social context within which tourism occurs and the humanization of travel (Weiler and Hall, 1992). Cohen (1979) proposed a typology that seeks to differentiate tourists based on the degree to which tourist let go of the orientation of their everyday world and focus on the Other and the Unknown (Lengkeek, 2000). The five modes of tourist experiences are recreational mode, diversionary mode, experiential mode, experimental mode and existential mode. Referring to different parameters of reality, Lengkeek and Elands (2000) proposed new modes of experience as reformulation of Cohen's series of modes into: amusement, change, interest, rapture, and dedication.

As the awareness and consciousness of the natural environment among people has influenced in the attitude and behavior which in-

licated more respect to the environment. In the research that examined environmental attitudes among college students, J.R. McGuire (1992) found that there is a relationship between environmental concern and environmental attitude among student. The research also found that socio-demographics were relatively little or no influence on environmental attitudes (Cottrell, 2002).

In relation to this assumption, the present study focuses on investigating the extent to which socio demographics factors (in this case gender and nationality / country category) reflect difference perspective towards environmental belief. This study will also examine the relationship between environmental concern and the modes of tourist experiences.

### PURPOSE

As mentioned above, this paper will look further at the extent to which university students in terms of gender (male and female) and country categories (developed and developing countries) express their perspective towards environmental concern. Thus the purpose of this paper is to examine the difference perspectives towards environmental concern between male and female as well as country category among university students.

#### *Problem statements:*

“How differences are university student express their perspectives about environmental belief (concern)?

#### *Secondary questions:*

1. Is there any difference sensitiveness in environmental concern between male and female?
2. Is there any difference sensitiveness in environmental concern between student from developed countries and developing countries?

### CONCEPTUAL FRAMEWORK

There are two variables, which will be analyzed in this study, i.e. socio-demographic

variable and environmental belief (concerns). Therefore, in order to give clear understanding and background about the two main variables, it is important to describe them in this conceptual framework as follows:

#### *Socio-demographic characteristics*

Socio-demographic variables are consistently used as predictors of environmental behavior (Cottrell, 2002). Socio-demographic factor itself can be elaborated into several components including age, gender, origin/ nationality, status and education. However, in this study, analysis will encompass two components, namely gender and nationality to be examined their relationship with environmental concern.

#### **1. Gender.**

There are several study that linked some socio-demographic factors (such as: age and education) with environmental concern. In this study related gender, the assumption here is that female has more students in terms of gender (male and female) and country categories (developed and developing countries) express their perspective towards environmental concern. Thus the purpose of this paper is to examine the difference perspectives towards environmental concern between male and female as well as country category among university students.

How differences are university student express their perspectives about environmental belief (concern)?

#### *Secondary questions:*

1. Is there any difference sensitiveness in environmental concern between male and female?
2. Is there any difference sensitiveness in environmental concern between student sensitive feeling than male in relation to environmental concern, therefore the environmental concern level of female would be higher than male. This assumption is proposed considering the nature that in psychological point of view female has more sensitive feeling in their life rather than male.

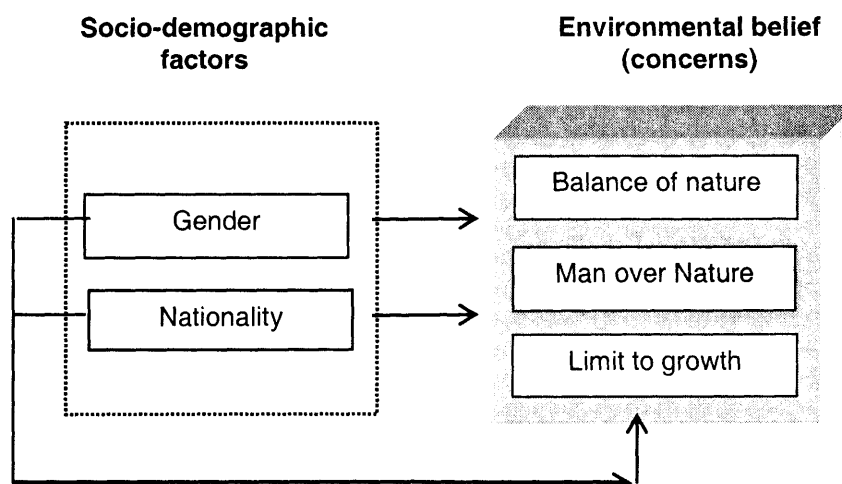


Figure 1. Concept map of the study

## 2. Nationality (country category).

In this study nationality refers to country category of the respondents, which can be divided in two categories, namely *Developed country* and *Developing country* (UNDP, 1999).

