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Abstract

School plays an important role in character building and building of all types of concepts, including inculcating environmental values and ethics in students through education. The aim of the proposed study was to evaluate the environmental awareness among students studying in grade fourth and fifth in Government Primary School (GPS) of Sagar city, Madhya Pradesh. An Environment Awareness Test (EAT) was designed from environmental education text book running in the Government schools, it was administered on 110 students; (Grade 4th – 54 and 5th – 56) in order to measure the environmental cognitive ability (ECA) of the student's. Independent T Test, AMOS and other statistical measures were used to analyse the data. Item wise analyses were used for analysing other facts related to environmental issues. The result reveals the facts related to various environmental issues in context to cognitive ability. The study will provide suggestions to the academicians, environmentalists and government so that they will incorporate these ideas in order to innervate students towards environmental consciousness. The study is highly original; innovative especially it is an effort to correlate cognitive ability with environmental awareness.

Key Words

Environment Education, Environmental Awareness, Cognitive Ability, EAT

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Reflecting Environmental Awareness through Cognitive Ability: A Study of Primary School Students' of Madhya Pradesh

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ABSTRACT

School plays an important role in character building and building of all types of concepts, including inculcating environmental values and ethics in students through education. The aim of the proposed study was to evaluate the environmental awareness among students studying in grade fourth and fifth in Government Primary School (GPS) of Sagar city, Madhya Pradesh. An Environment Awareness Test (EAT) was designed from environmental education text book running in the Government schools, it was administered on 110 students; (Grade 4th – 54 and 5th – 56) in order to measure the environmental cognitive ability (ECA) of the student's. Independent T Test, AMOS and other statistical measures were used to analyse the data. Item wise analyses were used for analysing other facts related to environmental issues. The result reveals the facts related to various environmental issues in context to cognitive ability. The study will provide suggestions to the academicians, environmentalists and government so that they will incorporate these ideas in order to innervate students towards environmental consciousness. The study is highly original; innovative especially it is an effort to correlate cognitive ability with environmental awareness.

Key Words: Environment Education, Environmental Awareness, Cognitive Ability, EAT

INTRODUCTION –

The UNESCO, UNEP Congress on Environmental Education and Training (1987) agreed that, 'Environmental education should simultaneously attempt to create awareness, transmit information, teach knowledge, develop habits and skills, promote values, provide criteria and standards and present guidelines

NEED & SIGNIFICANCE OF THE STUDY -

The primary stage of schooling is the most important phase of cultivating; culture, values, ethics, sensitivity and other attributes in the students related to environmental concern. The under-study in its preliminary stage in order to collect data related to environmental awareness of the primary students have administered EAT on students studying in Grade fourth and fifth.

The study is an intensive attempt to explore facts related to environmental awareness level among primary students studying in government schools. The proposed work will provide the suggestions how we can develop environmental cognitive ability in context to environmental conservation and protection among students.

REVIEW OF LITERATURE-

Review of literature is helpful in exploring the previous studies enriches and excites the intellect of the investigator. Some of the studies are:

Ahmet Altin, Selecen Tecer et.al (2014), 'Environmental Awareness Level of Secondary School Students: A Case Study in Balikesir (Turkiye)'. The proposed study highlighted the awareness for the secondary students towards environmental issues and problems associated with it. The study also investigated the interaction of the student, family and media towards environmental awareness. The study was conducted on Grade 6th students from three secondary schools whose socio-economic and demographic levels were quite different. The study exaggerated the facts that environment disclosures made in schools were insufficient and the participation level of students to environmental activities was low. The major findings of the study revealed the facts that students gain environment experiences mostly from mass media; audio and visual and girl student have higher level of environmental awareness and participation level than boy.

Arani Mohsen Hesami, Bagheri Somayeh et.al (2016), 'Role of Environment Education in Increasing the Awareness of Primary School Students and Reducing Environmental Risks'. The paper focused that primary school is the first social environment of children. Developing attitude towards environmental hazards plays a vital role in personality development of the children. The objective of the study was to identify the environmental hazards and their assessment and to explore environmental knowledge among students. Questionnaire as a tool was administered on 172 students in order to study their environmental awareness. The paper suggest that school environment management plays an important role in preparing students for environmental education, the results of this study showed a significant relationship between education and promotion of students' environmental awareness.

Baraanza Laura (2010), 'Environmental Education in Mexican Schools: The Primary Level'. The article shows schools' relevance in developing environmental awareness in young children. The study explains that primary level, national curriculum and the Mexican educational system are working towards an environmental policy. The conclusion of the study, environmental education is becoming an area of major concern and interest in the Mexican educational system. More schools are becoming aware of their role in

Iranian students in their level of environmental awareness. There exist significant differences between them in environmental awareness across and within two groups with regard to their gender.

The investigator had selected 300 students of class sixth (government and private) from Coimbatore district. The results highlighted on environmental awareness issue; 26% students low, 48% moderate and 26.6% showed high level of environmental awareness. The finding of the study was no significant environmental awareness among secondary school students.

OBJECTIVES OF THE STUDY –

Major Objective: To study the environmental awareness through cognitive ability.

Specific Objectives are:

- i. To study the environmental awareness among the students on the basis of grade; IV and V
- ii. To study the environmental awareness among the students on the basis of sex; boys and girls
- iii. To study the Environmental Awareness of the students studying in grade fourth and fifth on the basis of EAT scores
- iv. To study the Environmental Awareness of the students; boys and girls on the basis of EAT scores
- v. To study the model; reflecting relationship between various cognitive domain with EAT scores
- vi. To study the responses of the students towards specific environmental issues

HYPOTHESIS –

The following hypotheses are formulated and tested at 95% level of significance.

