

Social Influence and Sustainability Adoption among University Students**Amandeep kaur¹ Dr. Harpreet Singh Chahal²,**

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Abstract

The present study aims to examine the effect of social influence on adoption of sustainable behavior among university students. Sustainability is the need of the hour due to emerging environment problems. To mitigate these problems, sustainable initiatives should be adopted by public to reduce the harmful effects of environment unfriendly activities. The sustainable behavior is determined by personal and contextual factors. In present study social influence which is shaped by norms and others' influence has been analyzed to gauge the impact on adoption of sustainable behavior. The sample was comprised of 258 university students and collected data was analyzed statistically by using multiple regression analysis and frequency distributions. The results of the study described that social influence has positive significant effect on sustainable behavior of the students and personal norms has been emerged out as main predictors.

Keywords: Norms, sustainable behavior, peer influence social influence.

1.Introduction

Sustainability has emerged out as a topic of concern among various academicians and policy makers for the betterment of the world. The nations has been working to improve the energy conservation, recycling, and to develop the notion of product reuse among natives through spread of sustainability awareness. The term sustainability is very wider and it is defined by many researchers but the most widely recognized definition of the term was given by Brundtland Report that was published in 1987. According to the report, "The sustainability is about meeting the needs of the present without compromising the ability of the future generations to meet their own needs." The encouragement to adoption of sustainability helps in reduction of the harm to the environment, curtail the emission of CO₂, lowers the fuel and energy consumption (Graedel, 2002; Berke and Conroy, 2000; Owens Claudy et al., 2010). But it is found that individuals are not paying much attention for adoption of green initiatives which is considered to be a matter of concern among environmentalists (Averdung and Wagenfuehrer, 2001). To cope up with this gap

different educational institutions, business corporations, and non-profit organizations have started their efforts to build sustainable nations. Among all these, educational institutions have important role in imparting knowledge related with environment and adoption of environment friendly activities among students. As students are considered to be the future of every nation, so, if adoption of green initiatives among them increased it will lead to formation of sustainable nation.

The various research attempts have been carried out in developed and developing nations to explore how sustainability can be formulated and what are the main drivers the cause for its adoption. But in comparison to developed nations, research about sustainability drivers is very little in India. The present study aims to explore the role of social influence on adoption of sustainable behavior of university students. The rationale for choosing young educated segment is that they are more receptive to new ideas than older generations (Ottman et al. 2006). Secondly, the review of research studies supports the notion that ecological preservation is more prevalent in relatively younger generations (Cornell et al., 1999).

First the theoretical background of the concept social influence, its composition, and how it leads to sustainable behaviors has been discussed. Next, the design of adopted research approach and nature of the collected data is described. Finally, the findings of the empirical investigations have been discussed along with statistical data.

1. Theoretical background

1.1 Social Influence

Elliot Aronson (1972/2008) had defined individuals as The Social Animals because others behavior and attitudes has influence on our behavior. The early theoretical conceptualizations have recognized the importance of social influence on consumer adoption of particular behavior (Rogers, 2003; Wejnert, 2002; Young, 2009). The effect of social influence can be related to the influential effect from others on one's behavior and his/ her decision to choose particular action in the social context which is dependent on attitudes and behaviors. The people interact with the social networks in which they reside for adoption of decisions (Burkardt and Brass, 1990). Several studies have argued that social influence has bearing upon adoption of pro-environmental behaviors at individual level or at family level (Goldsmith and Goldsmith, 2011). The social influence has been built up with norms and peer influence. Further, norms are comprised of personal and social norms.

1.1.1 Personal Norms

The personal norms are shared beliefs explaining how people perceive about themselves for action which get instrumented by internal promise of rewards and threats and these are the self expectation of specific action under any condition (Schwartz, 1977). It has been established by research attempts that personal norms affect both pro-social behavior intentions and actual behavior (Biel and Thogerson, 2007). Thus, it can be conceptualized

that personal norms are symbolic of internal reasons which are in line with internal values and thoughts of right or wrong (Thogerson, 2006). Different research studies have explored the positive associations between personal norms and adoption of environmental or sustainable behaviors such as energy policies (Steg et al, 2005), recycling (Thogerson, 2003), and green purchase behaviors (Tanner and Kast, 2003; Thogerson and Zhou, 2012). In transport sector, norms also found to have greater influence on adoption of environmental friendly travel choices (Bamberg and Schmidt, 2003; Jansson, 2009). Personal norms are formed from shared expectation when individuals interact socially and these norms get changed according to particular history of a person. These also described the parameters on which events are evaluated (Schwartz, 1977). From the above discussion, following hypothesis is proposed:

H1: Personal norms significantly affect sustainable behavior of university students.