It is assumed that respondent from developed country has more knowledge about environment rather than respondent from developing country. This assumption refers to the nature that developed country has long history and experience in building civilization rather than developing country (Knox and Martson, 1998).

### *Environmental Concern*

According to Hungerford and Volk (1990) Environment Concern is an expressed compassionate perspective or concern for the natural environment (see Cottrell 2002). In this respect, Dunlap and Van Liere (1978) developed a widely accepted scale, which is designed to measure how people feel about nature.

It is an instrument of measurement which is called the New Environmental Paradigm (NEP) consists of 12-items that has subsequently been tested by other researchers and is still being used today. The NEP initially considered one-dimensional, has been found to be multidimensional including three factors (balance of nature, belief that growth should be

limited, and human beings are part of nature (see Cottrell 2002).

## METHODS

This study uses quantitative methods and close-ended online survey. Data collected through on-line survey with the title of "Environmental Beliefs survey". The analysis of data was conducted by using *Statistical Package for the Social Sciences* (SPSS). The theoretical population was university student, especially from Wageningen University-The Netherlands and other student from different parts of the world which contribute through online survey. The sample population was drawn at accidental sampling from these international students who respond the online-survey. The theoretical population was 169 students consist of 104 female and 65 male.

A number of bivariate analysis techniques were used to examine the relationships between the different study variables. Furthermore, the following steps were conducted consecutively:

1. Frequencies analysis to figure out the distribution of opinion both NEP items
2. An exploratory factor analysis using varimax rotation was conducted on 12 NEP items of environmental concerns. This technique insures an optimum spread

between the factor loadings, thus indicating the loading values of each item for each factor identified, meaning that some items score high and some score low within each of the factors. According to Veenink (1995), through this factor analysis, the factors are better profiled in comparison with each other, thus making the results easier to interpret (see also Eland and Lengkeek, 2000).

3. After careful examination of the correlation matrix and results of the factor analysis, several items were deleted because they did not fit well conceptually, they loaded on more than one factor, they loaded too low (the minimum factor loading was 0.6), or they made a single factor.
4. Independent sample T-test to examine whether there is significant difference in opinion (in terms of sensitiveness and preference) between gender towards environmental concern, as well as country category towards the same variables.

Summaries of the results of factor analysis and factor matrix rotation are given in Table 1.

## RESULT

### *Frequencies for environmental concern (NEP)*

Environmental Concerns is associated with the item of New Environmental Paradigm proposed by Dunlap and van Liere (1978) which was measured on a 5-point Likert agreement scale (1=strongly agree to five=strongly disagree). There is a tendency that respondents have commitment to *pro-environmental belief*. It is indicated through NEP 1 (*We are approaching the limit of number of people the earth can support*) and NEP 2 (*The balance of nature is very delicate and easily upset*), which show 30.2% respondent and 38.5% respondent strongly agree. Besides, the result also shows that from the result of mean for each NEP, it has indicated that opinion towards NEP 1 (*We are approaching the limit of number*

*of people the earth can support*), NEP 2 (*The balance of nature is very delicate and easily upset*), NEP 5 (*When humans interfere with nature it often produces disastrous consequences*), NEP 7 (*To maintain a healthy economy we will have to develop a steady-state economy where industrial growth is controlled*), NEP 9 (*Humans must live in harmony with nature in order to survive*), NEP 10 (*The earth is like a spaceship with only limited room and resources*), NEP 12 (*There are limits to growth beyond which our industrialized society cannot expand*) and NEP 13 (*Humans are severely abusing the environment*) lead to the range of mildly agree and strongly agree. While, to some items, i.e. NEP 3 (*Humans have the right to modify the natural environment to suit their needs*), NEP 4 (*Mankind was created to rule over the rest of nature*), NEP 6 (*Plants and animals exist primarily to be used by humans*), and NEP 11 (*Humans need not adapt to the natural environment because they can remake it to suit their needs*) respondents tend to give respond in the range of mildly disagree and strongly disagree.

