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Peer interaction and its influence on the adoption of green products: A study based on demographic characteristics of respondents in Punjab

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Abstract

Ecological consciousness is increasing in society with every passing day. The factors that influence purchase behavior of green products need deeper understanding. The reason is that the underlying dynamics behind people's buying behavior for green products is not easy difficult comprehend. This study attempts to investigate the impact of peer interaction on the green perceived value and the influence of ecological consciousness on green buying behavior amongst people of diverse demographic characteristics. The primary data has been collected from respondents using structured questionnaire from the students of universities and schools and teachers and other employees of varied socioeconomic characteristics. Statistical tools such as t-test, ANOVA and Post Hoc test for multiple-comparisons are employed for analysis. The present study finds that peer interaction has greater influenceon the younger generation towards purchase of green products. The study also investigates green buying behavior stimulated by ecological consciousness among persons of varied demographic characteristics.

Key words: Peer interaction, Environmental conscious, Green purchase behavior, Green products, demographic factors

1. INTRODUCTION

Public interest in environmental issues has increased exponentially.Thefrequency with which environmental reports appear in media and the extent of coverage they receive testify this.The impact of climate change, air and water pollution, global warming and carbon emission have become major concerns today.In fact environmental consciousness has touched our lives at a very fundamental level both as individuals and as society. On the one hand this has led to the creation of social awareness towards environmental protection and on the other, has inspired people to adopt a nature friendly consumption behavior. Social awareness has several dimensions viz. media, elders in society, community, reference groups and the interaction with peers etc. The study measures the influence of peer interaction on the green products buying behavior. Driven by the concern for environment people are changing their consumption patterns and their lifestyles which is consistent with environmental protection.The study also measures the impact of ecological consciousness on green product buying behavior among the persons of varied demographic profiles. Besides, governmental regulations have also added a sense of urgency on this issue. Studies by researchers have evidenced that rising environmental consciousness does not guarantee a commensurate increase in consumers' green behaviour. Adoption of green products may bring its own difficulties and costs and thus may thwart their adoption [1].

2. REVIEW OF LITERATURE

People want to live a healthy and long life. Whatsoever helps in this, assumes importance. Governments of different nations, as they represents the aspirations of people, are also taking due interest in better and healthy environment because it adds to the healthy and long life of their people. The businesses, operating nationally or even internationally, are also taking due interest in it as they respond to the demands of people. This has generated a good interest in such allied subjects as environmental behavior, green marketing, the factors impacting environmental choices, identifying the behavior of green consumers etc. In all these areas except the last one some researches are going on and have been reported also[1], [2]. In every field, peers play an important role in formulating and sustaining the behavior of the people. Since their contribution is significant, it is of some interest to study peerinteraction and influence on the purchase of green products. We have confined our present study to the Punjab state of India only. Other States of India can be a subject of research in future. Buying of green products may be based on various factors. How the consumers were motivated or what rationale made them to buy, needs further investigation. It is not so that purchasing behavior is the direct outcome of consumer's sense of environment only. Essoussi and Linton 2010 are of the view that relationship of behavior and green attitude is not yet established. Further researches to establish relationship between environment attitude and behaviour is still needed[3]. Various researchers are also of the view that there is still no consensus on the relationship betweenthe environmental attitude and green buying behavior[3], [4].

a.Peer Interaction:

The dictionary meaning of the term peer is 'people at the same level' who are in a position to exert influence so as to bring about a change in attitudes and values. The term 'influence' means the change in one's behavior due to the influence of others and in this process a peer is considered an influencer when its peer pressure resulted in a change of another's behavior. Work in this area has been done by [5], [6].The term *social influence* according to Berkman, 2000 is the effect *others have on the attitudes and behavior of individuals or of a group*. How does consumers' connections about brands is influenced by reference group is studied and explained byEscalas and Beattman,2003.In a study on teenagers by Chavda et. al. (2005) concludesthat teenagers do adjust themselves according to the global perception they make in accordance with the conduct and deeds of their peer group.[7] also showthat the influence of peer groups made investors to prefer their investments on the technologies ofgreen energy. Singh and Nayak (2016) studied Theeffect of peer interaction on Indian teenagers and its result on the purchase decision of the family has been gone into by Singh and Nayak, 2016.

