CU Global Management Review
Volume 6, Issue 1, January-June, 2017, pp. 19-38

ENVIRONMENTAL ATTITUDE OF BOYS AND GIRLS: FACTOR ANALYSIS

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ABSTRACT

Introduction: Attitude is a psychological variable that contain positive or negative evaluation about people or environment.

Rationale of proposed investigation: Growing generation possess learning skill so if positive attitude is inculcated at the right age might become habit.

Purpose: To find out the attitude and difference in attitude of secondary school boys and girls towards environmental issues.

Research methodology: Primary data is collected from age group 13 to 17 years from

Factor analysis method which contains a variety of statistical techniques is used. In this study the objective of factor analysis is to reduce 30 variables into a smaller number of better identifiable groups of variables.

Findings

- Boys need more regulation and conservation however girls need conservation especially of water and support change to eco-friendly.
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  on resource utilization.
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- Boys are concerned about vehicle pollution while girls do not give it that much priority.
- Hence there is impact of gender on environmental attitude.
- Implications

- Attitude tells about areas of interest hence this information can be harnessed by professionals related to the concerned field to amend set pattern.
- This also gives information to the policy makers.
- This is an eye-opener about attitude on individual level hence have its application on society.

Limitations: Study is restricted to Bikaner city and findings cannot be generalized to other populations.

Key words: Regulation, conservation, environment

INTRODUCTION

Attitude is a psychological variable that contain positive or negative evaluation about people or environment. Attitude come into its role when a judgmental decision is taken by an individual mind based on divine truth of one's perception. Hectic schedule and economic mind drives one away from taking any step for environmental sake. Attitude give a damp or is

burning spirit inside for initiating anything or killing any effort. Studies conducted so far have shown variance in attitude of both genders. Studies failed to reach a common conclusion due to difference in factors as per geographical area of location.

1.1 REVIEW OF LITERATURE

Salmivalli (1998) administered the Canadian CERI (children's environmental response inventory) and the DTT (directing traits test) in Finn with an age distribution 10 to 15 years. A significant difference was found between the attitudes of boys and girls towards mechanical orientation, with boys more interested in mechanical things than their female counterparts.

Eagles and Demare (1999) studied the factors affecting children's environmental attitudes in Canada. The research involved pre-test and post-test questionnaire with earth-camp program. They studied personal information and environmental attitude like ecologistic attitudes, moralistic attitudes and other attitudes. Results indicated no gender differences in ecologistic attitude and girls higher moralistic attitude scores.

Zelezny, Chua and Aldrich (2000) conducted a literature review on gender difference in environmental attitudes and behaviour. They concluded women present stronger environmental attitudes.

Pradeep Kumar Agarwal (2003) conducted a study on "Knowledge and attitude of students and teachers and awareness of parents towards population education" in Higher Secondary School curriculum.

Results indicated:-

- Urban boys displayed more positive attitude towards population education as compared to urban girls.
- No difference in the attitude of rural boys and girls towards population education.
- Urban male and female teachers displayed same attitude towards population education.
- Rural male and female teachers displayed same attitude towards population education.

Tuncer et al. (2005) studied the attitudes with a particular focus on the effect of school type aged 17 years and gender in Turkey. The results indicated statistically significant effect of gender.

S.M. Shobeiri et al (2006) conducted a study on "Environmental attitude of teachers and influence of gender and type of secondary schools" in India and Iran. Results indicated gender seems to influence both groups of teachers.

Alp et al. (2006) conducted a study to determine the environmental knowledge and attitudes in students of age group 11 to 17 years in Turkey. Results indicated females possess more positive attitude towards the environment than males.

K. Shiva Kumar and S.M. Patil (2007) conducted a study on "Influence of environmental education on attitude" of post-graduate students. Results indicated gender has no affect on attitude towards pollution and related issues.

1.2 RATIONALE OF PROPOSED INVESTIGATION

Growing generation possess learning skill so if positive attitude is inculcated at the right age might become habit. This is the solution to environmental issues too. If small changes are opted with little care for nature individually or collectively sustainable growth can be achieved with future generation's survival. Hence study of attitude towards environment may combat studies conducted so far to motivate concerned authorities.