### *Factor Analysis on Environmental Concern (NEP)*

This study try to make a single construct from 12 items NEP (exclude NEP 8). A high degree of internal consistency is a necessary condition for combining a set of items into a single measure from NEP items constituting a reasonably coherent perception. It began by examining the consistency of the response of 12 items (exclude NEP 8: locus of control). A reliability assessment (Cronbach's alpha) was used to check the internal consistency of each index. For each of the four scales, a factor analysis had been done to confirm each scale with previous studies (Cottrell, 1993; Cottrell and Graefe, 1997). By then, the result of coefficient alpha is good (0.7688). Then we used varimax rotation to create orthogonal dimension and the result are shown in Table 1.

By using factor analysis, the 12-item NEP can be performed into 3 new variables as shown in Table 4. The four items load most heavily on the first factor. Factor 1 (balance of nature/limit to growth) consists of NEP1, NEP2, NEP7, NEP9, NEP10. Factor 2 (man over nature) consists of NEP3, NEP4, and NEP6. Factor 3 (limit to growth) consists of NEP5 and NEP13.

Furthermore, all of 12 items (exclude NEP8) have yielded alpha (0.768) and be combined into single measure namely Overall Environmental Beliefs Scale variable or Concern variable. As the items have loaded heavily on the first factor (have yielded alpha: 0.675), so we combined into single measure called *Balance of nature* variable. On factor 2, the items

**Table 1. Factor analysis result of 12 new environmental paradigm items (N=169)**

New Environmental Paradigm Items (NEP)	Factor 1	Factor 2	Factor 3
10. The earth is like a spaceship with only limited room and resources	0.745		
7. To maintain a healthy economy we will have to develop a steady-state economy where industrial growth is controlled	0.674		
9. Humans must live in harmony with nature in order to survive	0.643		
2. The balance of nature is very delicate and easily upset	0.613		
1. We are approaching the limit of number of people the earth can support			
3. Humans have the right to modify the natural environment to suit their needs*		0.771	
4. Mankind was created to rule over the rest of nature*		0.762	
6. Plants and animals exist primarily to be used by humans*		0.646	
11. Humans need not adapt to the natural environment because they can remake it to suit their needs*			
5. When humans interfere with nature it often produces disastrous consequences			0.796
<b>Lanjutan</b>			
13. Humans are severely abusing the environment			0.713
12. There are limits to growth beyond which our industrialized society cannot expand			
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Reliability analysis per factor (Cronbach Alpha value)	0.675	0.643	0.558**
Mean for factor scale	4.202	2.132	4.095
Std	0.621	.527	0.568
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Overall Environmental Beliefs Scale (Concern)			
Mean	3.57		
Std	0.396		
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Total variance explained	15.66%		
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Reliability analysis (Cronbach Alpha)	0.768		

Note:

Rotation converged in 5 iterations,

Extraction Method: Principal Component Analysis

3 components extracted

Environmental Attitudes using 5 point Likert scale 1= strongly disagree, 2= mildly disagree, 3=unsure, 4= mildly agree, 5= strongly agree

\*Items recoded from negative direction (NEP3, NEP4, NEP6, NEP11)

\*\*): The alpha value is low

Factor 1 : Balance of nature/limit to growth

Factor 2 : Man Over Nature

Factor 3 : Limit to Growth

**Table 2. The result of T-test between gender and environmental concern**

Environmental Concern	Gender		T-value	P
	Female	Male		
Balance of nature	4.2526	4.1370	0,132	0.05
Man Over Nature	2.0842	2.1735	-0.611*	0.05

\*) significant at 0.05

**Table 3. The result of T-test between country category and environmental concern**

Environmental Belief	Origin		T-value	P
	Developed	Developing		
Balance of nature	4.1779	4.2385	- 0.563*	0.05
Man Over Nature	1.9135	2.4821	- 0.376*	0.05

\*) significant at 0.05

have also loaded somewhat heavily on the second factor (have yielded alpha: 0.6433), so we combined into new variable called *man over nature*. On factor 3, the alpha value is 0.568, which is lower than 0.60, so this factor is deleted from the factor.