1.1.2 Social Norms

The social norms are a vital part of the social influence but they are less internalized as compared to personal norms. Instead of internal rewards and punishments, the social norms are characterized by rewards and punishments based on group expectations. According to Ajzen and Fishbein (2005), people exhibit social norms due to social pressure. The social norms are assumed to be created by members of a group and get vary from individual to individual according to their internalization. Social norms are very much similar to personal norms as both forms drive behavior change due to different reasons. The social norms also have strong bearing on adoption of sustainable behaviors as evidences from different research studies suggested, e.g. in climate change mitigation behavior (Griskevicius et al., 2008), conservation behavior (Goldstein et al, 2008), car pooling use (Bamberg and Schmidt, 2003). It was asserted that influence of social norms get weaker when joint effect of personal norms and social norms are examined on behavior change (Thogerson, 2006).

The norms focus theory (Cialdini et al., 1991), classify social norms in two parts i.e. injunctive norms and descriptive norms where injunctive social norms is a socially shared code of conduct and descriptive social norm is obvious behavior of other people. The injunctive social norm is associated with sanctioning group; on the other hand, descriptive social norm is linked with location (Reno et al., 1993). The people follow particular behavior depending upon the active norm at that time. If they are following the guidelines of other people for behavior adoption that implies that are following injunctive norms and if they copy the behaviors of others then they are using the descriptive social norms. The overall discussion about social norms leads to form the following hypothesis:

H2: Social norms significantly predict sustainable behavior of university students.

1.1.3 Peer Influence

Peer influence has more intense influential effect on behavior in case of youngsters (Berndt, 1982). At this stage, it is very important to be acknowledged by one's peer group. Various research studies have examined the effect of peer influence on different behaviors and decision making conditions (Gavin and Furman, 1989; Urberg et al., 1997; Kindermann, 1993; Ryan, 2001). Additionally, consumers are observed to exert influence on the purchasing decisions of the families and peers (Caruana and Vassallo, 2003). Especially, youngsters have been found to have more influence on purchasing decisions when their friends are doing the shopping (Gunter and Furnham, 1998). It was analyzed by the study of Lascu and Zinkhan (2006) that children and adolescents affect the purchasing decisions of their peers and families starting at the age of seven. From the survey conducted in Hong Kong in 2006 by K. Chan, it was observed that 67% of students seek assistance from their peers while buying unfamiliar products. The present study endeavors to examine the effect of peer influence in conjunction with norms on adoption of sustainable behavior by university students. To examine the relationship following hypothesis has been formulated:

H3: Peer influence significantly predicts sustainable behavior of university students.

2.2 Sustainable behavior

The term sustainable behavior implies that behavior which improves social and environmental performance for well being of others and for earth. It incorporates what are the barriers to adoption of sustainability and how to alter the consumer behavior. But there is always doubt about what aspects should be included into the realm of sustainable behaviors and what are the specific behaviors that constitute sustainable behavior. From the various explanations given by the different researchers it is postulated that sustainable behavior include all those actions which results in conservation of the biosphere and protect the other groups which are on the verge of extinction (Ehrlich and Ehrlich, 2004). The sustainable behavior engagement ensures equal access to the usage and consumption of natural resources (De Young, 1996). Additionally, sustainable behavior results in conservation of natural resources (Kiaser, 1998). The various research attempts have asserted that sustainable behavior entails pro- ecological, pro-social and frugal behaviors (De young, 1991; Iwata, 2001; Kaiser, 1998). Pro-ecological behavior is consisted of those actions which aim at preservation of natural resources such as soil, air, energy, plants, and animals, and they are exhibited through actions like reuse, recycling, water and energy saving actions etc.(Thogerson,2005). The frugal dimension of sustainable behavior is associated with discretion base behaviors such as reduced consumption, avoiding over usage of natural resources (De Young, 1991). While pro-social behaviors entail those actions which are carried out for the wellbeing of the society and social environment (Van Lange, 2000). It also ensures equitable allocation of resources, treating others fairly without any biases (Corral-Verdugo et al., 2010). In spite of different nature of these dimensions of the sustainable behavior, previous research studies have stated that these all are inter correlated and predict

the main factor i.e. sustainable behavior (Corral-Verdugo et al., 2010; Schultz, 2001; De Young, 1996).