Previous studies have investigated the influence of peer interaction on buying behavior of electronic items, apparel and leisure products. The present study investigates the influence of peer interaction on buying behavior of green products in Punjab, India. Such study in the context of Punjab, (India) is a research gap and no such study has so far been conducted.This investigation shall add to the present state of knowledge in the field of green buying behavior spurred by peer interaction. Therefore, the following hypothesis is proposed;

Hypothesis I: There exists no significant difference invarious age groups as regards peer interaction influencing their green buying behavior.

Hypothesis II: Influenced by peer interaction, no significant difference exists among groups having various educational levels.

b.Environment consciousness and Green products buying behavior:

Green products are those that have less impact on environment and employ recycled packaging use less toxic eco-friendly ingredients.Gurau and Ranchhod (2005). Purchase of green products provides consumer a pleasant experience regarding eco-friendly features which turn their purchase behavior towards such products. Zhao et. Al. (2009). The buying of green products by a consumer shows the strength of his emotions rather than the functional benefits he is likely to draw from it [8][9] are of the opinion that when a consumer uses environmental-friendly products, he, in a way, feels a positive sense of health and well-being because of his being a contributor towards the better environment.
The contribution of some of the physical and environmental factors towards improving the conditional values of green products was gone into by Lin and Huang, 2012 and they found that the above mentioned conditions are the important factors that effect and contribute towards consumer's buying behavior of green products. The findings of the earlier researches show that the green buying decisions are to support green companies as also to address environmental issues as per Albayrak and others, 2013.

[10] developed a scale on green purchase behavior and explored the dimensions of frequency, expense and quantity with respect to the buying of green products.[4] worked on actual green purchase and developed a two item scale to measure the dimensions of pollution and brand with respect to the green products purchase behavior.[11] developed a two-item scale for buying environmentally friendly products taking dimension of material used to produce the product.[12] worked on developing ecologically conscious consumer behavior scale that comprises ten-items such as pollution, energy efficiency, packaging, brand, material used to produce, composition and influences.

Present study uses the scale developed by[12]concluded in his study that the scale developed by *Straughan and Roberts* has high level of reliability above other commonly used scalesfor measuring green buying behavior. In the light of extensive review of literature it is indicated that there is linkage between ecological consciousness and green product buying behavior. In order to further validate the association of ecological consciousness and green product buying behavior the following hypothesis is proposed.

Hypothesis III: There is no significant difference among the groups with different educational levels with respect to green buying behavior inspired by environmental consciousness.

Research objectives
1. To identify the demographic variables which influence the green buying behavior stimulated by peer interaction.
2. To identify the demographic variables which stimulate the green buying behavior based on environmental consciousness.

3. RESEARCH METHODOLOGY:

The present study is descriptive study based on a primary data of 190 respondents from university employees, students mainly in the cities of Chandigarh (UT), Ludhiana district of

Punjab state of India. The structured questionnaire was administered through survey mail method. The questionnaire had three sections, section A aimed to asses peer interaction basedgreen purchase behavior of respondents of varied demographic profile, section B consisted to investigate ecological conscious consumer behavior with special reference to green products, and section C was framed to collect demographic variables. The items related to scale peer interaction based consumer behavior was drafted by taking 4 items from scale developed by [5] on peer interaction and 4 items on opinion seeking by [13]. The scale used is 5 point likert scale, having 1= strongly disagree to 5= strongly agree and 3=neutral. The higher score represented higher impact of peer interaction green purchase behavior. The 15 item scale used for drafting standardized closed end questions on ecological conscious consumer behavior for section B was taken by famous scale from [3], [12], [14]. The respondents are chosen on the basis of random sampling method. A brief description of demographic profile of respondents is present in the Table 1

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Table 1:
Demographic profile of sample

Gender		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	89	46.8	46.8	46.8
	Female	101	53.2	53.2	100.0
	Total	190	100.0	100.0	
Educaon Qualification		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	undergraduate	24	12.6	12.6	12.6
	graduate	43	22.6	22.6	35.3
	postgraduate	68	35.8	35.8	71.1
	doctorate	55	28.9	28.9	100.0
	Total	190	100.0	100.0	
Agegroup		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	less than 25	124	65.3	65.3	65.3
	26-35	47	24.7	24.7	90.0
	36-45	19	10.0	10.0	100.0
	Total	190	100.0	100.0	

a. Data Analysis and interpretation

Data considered for the study explain that out of total 190, 89(46.8%) were males and 101(53.2%) were females in number.