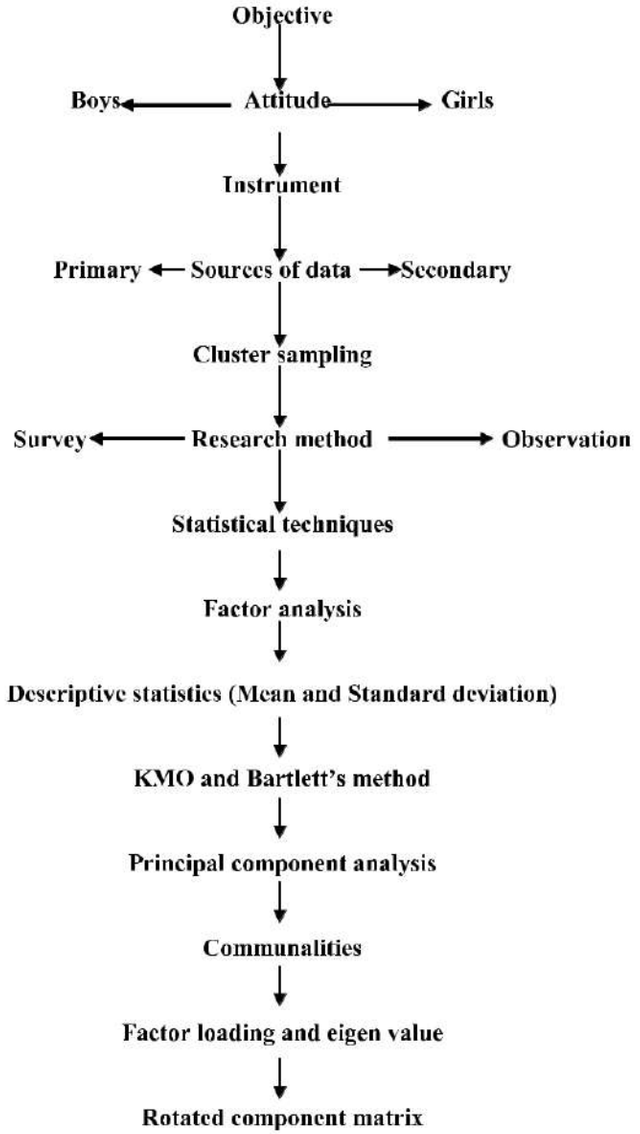
area of location. This makes it very interesting to study gender influence on attitude towards environment.

1.3 OBJECTIVE

To find out the attitude of secondary school boys and girls towards environmental issues.

b) To find out the difference in the attitude of boys and girls.

1.4 RESEARCH METHODOLOGY



1.4.1 GEOGRAPHICAL AREA

here.

1.4.2 TARGET POPULATION: Youths of age group 13 to 17 years are targeted for the study as the future generation is capable of understanding the matter and mature enough to respond to the needs of the society.

1.4.3 INSTRUMENT: An inventory of 30 point Likert scale statements was prepared to measure the attitude of school children towards environment and conservation related matters. The respondents were asked to indicate their level of agreement or disagreement with the statements.

1.4.4 DATA: Primary data is collected though structured questionnaire from various secondary schools.

1.4.5 SAMPLING: Cluster sampling technique is used to cover various features of the youth population.

1.4.6 FACTOR ANALYSIS

- Factor analysis refers to a variety of statistical techniques whose common objective is to represent a set of variables in terms of a smaller number of hypothetical variables (Lewis and Beck: 1994).
- In this study the objective of factor analysis is to reduce 30 variables into a smaller number of better identifiable groups of variables.
- **1.5 FACTOR ANALYSIS**
- **1.5.1 DESCRIPTIVE STATISTICS**

The table below presents basic statistics such as mean and standard deviation of the measured responses for the aforesaid statements.

		Boys			Girls		
		Mean	Std. Deviation	Analysis N	Mean	Std. Deviation	Analysis N
1	Water wasted in washing	3.439	.7875	114	3.570	.6819	284
2	Brush teeth	3.632	.7197	114	3.697	.5700	284
3	Tapes be closed at public pl	3.526	.7550	114	3.662	.5562	284
4	Watering lawns	2.711	.9660	114	2.972	.8014	284
5	Leaking flush valves	3.202	.7663	114	3.254	.7466	284
6	Use of shower	2.377	1.1928	114	2.440	1.0600	284
7	Tape water filtered	3.474	.7667	114	3.560	.6672	284
8	Old pipelines	3.465	.7663	114	3.345	.7429	284
9	Sewerage treatment plant	3.535	.7429	114	3.398	.8064	284
10	Rain water harvesting	3.325	.7814	114	3.440	.7231	284
11	Depleting water table	3.193	.8295	114	3.239	.7465	284
12	Monitor use of pesticides	3.351	.7980	114	3.426	.6497	284
13	Release untreated effluent	3.140	1.0716	114	3.088	.9563	284
14	LED Streetlights	3.588	.7504	114	3.415	.7589	284
15	Households use LED lights	3.474	.7667	114	3.408	.7344	284
16	Switched off if not in use	3.456	.8938	114	3.673	.6306	284
17	Power ratings be mandatory	3.351	.7980	114	3.261	.6951	284
18	Remove old vehicles	3.149	.9707	114	3.011	.8756	284
19	Good public transport system	2.974	1.0259	114	2.979	.8191	284
20	More pollution checkpoints	3.579	.8190	114	3.440	.7083	284