2. Research methodology

Instrument Design

The questionnaire framed for the purpose of the study contained measures for demographic variables such as gender, age, marital status, monthly family income, and education levels. The questionnaire was comprised of five parts measuring respondents' personal norms, social norms pertaining to sustainable behavior, peer influence, measures of sustainable behavior, and demographic profile. The scale used to measure personal norms has been adopted from a study by Stern et al.(1999) and comprised of seven statements measuring responses on five-point likert scale ranging from strongly disagree (1) to strongly agree (5). The structured scale of social norms was used from the study by Biel and Thøgersen (2007). Social norm responses were also measured on five –point Likert scale. Next, the scale of peer influence was adopted from the study by Lee (2009), which was comprised of five items measuring responses on five –point Likert scale. A total of seven items were used to measure the sustainable behavior which was taken from the study by Evan and Scott (2017). The proposed model of the present study can be figured out as follows:

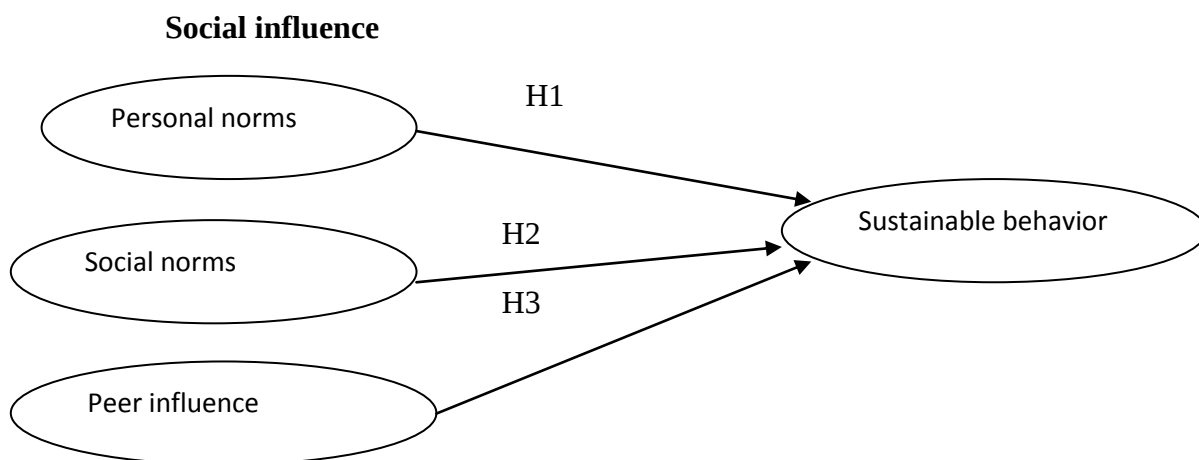


Figure 2.1

Hypothesized model

Sample

Self administered questionnaire was distributed to a total of 300 university students of state Punjab. Three state universities namely; Guru Nanak Dev University (Amritsar), Punjab Technical University (Jalandhar), and Punjab Agricultural University (Ludhiana) were selected for selection of respondents. A total of 100 questionnaires were distributed by adopting

convenience sampling technique to each university out of which 258 were found to be appropriate for further analysis.

Data analysis techniques and software tool

The collected data has been analyzed by using SPSS 19 software package and research analysis techniques of Multiple regression analysis and Frequency distributions.

4. Findings and discussion

The demographic description of the respondents according to gender, marital status, age, educational qualification, and monthly family income variables are given in following table 4.1. The table reveals that out of 258 sample respondents the majority is comprised of male respondents with total of 139 (53.9%) % and female respondents are 119 (46.1%). For profiling respondents according to their age, seven categories were formulated in the range of >-20, 21-25, 26-30, 31-35, 36-40, 41-45, Above45. The table 4.1 represents that maximum number of students belongs to 21-25 years age group with 36.8%. After that, 26-30 age group shows majority with number of university students with 20.9%. Amongst all age categories least number of students i.e. with 3.1 % students belongs to above 45 years age group.

