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## Original Article

### Identify Affecting Factors on Student's Environmental Protection Behavior

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#### ABSTRACT

**Objective:** The purpose of this study was to identify affecting factors on students' environmental protection behavior (SIPB). **Methods:** Statistical population of this research consisted of 1480 students in Alborz agricultural technical higher education centers. A stratified random sampling method was used to select 145 student applying Cochran's formula. The main tool to collect data was a researcher made questionnaire that Content validity of the questionnaire was approved, by a panel of experts and Exploratory factor analysis and its reliability, was confirmed by calculating Cronbach's alpha coefficient ( $\alpha = 0.71- 0.83$ ). Data was analyzed by SPSS software. **Results:** Results of factor analysis showed that four factors: Environmental attitudes, environmental concerns, knowledge and educational content, explained 50.92 percent of the variance in the Protective behavior variables. Results of correlation analysis indicated a positive statistically significant relationship between Environmental attitudes, environmental concerns, knowledge and educational content.

#### 1.INTRODUCTION

Recently, the environmental crisis has become an important issue in human societies and it is serious and very strategic debate in all intellectual fields. The Iran's environmental crisis has known as one of the worst environmental disasters in the world (Karimipour zarei et al, 2013). While, the healthy environmental is a fundamental pillar for health and survival of all animals (Scherb and Voigt, 2011). Moreover, scholars believe that close relationship between environmental protection and sustainable development (Mohammadi ashennai et al, 2008; Fulekar et al, 2014). Accordingly, the environmental protection is not merely a national concern, but a global one as well. These challenges indicate the necessity to apply appropriate approaches to

environmental crisis management (Feng & Reisner, 2011).

Effective step to environmental protection is evaluated the people's behavior and performance in order to achieve the basic principle of sustainable living. This means that peoples should evaluate their behaviors in front of their environmental until achieve to proven manners and coexistence with nature (Khabiri & Elahizadeh, 2013). In support of this statement, Erzenin and Teke (2013) and AbdulWahab (2008) have shown that many environmental problems are caused by the people's irresponsible action. Therefore, identify factors that affecting on people's behavior as effective step to solve the environmental crisis and develop people's protective behaviors, including students as extensive

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grope that influencing social behavior patterns, is very important.

Behavior theories have been identified many factors that effect on behaviors change; such as perceive risk, attitude, knowledge and awareness, personal characteristic, social norms and rules (Menegaki et al, 2007; Marks, 2005). In general, environmental protection intention or behaviors are viewed as activated by either social or self-interest motives (Han, 2015). Researcher who view behavior as being stimulated by social motives generally utilize the norm activation model (Schwartz, 1977) or the Value-Belief-Norm theory (Estern et al, 1999), while researchers who believe behavior as self-interest motives mostly rely on rational-choice models such as the theory of reasoned action (Fishbin & Ajzen, 1975) or theory of planned behavior (Ajzen, 1991).

The theory of planned behavior regards demographic, environmental, and personal characteristic as background variables that can influence behavior indirectly through affecting behavioral, normative, and control beliefs (Ajzen and Manstead, 2007). In this regard, empirical evidence has shown that education as an environment factor can change the individual's behavior patterns through increase awareness and cognition and with compliance social and cultural capital help to preserve the natural capital (Rafiee & Amirnejad, 2009; shobairi et al, 2010; Wenz, 2013). However, awareness and cognition don't have direct effect on behavior; but, reinforce other mechanisms that facilitate behavior change (Ghiasvand, 2013). Informing the individual's environmental information led to that individuals understand the environmental values and attempt to conservation of them (Dibae & Lahijanian, 2009). Moreover, the theory of planed behavior provides a theoretical framework for understanding the reason of individual's behavior. The model assumes that attitude toward behavior, norm and perceived of behavior control affect on behavioral intention and the behavioral intention act as a good predictor for behavior (Hurlimann et al, 2009).

Above statement specify that individual's behavior influencing by many factors. However, researches on identification and clarification the factors that affecting student's environmental protection behavior (SEPB) based on planed behavior model is scarce. Therefore, the purpose of this study is to identify factors that effect on the SEPB and clarification relationship between these factors and SEPB.