Volume 6, Issue 1, January-June 2017, Print-ISSN 2349-1078

21	Gas connection be checked	3.632	.6277	114	3.556	.6180	284
22	Household plant one tree	3.754	.5732	114	3.676	.6183	284
23	Use both sides of paper	3.711	.6342	114	3.687	.5918	284
24	Dump kitchen waste	3.675	.6449	114	3.599	.7189	284
25	Ban plastic bags	3.667	.6472	114	3.613	.6549	284
26	Carry cloth bag for shopping	3.632	.6553	114	3.620	.5668	284
27	Paper cups in place of plastic	3.272	.9711	114	3.289	.7803	284
28	Global warming not a threat	2.333	1.1649	114	2.268	1.1020	284
29	No effect of global warming	2.596	.9751	114	2.539	.9220	284
30	Should buy green products	3.325	.8774	114	3.243	.7846	284

The responses were measured on a one to four scale therefore any mean value that is more than three indicates an agreement with the statement. In the table above only five statements were found to have a mean value between two and three means they lie in the neutral category. These statements are: "People waste too much of water in watering the lawns", "Use of shower for bath may reduce wastage of water", "A good public transport system may reduce the air pollution", "Global warming is not a threat" and "There is no effect of global warming in Bikaner town".

It indicates that both boys and girls really do not agree with these statements. For the remaining 25 statements the mean value is more than three indicating that respondents agree with those statements.

1.5.2 KMO AND BARTLETT'S TEST[a]

The first step in this test is to see whether the data generate from fieldwork are suitable for factor analysis or not. For this purpose KMO and Bartlett's tests integral to the SPSS package were performed.

The KMO measure of sampling adequacy is an index used to examine the appropriateness of factor analysis. High values (between .5 and 1.0) indicate factor analysis is appropriate in the given case. The Bartlett's test of Sphericity is used to examine the hypothesis that the variables are uncorrelated in the population. In other words each variable correlates with itself but has no correlation with other variables (Malhotra, 2003). The hypothesis is examined by using Chi-square test. The SPSS Output for these two tests is presented in table below.

		Boys	Girls
1	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.769	.856
2	Bartlett's Test of Sphericity: Approx. Chi-Square	1247.886	2511.234
3	Df	435	435
4	Sig.	.000	.000

a. Based on correlations

The KMO values in this analysis are indicating that the sample sizes are adequate and factor analysis is suitable for the given data. For Bartlett's test the significance value is 0.00 suggesting the rejection of hypothesis. It means the variables are correlated hence factor analysis is an appropriate test in this situation.

Factor analysis can be performed by using two different approaches: principal component analysis and common factor analysis. In principal component analysis, the total variance in the data is considered. The method is used when primary concern is to determine minimum number of factors that will account for maximum variance in the data. The Principal Component Analysis method finds out factors or components produced from a linear combination or weighted components of the variables in the data set mathematically, it can be represented as:

$PC_1 = W_{11}X_1 + W_{12}X_2 + W_{13}X_3 + \ldots\ldots + W_{1p}X_p$

Where,

PC_1 = Principal component

W_{11}, W_{12}, W_{13} = Weights of the respective variables.

1.5.3 COMMUNALITIES

The amount of variance a variable shares with all the other variables being considered is explained by communality. This is also the proportion of variance explained by the common factors. The variables having low communality don't combine with other variables. Rescaling is done by the software using a set of agglomerations for normalization of data collected from a large population to minimize the effect of extreme responses. The SPSS output for communalities is given in table below.