Table 4.1 Demographic description of the respondents (N-258)

Variable	Frequency	Percentage
Gender		
Male	139	53.9
Female	119	46.1
Age		
>-20	43	16.7
21-25	95	36.8
26-30	54	20.9
31-35	36	14
36-40	10	3.9
41-45	12	4.7
Above45	8	3.1
Educational qualification		
Diploma	13	5
Under Graduate	121	46.9
Post Graduate	110	42.6
PhD	14	5.4
Marital status		
Married	105	40.7
Unmarried	153	59.3
Family monthly income		
<-10000	17	6.6

10001-25000	69	26.7
25001-50000	119	46.1
50001-75000	37	14.3
Above75000	16	6.2

The above table elaborates educational qualification wise distribution of the sample of university students. It shows that out of 258 respondents, the majority i.e. 46.9% of respondents are under graduates, whereas 42.6 % respondents are post graduates. Apart from this, some of the respondents i.e. 5.4 % are doctorates and only 5% respondents are having diplomas. The table 4.1 elaborates marital status wise distribution of 258 respondents chosen for the study. Out of 258 respondents, married respondents account 40.7% of total while unmarried respondents share 59.3% of the total percentage. Hence, majority of the respondents are unmarried. Family Income wise frequency distribution of respondents is presented in table 4.1. Five categories of family income were used such as less than Rs10000, 10001-25000, 25001-50000, 50001-75000, and 75001-100000. It was found that majority of the students viz 46.1% have Rs 25001 to 50000 family income. Whereas, 26.7 % from the total students count have family incomes in the range of Rs 10001-25000. Low percentage of students came out to be for income group Rs 50001-75000 which is 14.3%. Another family income group which has low percentage of students is less than Rs 10000. The percentage for this group is 6.6. Least proportion was shared by the family income group above Rs 75001 with students count as 16 and percentage as 6.2.

Effect of Social Influence on Adoption of Sustainable Behavior

Different studies have demonstrated the role of social influence in adoption and promotion of sustainable behavior. In a field experiment Schultz (1999) had analyzed the role of neighborhood positive feedback in promotion of cycling habits among countryside villagers and the findings of the study revealed positive correlations among variables. Another study by Cialdini (2005) exhibited that rewording request in hotels increased the re usage of towels through application of social appeal. Although other studies also revealed significant contribution of social influence on adoption of sustainable behavior, yet, in India no such research approach has been carried out to examine the relationship. The present study made an effort to gauge the relationship by taking university students as sample of the study.

Model formulation:

In present study to examine the effect of social influence on sustainable behavior, multiple regression analysis has been performed in which sustainable behavior (SB) has been treated as dependent variable and social influence indicators viz. personal norms (PN), social norms (SN), and peer influence (PI) have been taken as independent variables. Before applying multiple regression analysis on the data, the reliability of the variables had been checked by using Cronbach's Alpha (α) statistic. According to Nunnally & Bernstein (1994), the value of Cronbach's Alpha should be more than 0.60. The following table 4.2 describes the reliability results of each variable.

Reliability Coefficients

Table 4.2 Cronbach's Alpha (α)

Sr no.	Variable name	Cronbach's alpha value
1.	Personal norms	0.907
2.	Social norms	0.778
3.	Peer influence	0.686
4.	Sustainable behavior	0.901

The table 4.2 shows that Cronbach's Alpha for dependent and independent variables came out to be more than suggested value which is 0.60. The dependent variable sustainable behavior (SB) advertisements had reliability value as 0.901 and independent variables viz. personal norms (PN), social norms (SN), and peer influence (PI) had Cronbach's Alpha values AS 0.907, 0.778, and 0.686 respectively. Hence, the variables are appropriate for multiple regression analysis.

In multiple regression analysis, the assumption of multicollinearity was checked before analyzing the actual effect of variable. As per assumption of regression analysis, multicollinearity should not be existed among variables. The Tolerance and Variance Inflation Factor (VIF) are analyzed to meet the assumption. As per rule of thumb, the value of VIF should be below 10 to meet this assumption.

Table 4.3 Tolerance and Variance Inflation Factor (VIF) of Independent Variables

Variable name	Collinearity Statistics	
	Tolerance	VIF
Personal norms (PN)	0.801	1.248
Social Norms (SN)	0.829	1.206
Peer Influence (PI)	0.956	1.047

As it clear from the table 4.3 that all values of VIF and tolerance are below 10, so, there is no multicollinearity among variables. Next the model was developed to know the main effect of variables on dependent variable. The following model used for the study was as follows:

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \epsilon_i$$

Where Y= Dependent variable (sustainable behavior (SB))

α = Intercept

$\beta_1, \beta_2, \beta_3$ = regression coefficients

X_1, X_2, X_3 = Independent Variables, as

X_1 = Personal norms (PN)

X_2 = Social Norms (SN)

X_3 = Peer Influence (PI)

The table 4.4 described the model summary of the regression analysis

Table 4.4 Regression Model

model	R	R Square	Adjusted Square	R	Std. Error of the Estimate	Durbin-Watson
1	0.766 ^a	0.587	0.582		0.43197	2.066