#### ***Independent samples T-test of Environmental Concerns***

Based on the result of factor analysis of environmental concern, it can be determined three new variables which are reliable to be applied as a basic analysis in relation to the gender and category of country of origin. They consist of: (i) *Balance of Nature* and (ii) *Man over Nature*

In order to examine difference perspective between male and female, and also student from developed and developing country towards environmental concern, needed by running frequency and independent samples T-test which result in certain values as follows:

#### ***Gender perspective towards Environmental Concern***

As shown in Table 2, two new variables of environmental concern, i.e. (i) Balance of nature and (ii) Man over Nature has been examined in the perspective of gender (female and male) among university students.

The first hypothesis is no difference in sensitiveness on environmental concern in term of Balance of Nature between male and female among university students.

The second hypothesis is no difference in sensitiveness on environmental concern in term of Man over Nature between male and female among university students.

As a result of running T-test, it can be interpreted the perspective between male and female among university student towards new variables of environmental concern as follows:

1. Gender perspective on new variable of *Balance of nature* indicated that mean of female university students (mean = **4.253**) is higher than that of male (mean = **4,137**), which may indicated that female university students are more sensitive with environmental concern especially related to the concept of *balance of nature* than male.
2. Gender perspective on new variable of *Man over nature* indicated that mean of female university students (mean = **2.084**) is higher than that of males (mean = **2,173**), which may indicated that female university students are again more sensitive in respect to environmental concern especially related to the concept of *Man over nature* than male.

Nevertheless, the results above have to be examined one more step to know whether the differences significant enough to have further concern about the perspective of gender towards environmental concern. By running independent samples T-test (as show in T-value column), It can detect that significant difference between male and female is only in re-

spect to the variable of *Man over Nature* (*T-test value* = - 0.611). This value is lower than 0.05, so the null hypothesis is rejected, and conclude that there is a difference in the sensitiveness between female and male towards certain variable of environmental concern, namely *Man over Nature*. Meanwhile, on another variable of environmental concern (*Balance of nature*), it is found that there is no difference in sensitiveness between female and male among university student. So the null hypothesis is accepted, and concludes that there is no difference in preference between male and female among university student towards certain variables of environmental concern, i.e. *Balance of nature*

*Perspective of university student in the country category towards Environmental Concern*

As shown in Table 3, two new variables of environmental concern, i.e. (i) Balance of nature and (ii) Man over Nature has been examined in the perspective of country category (developed and developing country) among university student.

The first hypothesis is no difference in sensitiveness on environmental concern in term of Balance of Nature between university students form developed and developing countries.

The second hypothesis is no difference in sensitiveness on environmental concern in terms of Man over Nature between university students form developed and developing countries.

As a result of running T-test, it can be interpreted the perspective between university student from developed and developing country towards new variables of environmental concern as follows:

1. Perspective from country category towards new variable of *Balance of nature* indicated that mean of university student from developed country (mean = 4.178) is lower than that of developing country (mean = 4.238), which may indicated that university students from developing country are more sensitive in respect to environmental concern especially related to the

variable of *balance of nature* than developed country.

2. Perspective from country category towards new variable of *Man over Nature* indicated that mean of university student from developed country (mean = 1.914) is lower than that of developing country (mean = 2.482), which may indicated that university students from developed country are more sensitive in respect to environmental concern especially related to the variable of *Man over Nature* than developing country.

Nevertheless, the results above have to be examined one more step to know whether the differences significant enough to have further concern about the perspective of student from developed and developing country towards environmental concern. By running independent samples T-test, it can detect that significant difference between university student from developed and developing country is related to the two variables of environmental concern, i.e: *Balance of Nature* and *Man over Nature*. As showed in table 5, we know that the T-test values are significance at variable *Balance of Nature* (- 0.563) and *Man over Nature* (- 0.376), which is lower than 0.05, so the null hypothesis is rejected, and conclude that there is a difference in the sensitiveness between university student from developed and developing country towards both variables of environmental concern, i.e. *Balance of Nature* and *Man over Nature*.

Finding in this study suggest that, there is a difference in the sensitiveness between female and male towards certain variable of environmental concern, namely *Man over Nature* and there is no difference in preference between male and female among university student towards certain variables of environmental concern, i.e. *Balance of nature*. But, in terms of country category, in general there is a different sensitiveness between student from developed and developing country towards environmental concern. In this case, the two socio-demographic factors seem to give two



sides of depiction (influence and no influence) in relation to Environmental concern. However, as these two factors apart of socio-demographics characteristics, this finding confirms results of previous environmental behavior research, that socio-demographics factor was relatively little or no influence on environmental attitude (McGuire, 1992).

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