		Boys				Girls			
		Raw		Rescaled		Raw		Rescaled	
		Initial	Extraction	Initial	Extraction	Initial	Extraction	Initial	Extraction
1	Water wasted in washing	.620	.394	1.000	.635	.465	.194	1.000	.418
2	Brush teeth	.518	.303	1.000	.585	.325	.166	1.000	.512
3	Tapes be closed at public pl	.570	.396	1.000	.694	.309	.163	1.000	.527
4	Watering lawns	.933	.804	1.000	.862	.642	.415	1.000	.647
5	Leaking flush valves	.587	.277	1.000	.471	.557	.216	1.000	.387
6	Use of shower	1.423	1.387	1.000	.975	1.124	1.069	1.000	.951
7	Tape water filtered	.588	.351	1.000	.597	.445	.229	1.000	.514
8	Old pipelines	.587	.297	1.000	.505	.552	.317	1.000	.574
9	Sewerage treatment plant	.552	.266	1.000	.482	.650	.368	1.000	.565
10	Rain water harvesting	.611	.460	1.000	.753	.523	.157	1.000	.300
11	Depleting water table	.688	.416	1.000	.605	.557	.324	1.000	.581
12	Monitor use of pesticides	.637	.349	1.000	.547	.422	.200	1.000	.474
13	Release untreated effluent	1.148	1.068	1.000	.930	.914	.831	1.000	.908
14	LED Streetlights	.563	.296	1.000	.525	.576	.407	1.000	.707
15	Households use LED lights	.588	.350	1.000	.595	.539	.339	1.000	.629
16	Switched off if not in use	.799	.526	1.000	.658	.398	.146	1.000	.368
17	Power ratings be mandatory	.637	.463	1.000	.727	.483	.234	1.000	.485
18	Remove old vehicles	.942	.775	1.000	.823	.767	.588	1.000	.768
19	Good public transport system	1.052	.797	1.000	.757	.671	.485	1.000	.722
20	More pollution checkpoints	.671	.458	1.000	.683	.502	.249	1.000	.497
21	Gas connection be checked	.394	.181	1.000	.459	.382	.190	1.000	.497
22	Household plant one tree	.329	.124	1.000	.377	.382	.223	1.000	.582
23	Use both sides of paper	.402	.264	1.000	.658	.350	.219	1.000	.626
24	Dump kitchen waste	.416	.215	1.000	.517	.517	.366	1.000	.708
25	Ban plastic bags	.419	.108	1.000	.259	.429	.166	1.000	.386
26	Carry cloth bag for shopping	.429	.170	1.000	.397	.321	.131	1.000	.407
27	Paper cups in place of plastic	.943	.812	1.000	.861	.609	.329	1.000	.541
28	Global warming not a threat	1.357	1.268	1.000	.935	1.214	1.131	1.000	.931
29	No effect of GW in Bikaner	.951	.824	1.000	.866	.850	.757	1.000	.890
30	Should buy green products	.770	.580	1.000	.753	.616	.281	1.000	.456

Analysis.

1.5.4 FACTOR LOADINGS AND EIGEN VALUES

Factor loadings represent the degree of correlation between the particular variable and the factor. It is based on the principle of least squares of differences. Factor loadings represent the importance of the factor and rotation is performed to bring to light relationships not seen previously. Varimax rotation method helps in minimizing the number of factors.

An Eigen value is the sum of squared factor loadings for a particular factor. A common criterion for selecting the number of factors to be extracted from analysis is generally based on the strength of Eigen values. If the Eigen Value (I) > or equal to 1 the factor is considered as significant.

The percentage of variance explained is a summary measure indicating how much of the total original variance of all the variables is represented by the factor. All factors taken together provide total explanation for a particular phenomenon.

1.5.4a Factor Loadings and Eigen values (Rescaled) - Boys

	Initial Eigen values[a]			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.622	21.879	21.879	7.406	24.686	24.686	4.737	15.791	15.791
2	1.737	8.222	30.101	1.622	5.408	30.094	3.255	10.849	26.640
3	1.536	7.271	37.371	1.547	5.158	35.251	1.745	5.815	32.455
4	1.355	6.416	43.788	1.549	5.164	40.415	1.540	5.135	37.590
5	1.283	6.074	49.861	1.563	5.211	45.626	1.486	4.952	42.542
6	1.130	5.350	55.212	1.334	4.448	50.074	1.433	4.776	47.318
7	.877	4.153	59.364	1.028	3.427	53.501	1.419	4.730	52.048
8	.862	4.083	63.447	1.268	4.225	57.726	1.358	4.525	56.573
9	.809	3.830	67.277	1.108	3.692	61.418	1.328	4.425	60.998
10	.768	3.633	70.910	1.067	3.558	64.976	1.193	3.978	64.976
11	.664	3.144	74.054						
12	.576	2.726	76.781						
13	.547	2.591	79.372						
14	.520	2.464	81.836						
15	.453	2.146	83.981						
16	.421	1.992	85.974						
17	.410	1.940	87.914						
18	.360	1.705	89.618						
19	.313	1.481	91.099						
20	.265	1.257	92.356						
21	.238	1.126	93.483						
22	.229	1.086	94.569						
23	.200	.946	95.515						
24	.198	.939	96.455						
25	.170	.805	97.260						
26	.155	.733	97.993						
27	.143	.675	98.668						
28	.130	.615	99.283						
29	.090	.427	99.710						
30	.061	.290	100.000						