To find the impact of gender on score of peer impact based green product purchase behavior of respondents, independent ‘t’ test was applied. Results of analysis are given in Table 2

Table 2:
Independent sample t- test

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Peer interaction based green purchase behaviour	Male	87	3.3922	.91085	.09765
	Female	101	3.5000	.57473	.05719
Environment conciousness based green purchase behaviour	Male	87	3.6230	.68719	.07367
	Female	101	3.7999	.67524	.06719

Table 3:
Independent Samples ‘t’ test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	Lower	Upper
Peer interaction based green purchase behaviour	Equal variances assumed	13.264	.000	.983	186	.327	.10776	.10958	-.32393	.10841
	Equal variances not assumed			.952	140.855	.343	.10776	.11317	-.33148	.11596
Environment conciousness based green purchase behaviour	Equal variances assumed	.633	.427	1.777	186	.077	.17691	.09958	-.37336	.01954
	Equal variances not assumed			1.774	180.916	.078	.17691	.09971	-.37366	.01983

The findings of t- test show that there is no significant difference in green purchase behavior of males and females due to peer interaction as p value stands at .343>.05. Also there is no significant difference of perception is exhibited in scores of environment consciousness based green purchase behavior as shown in Table 3.

Findings of ANOVA Test from Table 5 show that there is significant difference in the mean scores of different age groups on peer interaction based green purchase behavior as p value .015<.05. which means respondents of various age groups have differences in opinion with respect to Peer interaction based green purchase behavior. Further analysis through Post Hoc test in Table 6 shows that there is significant difference in the opinions of Teen age group (< 25 years) and middle age group (36-45 years) and the Mean scores of teen age group (<25 years) are higher than the mean scores of middle age group as shown in Table 4 which signifies that younger groups are more influenced by peer interaction then middle aged group.

It is further observed that there is no significant difference in the opinions of teen age group and younger age group as p value .366 > .05 as shown in post hoc test in Table 6.

Table 4:
Peer interaction based green purchase behaviourx

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
less than 25	124	3.5987	.83019	.07455	3.4511	3.7462	1.00	4.50
26-35	47	3.4332	.43862	.06398	3.3044	3.5620	1.50	4.12
36-45	19	3.1053	.26765	.06140	2.9763	3.2343	3.00	4.00
Total	190	3.5084	.72476	.05258	3.4047	3.6121	1.00	4.50

ANOVA

Table 5:
Peer interaction based green purchase behaviour

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	4.364	2	2.182	4.299	.015
Within Groups	94.913	187	.508		
Total	99.277	189			

Post Hoc Tests

Multiple Comparisons

Table 6: Peer interaction based green purchase behaviour

Tukey HSD

(I) agegroup	(J) agegroup	Mean	Std. Error	Sig.	95% Confidence Interval

		Difference (I-J)			Lower Bound	Upper Bound
less than 25	26-35	.16548	.12203	.366	-.1228	.4538
	36-45	.49341*	.17552	.015	.0787	.9081
26-35	less than 25	-.16548	.12203	.366	-.4538	.1228
	36-45	.32793	.19368	.211	-.1297	.7855
36-45	less than 25	-.49341*	.17552	.015	-.9081	-.0787
	26-35	-.32793	.19368	.211	-.7855	.1297

*. The mean difference is significant at the 0.05 level.

Further the results are analyzed on the basis of educational level of respondents. Data presented Table 8 shows *p* value .001<.05. Therefore null hypothesis is rejected which concludes that there is significant difference of opinions between respondents of different education levels owing to peer interaction. The results of Post Hoc test (Table 9) and mean score values in Table (7) indicates that undergraduates are more influenced by peer interaction than the doctorates when buying green products.

It is further observed that there is no significant difference in the opinions of post graduate respondents and the doctorates as p value .820> .05 as shown in post hoc test in Table 9.

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Descriptives

Table 7. Peer interaction based green purchase behaviour

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
undergraduate	24	3.8073	.57929	.11825	3.5627	4.0519	1.50	4.14
graduate	43	3.7791	.36783	.05609	3.6659	3.8923	3.00	4.12
postgraduate	68	3.4301	.99630	.12082	3.1889	3.6712	1.00	4.50
doctorate	55	3.3225	.33780	.04555	3.2312	3.4139	3.00	4.12
Total	190	3.5256	.70382	.05106	3.4249	3.6263	1.00	4.50

ANOVA

Table 8:
Peer interaction based green purchase behaviour

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	7.555	3	2.518	5.443	.001
Within Groups	86.068	186	.463		
Total	93.623	189			