## 2. MATERIAL AND METHODS

This survey in its nature is a quantitative; In terms of objective is an applied and in term of statically is descriptive-correlation. The purpose of this study was to identify and describe the factors that influence students' behavior in the environment protection. Statistical population of this research consisted of 1480 students in

Alborz agricultural technical higher education centers. A stratified random sampling method was used to select 145 student applying Cochran's formula. The main tool to collect data was a researcher made questionnaire that Content validity of the questionnaire was approved, by a panel of experts and Exploratory factor analysis and its reliability, was confirmed by calculating Cronbach's alpha coefficient ( $\alpha = 0.71- 0.83$ ). Based on the questionnaire, each responsible obtain a score range of zero to 32 that was the basis for his/her environmental protection behavior. According to the standard deviation and obtain score, students in perspective of environmental protection behavior were classified in three groups (low, medium and high). The method used in this section was shown below (Gangadharappa et al, 2007).

$$\text{Low: } A < \text{mean} - \frac{1}{2} \text{sd}$$

$$\text{Medum : } \text{mean} - \frac{1}{2} \text{sd} < B < \text{mean} + \frac{1}{2} \text{sd}$$

$$\text{High : } C > \text{mean} + \frac{1}{2} \text{sd}$$

## 3. RESULTS

Based on the results of descriptive statistics the average of student's age was 25.82 years old with standard division 6.80 years. The oldest student was 55 and the youngest was 20 years old. In terms of gender the 41.4% of responsible was male and 58.6% was female. In terms of living location the 11.7% located in rural and 88.3% in urban.

In order to determine the student's behavior in environmental protection, they were classified in three groups based on obtain score and standard division. Finding (Table 1) showed that 80.33% of respondents from prospective of behavior protection were in the low level, 42.40% in the medium and 70.23% in the height level. This finding indicates that the medium level of protection behavior has been most frequently.

**Table 1.**  
Frequency Distribution of student's behavioral protection levels in environment

Behavioral protection	Frequency	Percent
Low (lowest than 18)	49	33.80
Medium (between 18 - 22)	61	42.40
Height (highest than 22)	35	23.23
Total	145	100

Mann-Whitney test was used for compare the student's protection behavior level. Results showed that there are no significant differences between students based on their educational levels ( $P=0.29$ ;  $U=569$ ).

Exploratory factor analysis was used to determining the number of factors that affect on student's environmental protection behavior. Statistical analysis showed that the internal consistency of data was appropriate for factor analysis ( $KMO=0/823$ ) and the Bartlett's test was significant ( $Bartlett=2150.522$ ). Four factors were extracted by using the Kaiser's rule. Factor loadings after varimax rotation are shown in table (2). Then, according to the nature of variables, factors were named as: environmental attitude, environmental concerns, knowledge and awareness, and educational content. Given the amount of extract eigenvalues, environmental attitude factor were greatest effect on the total variance of student's environmental behavior (eigenvalues= 10.49) and then were the environmental concerns (eigenvalues=7.92), knowledge and awareness about environmental (eigenvalues=4.21) and educational content (eigenvalues=3.20) (table 3). In total, 50.92% of SEPB variances were determined by these factors.

**Table 2.**

Rotation sums of affecting variables on student's environmental protection behavior

Factor	Eigenvalues	% of variances	Cumulative variance
1	10.49	20.01	20.01
2	7.94	13.14	33.15
3	4.21	10.69	43.84
4	3.20	7.08	50.92

**Table 3.**

factors and variables that related to SEPB after the varimax rotation

Factor name	Variables	Load factors
Environmental attitude	We should be use of environmental with greater sustainability.	0.798
	The humans should not conquer the environmental.	0.772
	Peoples must conformity themselves with environmental.	0.751
	Should not be used the chemical pesticides for pest control.	0.739
Environmental concerns	Concerned about forest destruction.	0.643
	Concerned about rangeland degradation.	0.631
	Concerned about air pollution.	0.621
	Concerned about noise pollution.	0.607
	Concerned about drying up of spring.	0.579