environment.

1.5.4b Factor Loadings and Eigen values (Rescaled) - Girls

	Initial Eigen values[a]			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.471	20.308	20.308	7.086	23.620	23.620	4.039	13.464	13.464
2	1.901	11.125	31.433	2.138	7.126	30.746	2.202	7.339	20.803
3	1.173	6.862	38.295	1.467	4.890	35.636	2.030	6.768	27.571
4	.936	5.477	43.772	1.175	3.916	39.552	1.885	6.283	33.854
5	.786	4.597	48.369	1.140	3.800	43.352	1.847	6.156	40.010
6	.743	4.349	52.718	1.312	4.372	47.724	1.565	5.216	45.226
7	.666	3.897	56.615	1.136	3.787	51.511	1.497	4.989	50.215
8	.629	3.683	60.298	1.066	3.552	55.063	1.261	4.202	54.417
9	.584	3.415	63.713	1.041	3.470	58.533	1.235	4.116	58.533
10	.546	3.195	66.907						
11	.536	3.137	70.044						
12	.505	2.953	72.997						
13	.459	2.688	75.685						
14	.408	2.387	78.072						
15	.394	2.306	80.378						
16	.356	2.083	82.461						
17	.327	1.911	84.372						
18	.301	1.760	86.132						
19	.296	1.733	87.865						
20	.268	1.571	89.435						
21	.260	1.520	90.956						
22	.235	1.373	92.328						
23	.228	1.337	93.665						
24	.204	1.194	94.860						
25	.189	1.105	95.964						
26	.171	.998	96.962						
27	.164	.959	97.921						
28	.156	.911	98.832						
29	.112	.657	99.489						
30	.087	.511	100.000						

The nine factors extracted from the data using the Principal component analysis approach explain about 58.5 percent variance in the attitude of girls towards environment.

1.5.5 ROTATED FACTORS

The factor matrix contains the coefficients of variables in terms of factors. These coefficients known as factor loadings represent the correlations between the factors and variables. A coefficient with a large absolute value indicates that the factor and the variable are closely related. The coefficients of the factor matrix are used to interpret the factors.

2003 p 595).