Post Hoc Test

Multiple Comparisons

Table 9: Peer interaction based green purchase behaviour

Tukey HSD

(I) Education Qualification	(J) Education Qualification	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
undergraduate	graduate	.02822	.17332	.998	-.4211	.4776
	postgraduate	.37722	.16151	.094	-.0415	.7959
	doctorate	.48475*	.16641	.021	.0533	.9162
graduate	undergraduate	-.02822	.17332	.998	-.4776	.4211
	postgraduate	.34900*	.13254	.045	.0054	.6926
	doctorate	.45652*	.13847	.006	.0975	.8155
postgraduate	undergraduate	-.37722	.16151	.094	-.7959	.0415
	graduate	-.34900*	.13254	.045	-.6926	-.0054
	doctorate	.10753	.12336	.820	-.2123	.4273
doctorate	undergraduate	-.48475*	.16641	.021	-.9162	-.0533
	graduate	-.45652*	.13847	.006	-.8155	-.0975
	postgraduate	-.10753	.12336	.820	-.4273	.2123

*. The mean difference is significant at the 0.05 level.

Findings from Tables **10**, Table **11** and Table **12**indicate that the purchase of green products stimulated by ecological consciousness is less amongst undergraduates than the other three groups in the study viz. graduates, post graduates and the doctorates.We may conclude that as the level of education increases commensurate with maturity the ecological consciousness and the purchase of green products stimulated by it also increases. This means environmental consciousness increases with the level of education.

[DataSet1] C:\Users\dell\Documents\Peer interaction impact.sav

Table 10

Descriptives

Environment conciousness based green purchase behaviour

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		

undergraduate	24	2.8444	.43591	.08898	2.6604	3.0285	2.40	3.40
graduate	43	3.6883	.73417	.11196	3.4624	3.9142	3.00	5.00
postgraduate	68	3.8951	.59732	.07244	3.7505	4.0397	2.93	4.93
doctorate	55	3.9090	.51477	.06941	3.7698	4.0481	3.07	4.93
Total	190	3.7196	.68124	.04942	3.6221	3.8171	2.40	5.00

Table 11
ANOVA
Environment conciousness based green purchase behaviour

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	22.490	3	7.497	21.379	.000
Within Groups	65.223	186	.351		
Total	87.714	189			

Post Hoc Tests

Table 12
Multiple Comparisons
Environment conciousness based green purchase behaviour
Tukey HSD

(I) Education Qualification	(J) Education Qualification	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
undergraduate	graduate	-.84385*	.15088	.000	-1.2350	-.4527
	postgraduate	-1.05065*	.14060	.000	-1.4151	-.6862
	doctorate	-1.06453*	.14487	.000	-1.4401	-.6890
graduate	undergraduate	.84385*	.15088	.000	.4527	1.2350
	postgraduate	-.20680	.11538	.280	-.5059	.0923
	doctorate	-.22068	.12054	.262	-.5332	.0918
postgraduate	undergraduate	1.05065*	.14060	.000	.6862	1.4151
	graduate	.20680	.11538	.280	-.0923	.5059
	doctorate	-.01387	.10739	.999	-.2923	.2645
doctorate	undergraduate	1.06453*	.14487	.000	.6890	1.4401
	graduate	.22068	.12054	.262	-.0918	.5332
	postgraduate	.01387	.10739	.999	-.2645	.2923

b. Discussion based on findings

The analysis of present study establishes a link between peer interaction and green buying behavior among people of varied demographic profiles. One of the possible reasons could be that members of younger generation can be easily swayed by their emotions; are more sentimental and flexible. Therefore these are influenced more by their peers as compared to

the members of older and higher educated generation who could be more rational, matureand influenced lesser by their emotions.It was also observed that the purchase of green products stimulated by ecological consciousness is less amongst undergraduates than the other three groups in the study viz. graduates, post graduates and the doctorates. We may conclude that as the level of education increases commensurate with maturity the ecological consciousness and the purchase of green products stimulated by it also increases. This means environmental consciousness increases with the level of education.

4. LIMITATIONS AND PROSPECTS FOR FUTURE RESEARCH

A few shortcomings of this study highlight the need for future research. In the present study only two determinants are considered viz. peer interaction, ecological consciousness. Other factors can also be taken into account as influencing green buying behaviour such as composition, energy efficiency, packaging, brand, marketing communication,, material used to produce etc.This study has been conducted in Punjab only, its horizon may be widened in future studies.

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