Predictors: personal norms (PN), social norms (SN), peer influence (PI)

Dependent variable: sustainable behavior (SB)

The correctness of the regression model is examined through coefficient of multiple determinations (R^2). It shows the collective effect of all independent variables in estimating the dependent variable. The value of the R^2 is 0.587 in the model which represents that all independent variables together explained 58.7 % variance in the dependent variable (sustainable behavior (SB)). The value of adjusted R^2 came as 0.582 and it represents how well the model fits to the data. The difference of R^2 and adjusted R^2 i.e. $0.587 - 0.582 = 0.005$ shows that model is good fit as value of difference (0.005) is minimal. Also, the findings of the model described that there is no auto correlation problem as value of Durbin Watson is 2.066 which is approximately equal to 2.

The analysis of variance was performed to test the overall significance of the model of regression analysis. For this following hypothesis was formulated:

$$H_0: \beta_1 = \beta_2 = \beta_3 = 0$$

Table 4.5 Analysis of Variance for the Regression Model

ANOVA^b

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	67.374	3	22.458	120.355	.000 ^a
Residual	47.396	254	0.187		
Total	114.769	257			

a. Predictors: (Constant), PI, SN, PN

b. Dependent Variable: SB

The table (4.5) represents the ANOVA output for the regression model and it is observed from the table that F value is significant at 5 % level of significance and which is statistically high. The significant F value denotes that model is significantly good at estimating the effect of independent variables on dependent variable.

Table 4.6 Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.079	.295		.268	.789		
PN (X1)	.678	.045	.680	15.105	.000	.801	1.248
SN (X2)	.110	.051	.096	2.161	.032	.829	1.206
PI (X3)	.189	.056	.138	3.342	.001	.956	1.047

a. Dependent Variable: sustainable behavior(SB)

b. Independent variables: personal norms (PN), Social Norms (SN), Peer Influence (PI)

c. Values are significant at 5% level of significance

The table 4.6 describes the partial regression coefficients for the independent variables of the regression analysis. Beta value of independent variables (β_1 , β_2 , β_3) explains the relationship

between dependent and independent variable. From table, it is deduced that personal norms (PN), social norms (SN), and peer influence (PI) reported positive partial regression coefficients which implies that all these variables affects positively sustainable behavior of university students.

The partial regression coefficient (B) for X_1 (personal norms) is 0.678 and corresponding beta value (β_1) is 0.680 (p value= 0.000($p<0.05$)) which indicates that sustainable behavior of university students is positively affected by personal norms and it produces 68 % change in dependent variable. So, H1 is accepted. The variable social norms (X_2) has partial regression coefficient as 0.110 and corresponding beta value is 0.096 (p value =0.32 ($p<0.05$)) and it explains 9.6 % variance in sustainable behavior of students. Further, the peer influence (X_3) explained 13.8 % variance in dependent variable as its beta value is 0.138 (p value= .001($p<0.05$)). Amongst all three variables, personal norms have the strongest effect on adoption of sustainable behavior among students. The results support the H2 and H3.

Regression equation:

The regression equation has been estimated with multiple regressions analysis can be described as follows:

$$Y = 0.079 + 0.678X_1 + 0.110 X_2 + 0.189X_3 + \epsilon_i$$

The above described regression equation represents the predictive power of all independent variables used in the analysis. All variables have positive contribution towards predicting the value of the dependent variable viz. sustainable behavior and, together, all these variables explain 58.7 % variations in the dependent variable.

Conclusion, limitations, and directions of future research

The aim of the present research attempt was to examine the role of social influence on adoption of sustainable behavior among university students. The social influence was measured by taking three dimensions viz. personal norms, social norms, and peer influence. From the results, it is inferred that sustainability measures can be promoted by improving norms and exerting positive influence on peer groups. The findings of the study explained that personal and social norms along with peer influence exert significant impact on sustainable behavior. Amongst all the three independent variables, personal norms have strongest impact on shaping sustainable behavior. The significance of the study lies in its findings which clearly depicts that students adhere to environment friendly activities and they are aware about the importance of the sustainability for preserving natural resources. The present study has certain limitations as the study included only three parameters of social influence. The comprehensive dimensions should be examined to know the exact effect and interactions. Also, the study lacks in examining the demographic associations with included variables which may provide useful insights. The results may also vary if sample size is increased and respondents from different geographical regions are selected.

The future research attempts can include other variables such as family influence, reference groups' effect, and other socio-cultural variables to examine the relationship for sustainable behaviors.

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