1.5.5a Rotated Component Matrix – BOYS

		Rescaled Component									
		1	2	3	4	5	6	7	8	9	10
1	Water wasted in washing	.714	.053	-.154	-.056	-.043	.191	.198	-.103	-.077	.049
2	Brush teeth	.711	.108	-.041	.135	-.094	.079	.159	.074	.021	.038
3	Tapes be closed at public pl	.608	.368	-.142	.128	.035	-.112	.336	-.002	-.160	-.020
4	Watering lawns	.157	.122	-.016	.018	.877	-.027	.182	.105	-.046	.072
5	Leaking flush valves	.072	.568	.054	.086	.157	-.074	.247	.156	-.127	-.042
6	Use of shower	.086	.050	.086	.057	.078	.017	.032	.046	.008	.972
7	Tape water filtered	.558	.321	-.049	.286	.092	-.046	.055	.254	.056	-.134
8	Old pipelines	.413	.523	.040	-.011	.077	.085	-.085	-.011	-.030	.196
9	Sewerage treatment plant	.067	.491	-.025	.013	.131	.337	.168	-.106	.073	.244
10	Rain water harvesting	.425	.734	.035	-.113	-.025	-.014	.032	.104	-.039	-.070
11	Depleting water table	.167	.365	.044	.010	.454	.330	-.205	-.058	.254	.131
12	Monitor use of pesticides	.274	.399	.222	.142	.066	.110	.106	.179	-.428	.018
13	Release untreated effluent	.135	.147	.050	.934	.011	.067	-.032	-.029	-.070	.068
14	LED Streetlights	.564	-.031	.210	.273	.185	-.011	.118	-.053	-.020	.192
15	Households use LED lights	.483	.327	.229	.163	.106	-.174	-.335	.066	.046	.128
16	Switched off if not in use	.279	.301	.111	.034	-.260	-.041	.476	-.365	.178	.127
17	Power ratings be mandatory	.601	.484	.232	.086	-.162	-.161	-.095	-.023	.079	-.037
18	Remove old vehicles	.060	-.059	.888	-.008	.007	.097	.090	.028	-.008	.093
19	Good public transport system	.019	.750	-.191	.314	.060	.180	.015	-.064	.137	-.004
20	More pollution checkpoints	.157	.054	.598	.528	-.045	-.100	.028	.080	-.005	-.017
21	Gas connection be checked	.449	.297	.195	-.072	.232	.169	.124	-.031	.160	-.044
22	Household plant one tree	.469	.109	.199	.038	.132	.184	.008	-.029	.216	.077
23	Use both sides of paper	.669	.183	.118	.017	.161	.264	-.161	-.172	.104	-.011
24	Dump kitchen waste	.591	.059	.247	-.040	.259	.056	.010	.099	.141	.040
25	Ban plastic bags	.189	.269	.215	.075	.161	.078	-.020	-.166	.195	.027
26	Carry cloth bag for shopping	.374	.241	.246	-.018	.214	.283	.014	-.099	.037	-.001
27	Paper cups in place of plastic	.224	.063	.055	.040	-.013	.872	.117	.132	-.100	-.007
28	Global warming not a threat	-.005	.086	.067	.000	.060	.081	.036	.942	.146	.058
29	No effect of GW in Bikaner	.190	.036	.039	-.037	.015	-.050	.076	.193	.883	.006
30	Should buy green products	.168	.114	.124	-.020	.215	.144	.786	.094	.026	.031

Analysis.

Rotation Method: V
a. Rotation converged in 14 iterations.

- These variables may together be clubbed in one factor as "**Need for more regulation and conservation".** This first factor represents 15.79 percent variance in the attitudinal make up towards environment among secondary school boys.
- The second factor is loaded on seven attitudinal variables including: Leaking flush valves waste water, old pipelines should be replaced, sewerage treatment plant, rain water harvesting, monitor use of pesticides, good public transport system and ban plastic bags.
- These variables may together be clubbed in one factor as "**Need for voluntary participation and regulatory body".** This factor represents 10.85 percent variance.
- It can easily be noticed from the table above that the third factor is loaded on two attitudinal variables including: Remove old vehicles and more pollution checkpoints
- **Preventing vehicle pollution".** This factor represents 5.82 percent variance.
- It can easily be noticed from the table above that the fourth factor is loaded on one attitudinal variables including: Release of untreated effluents should be banned.
- These variables may together be clubbed in one factor as "**Preventing water pollution by industries".** This factor represents 5.14 percent variance.
- It can easily be noticed from the table above that the fifth factor is loaded on two attitudinal variables including: People waste water while watering lawns and depleting water table.
- These variables may together be clubbed in one factor as **"Concern for depleting water".** This factor represents 4.95 percent variance.
- It can easily be noticed from the table above that the sixth factor is loaded on one attitudinal variables including: Paper cups in place of plastic.
- These variables may together be clubbed in one factor as "**Need to shift to eco-friendly".** This factor represents 4.77 percent variance.
- It can easily be noticed from the table above that the seventh factor is loaded on two attitudinal variables including: Switch off fan/lights if not in use and should buy green products.

- These variables may together be clubbed in one factor as "**Save resources and support green products".** This factor represents 4.73 percent variance.
- It can easily be noticed from the table above that the eighth factor is loaded on one attitudinal variables including: Global warming not a threat.
- These variables may together be clubbed in one factor as "**No firsthand experience of Global warming".** This factor represents 4.53 percent variance.
- It can easily be noticed from the table above that the ninth factor is loaded on one attitudinal variable including: No effect of global warming in Bikaner.
- These variables may together be clubbed in one factor as "**No experience of Global warming".** This factor represents 4.43 percent variance.
- It can easily be noticed from the table above that the tenth factor is loaded on one attitudinal variables including: Use of shower waste water.
- These variables may together be clubbed in one factor as "**Conservation of water".** This factor represents 3.98 percent variance.