	Concerned about drying up of rivers.	0.544
Knowledge and weariness	Awareness about environmental pollution recourses	0.757
	Awareness about environmental world day	0.601
	Awareness about the wastes isolation	0.580
	Awareness about alternative methods that replaced with chemical pesticides	0.564
Educational content	Existing issues in educational content that related to the natural resources management	0.662
	internet access to obtain information about environmental	0.652
	Library access to obtain information about environmental	0.651
	Participated in seminars and workshops that related to environmental	0.647

Spearman's correlation coefficient was used to clarify the relationship between the variables that effect on student's environmental protection behavior. Results showed that a positive and significant relationship between environmental attitude, environmental concerns, knowledge and awareness, and educational

content with student's environmental protection behavior. Based on these findings, we can conclude that SEPB were increase by these factors. Moreover, finding showed that no significant relationship between gender and level of degree with SEPB (Table 4).

**Table 4.**  
Correlation analysis between variables that effect on SEPB

Variable	Correlation coefficient	Significance level
Environmental attitude	0.394	0.000
Environmental concerns	0.289	0.000
Level of degree	0.112	0.145
Knowledge and awareness	0.284	0.001
Educational content	0.209	0.014
gender	0.14	0.316

Stepwise regression was applied to identify the role of each factor on SEPB. Results showed that in generally environmental attitude, environmental concerns, and knowledge and awareness have been defined 42.90% of SEPB variances (Table 5).

**Table 5.**  
results of stepwise regression

Variable	B	Beta	t
Constant coefficient	5.693	-----	3.535**
Environmental attitude X <sub>1</sub>	0.467	0.370	3.952**
Environmental concerns X <sub>2</sub>	0.238	0.267	4.005**
Knowledge and awareness X <sub>3</sub>	0.262	0.226	3.351**
F= 43.629**                      R <sup>2</sup> <sub>Adj</sub> = 0.415                      R <sup>2</sup> = 0.429			

\*\*significant at the 0.01level

According to stepwise regression outputs, the research equation presented in below.

$$Y = 5.693 + 0.467X_1 + 0.238X_2 + 0.262X_3$$

#### 4. DISCUSSION

According to Iran's environmental crisis as a basic challenge in recent year, it's essential to apply appropriate approaches for management this crisis. Therefore, effort to identify factors that effect on environmental protection has been known as a duty for community and academic researchers as well. However, researchers identified many factors that effect on environmental protection. In these factors, human's environmental protection behavior has an essential role. Therefore, the purpose of this study was to identify factors that effect on student's environmental protection behavior as an effective group in change of community behavioral patterns.

Description results showed that the greatest frequency of student's environmental protection behavior was in the medium and low level. This finding pointed that environmental protection for students from important aspect is in low level. Moreover, factor analysis showed that four factors (environmental attitude, environmental concerns, and educational content, knowledge and awareness) determined 50.92% of student's environmental protection behavior. This confirms the previous research findings (Menegaki et al, 2007; Ajzen and Manstead, 2007; Hurlimann, 2009) that were statement perceive of risk, attitude and knowledge and awareness have essential role in behavior change.

Correlation finding showed statistically significant relationship between environmental attitudes, environmental concern, knowledge and awareness, and educational content with SEPB. This confirms the previous research findings (Rafiee & Amirnejad, 2009; shobairi et al, 2010; Wenz, 2013) that were statement the education as an environment factor can change the individual's behavior patterns through increase awareness and cognition and with compliance social and cultural capital help to preserve the natural capital.

Now, based on these finding suggest that:

It is essential that embedded content about environmental crisis in curriculum of applied-science centers. This educational content created awareness about environmental important role in humans survives. Therefore, student's environmental concerns were increased and they attempt to protection of their environment.

Teachers as one of the curriculum component are appropriate behavioral patterns for their students and effect on student's attitude toward environmental protection. Accordingly, it would be very valuable that in during the academic year, one day designated as "friendly with nature" and in this day teachers with theirs students cultivated flower and scion in the specific location of applied - science centers with applying scientific principles.

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