1.5.5b Rotated Component Matrix (Rescaled) – Girls

		Rescaled								
		Component								
		1	2	3	4	5	6	7	8	9
1	Water wasted in washing	.604	-.039	.097	.041	.167	.042	.032	.088	-.039
2	Brush teeth	.663	.199	.061	.074	.108	.095	-.034	-.031	.020
3	Tapes be closed at public pl	.664	.136	.028	.144	.149	.112	-.083	-.055	.021
4	Watering lawns	.330	.042	.319	-.283	-.011	.405	.060	-.159	.401
5	Leaking flush valves	.463	.043	.340	-.145	.021	.152	.068	.077	.014
6	Use of shower	-.074	-.035	.061	.029	.098	-.065	.084	.020	.959
7	Tape water filtered	.588	.090	.003	.096	.001	.367	.093	-.044	.078
8	Old pipelines	.241	-.045	.034	.016	.255	.656	-.084	.102	-.010
9	Sewerage treatment plant	.279	.236	-.021	.173	.379	.464	-.088	.174	-.065
10	Rain water harvesting	.267	.280	.123	-.036	.179	.149	.022	.258	-.116
11	Depleting water table	.227	.007	.229	.308	-.230	.469	-.044	.254	-.205
12	Monitor use of pesticides	.351	.158	.050	.455	.233	.179	.150	.081	-.034
13	Release untreated effluent	.017	.179	-.001	.137	.075	.129	.013	.913	.020
14	LED Streetlights	.167	-.021	.084	.046	.799	.108	.009	.095	.105
15	Households use LED lights	.157	.147	.229	.093	.719	.060	.007	-.019	.019
16	Switched off if not in use	.448	.215	.059	.112	.229	.170	.059	.089	-.109
17	Power ratings be mandatory	.282	.347	.369	.206	.275	.101	.119	-.074	-.030
18	Remove old vehicles	-.130	.081	.802	.102	.086	.128	.258	-.003	-.003
19	Good public transport system	.111	-.111	.166	.800	.113	.014	.094	.072	.058
20	More pollution checkpoints	.211	.354	.106	.554	-.007	.051	-.014	.054	-.052

21	Gas connection be checked	.329	.523	.196	.182	.077	.056	.050	.181	.006
22	Household plant one tree	.534	.476	.043	.197	-.036	-.102	-.014	.109	-.081
23	Use both sides of paper	.559	.483	.013	.206	-.043	.026	-.029	.186	-.023
24	Dump kitchen waste	.123	.813	.110	-.078	.099	.007	.032	.037	.028
25	Ban plastic bags	.430	.212	.218	.230	.159	.078	-.153	.032	-.013
26	Carry cloth bag for shopping	.431	.270	.207	.271	.064	.085	-.110	.013	-.093
27	Paper cups in place of plastic	.334	.075	.623	.083	.066	-.027	-.054	.126	.064
28	Global warming not a threat	-.295	.222	.045	.263	.008	.306	.743	-.221	.170
29	No effect of GW in Bikaner	.151	-.069	.162	-.015	.009	-.286	.857	.141	.022
30	Should buy green products	.131	.176	.532	.219	.254	-.033	-.028	-.075	.074

Analysis.

Rotation Method: V

a. Rotation converged in 14 iterations.

■

- These variables may together be clubbed in one factor as "**Need for conservation specially water and change to eco-friendly".** This first factor represents 13.46 percent variance in the attitudinal make up towards environment among secondary school girls.
- The second factor is loaded on three attitudinal variables including: Rain water harvesting, gas connection should be checked and dump kitchen waste.
- These variables may together be clubbed in one factor as "**Need for voluntary participation and regulatory body".** This factor represents 7.34 percent variance.
- It can easily be noticed from the table above that the third factor is loaded on four attitudinal variables including: Power ratings should be mandatory, remove old vehicles, paper cups in place of plastic and should buy green products.
- These variables may together be clubbed in one factor as "**Need for resource utilization and support green products".** This factor represents 6.77 percent variance.
- It can easily be noticed from the table above that the fourth factor is loaded on three attitudinal variables including: Monitor use of pesticides, good public transport system and more pollution checkpoints

- These variables may together be clubbed in one factor as "**Need for regulation".** This factor represents 6.28 percent variance.
- It can easily be noticed from the table above that the fifth factor is loaded on two attitudinal variables including: Replace streetlights with L.E.D. and households should use LED lights
- These variables may together be clubbed in one factor as "**Concern for electricity".** This factor represents 6.16 percent variance.
- It can easily be noticed from the table above that the sixth factor is loaded on four attitudinal variables including: Watering lawns waste water, old pipelines should be replaced, sewerage treatment plant and depleting water table.
- These variables may together be clubbed in one factor as "**Concern for depleting water".** This factor represents 5.22 percent variance.
- It can easily be noticed from the table above that the seventh factor is loaded on two attitudinal variables including: Global warming not a threat and no effect of Global warming in Bikaner.
- These variables may together be clubbed in one factor as "**No firsthand experience of Global warming".** This factor represents 5 percent variance.
- It can easily be noticed from the table above that the eighth factor is loaded on one attitudinal variables including: Release of untreated effluents should be banned.
- These variables may together be clubbed in one factor as "**Preventing water pollution by industries".** This factor represents 4.2 percent variance.
- It can easily be noticed from the table above that the ninth factor is loaded on one attitudinal variables including: Use of shower waste water.
- These variables may together be clubbed in one factor as "**Conservation of water".** This factor represents 4.12 percent variance.

1.6 RESULT

1.6.1 IMPORTANT COMPONENTS OF ATTITUDE

The most important components of secondary school **boy's attitude** towards environment are:

Need for more regulation and conservation
Need for voluntary participation and regulatory body
Preventing vehicle pollution
Preventing water pollution by industries
Concern for depleting water
Need to shift to eco-friendly
Save resources and support green products
No firsthand experience of Global warming
No experience of Global warming
Conservation of water

The most important components of secondary school **girl's attitude** towards environment are:

Need for conservation specially water and change to eco-friendly
Need for voluntary participation and regulatory body
Need for resource utilization and support green products
Need for regulation
Concern for electricity
Concern for depleting water
No firsthand experience of Global warming
Preventing water pollution by industries
Conservation of water

analysis.

1.7 CONCLUSION

- Boys need more regulation and conservation however girls need conservation especially of water and support change to eco-friendly.
-
-

  on resource utilization.
-
- Boys are concerned about vehicle pollution while girls do not give it that much priority.
- Hence there is impact of gender on environmental attitude.

1.8 IMPLICATIONS

- Attitude tells about areas of interest hence this information can be harnessed by professionals related to the concerned field to amend set pattern.
- This also gives information to the policy makers.
- This is an eye-opener about attitude on individual level hence have its application on society.

1.9 LIMITATIONS

- This study is constrained by geographical area, data collected is restricted to Bikaner city hence result cannot be generalized to other locations due to varied demographic factors.
- These findings cannot be generalized for other populations.

1.10 BIBLIOGRAPHY

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1.11 APPENDIX

QUESTIONNAIRE ON ATTITUDE

the appropriate box.

		1	2	3	4
1	Water should not be wasted while washing clothes or taking bath				
2	When you brush your teeth the tape should not be kept open				
3	Water tapes at public places should remain closed when not in use				
4	People waste too much water in watering the lawns and gardens				
5	Leaking flush valves in toilets at home waste lots of water				
6	Use of shower for bath saves water				
7	Tape water should be filtered at home to make it fit for drinking				
8	Old pipelines for municipal water supply should be replaced to avoid leakage				
9	Sewerage treatment plant is essential for Bikaner				
10	Rain water harvesting be made compulsory for all commercial and institutional buildings				
11	Water tables in the Bikaner region is depleting fast due to overuse of groundwater				
12	Government should monitor the use of pesticides in agriculture				
13	Industries should not be allowed to release untreated effluent into the rivers and water bodies				
14	Street lights should be replaced by LED lights to save electricity				
15	Households should use LED lights only				
16	Fans/ lights/ AC should be switched off when not in use				
17	Power consumption ratings should be made mandatory for all domestic appliances				
18	Old transport vehicles should be removed from the roads of the city				
19	A good public transport system in the town may discourage use of private vehicles				
20	More pollution control check points for vehicles should be set in the town				
21	All gas connections in the town should be checked regularly for leakage				
22	Every household in the town should plant at least one tree				
23	We should use both sides of a white paper to save trees				
24	We should dump the kitchen waste and garbage in dustbins only				
25	Use of plastic bags should be banned in the town				
26	You would carry a jute or cloth bag when you go for shopping				
27	Disposable paper cups should be used in place of plastic cups				
28	Global warming is not a real threat for India in the near future				
29	Bikaner city has so far not experienced any effect of global warming				
30	You would buy green (environment friendly) products even if they are slightly more expensive				

Volume 6, Issue 1, January-June 2017, Print-ISSN 2349-1078