- i. There will be statistically no-significant difference between grade fourth and fifth student's EAT scores
- ii. There will be statistically no-significant difference between boy's and girl's EAT scores
- iii. There will be statistically no-relationship exists between cognitive domain and EAT scores reflecting through environmental awareness model

RESEARCH METHODOLOGY –

Research Methodology is the systematic procedure by which the research starts from the identification of the problem to its final conclusion.

AREA OF STUDY :

The area for the proposed study was students studying in Grade IV and V of Government Primary School, Sagar Block District Sagar (M.P.)

SCHEDULE OF THE STUDY :

Environmental Awareness Test (EAT) was administered between October 2018- January 2019 on the students studying in Government Primary School (Grade 4th and 5th) in Sagar Block, district Sagar of Madhya Pradesh.

5.	Classify the eating products– Obtained from Plants and from Animals	Matching	10
6.	Friend of Farmer	MCQ	02
7.	Main source of natural energy	MCQ	02
8.	Classify the given pollutions into Air, Water and Sound Pollution	Matching	10
9.	Essay on Environment Cleanliness (Min.5 Lines)	Open Ended	05
10.	Main sources of energy (Write any 5 sources)	Open Ended	05
	GRAND TOTAL		50

(* EAT was developed from NCERT Grade IV and V Text Books: Environmental Studies-
 “Looking Around”, पर्यावरण अध्ययन – आस-पास)

DISTRIBUTION OF MARKS:

Distribution of test marks on the basis of cognitive ability was given as:

TABLE 2: EAT AND COGNITIVE ABILITY

ITEM.	COGNITIVE ABILITY	WEIGHTAGE
1.	EVALUATION	02
2.	KNOWLEDGE	02
3.	KNOWLEDGE	02
4.	ANALYSIS	10
5.	COMPREHENSION	10
6.	COMPREHENSION	02
7.	KNOWLEDGE	02
8.	COMPREHENSION	10
9.	SKILL	05
10.	KNOWLEDGE	05
	GRAND TOTAL	50

Grade	Missing	0
5		

Total Score

Grade	Frequency	Percent	Valid Percent	Cumulative Percent
81-100	18	33.3	33.3	33.3
61-80	30	55.6	55.6	88.9
Grade Valid 41-60	5	9.3	9.3	98.1
21-40	1	1.9	1.9	100.0
Total	54	100.0	100.0	
81-100	31	55.4	55.4	55.4
61-80	19	33.9	33.9	89.3
Grade Valid 41-60	6	10.7	10.7	100.0
5 Total	56	100.0	100.0	

B. Comparison on the Basis of Sex :

62 Boys and 48 Girls selected for understudy; from grade 4th and 5th studying in Government Primary Schools. 38.7% Boys attained A Grade (81-100) marks whereas 52.1% Girls attained A grade (81-100) marks. Most of the boys (48.4%) fall under Grade B (61-80) marks. Overall results 87.1% Boys and 91.7% Girls fall under excellent and good category. It reflects that girls have more environmental cognitive awareness than boys which highlighted through their comparative score in EAT.

Sex = Boy

Statistics^a

Total Score

N	Valid	62
	Missing	0

a. Sex = Boy

Total Score^a

	Frequency	Percent	Valid Percent	Cumulative Percent
81-100	24	38.7	38.7	38.7
61-80	30	48.4	48.4	87.1
Valid 41-60	7	11.3	11.3	98.4
21-40	1	1.6	1.6	100.0
Total	62	100.0	100.0	

a. Sex = Boy

Sex = Girl

Statistics^a

Total Score

N	Valid	48
	Missing	0

	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
TS_Actual	1.606	.208	-	10	.194	-	2.399	-	1.620
			1.307	8		3.13492	34	7.89084	99
Equal variances assumed			-	10	.193	-	2.395	-	1.613
			1.309	7.72		3.13492	71	7.88375	91
Equal variances not assumed			-	10	.193	-	2.395	-	1.613
			1.309	7.72		3.13492	71	7.88375	91

Since in case of Total Score (TS) to Equal variances assumed the p value= 0.194 ($> .05$) it shows that there is statistically no significant difference.

Therefore Null Hypothesis: is accepted; There is statistically no significant difference between Grade 4 and Grade 5 EAT scores.

D. Ho: There is statistically no significant difference between Boy and Girl EAT Scores

Group Statistics

	Sex	N	Mean	Std. Deviation	Std. Error Mean
TS_Actual	1 Boy	62	75.5806	12.08243	1.53447
	2 Girl	48	78.4167	13.24055	1.91111

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
TS_Actual	Equal variances assumed	.246	.621	-	10	.244	-	2.422	-	1.965
				1.171	8		2.83602	33	7.63750	46
Equal variances not assumed				-	96.	.250	-	2.450	-	2.028
				1.157	29		2.83602	90	7.70084	79

Degrees of freedom = 5

Probability level = .016

Minimum was achieved it reflects solution conversed. Overall Chi-square value is 13.920 with df 5. The next step is exploding model fit indices for hypothesised model.

I. Model Fit Summary

On the basis of first summary

P-value= 0.016 (Less than 0.05)

GFI Value= 0.953 (Greater than threshold value 0.9)

CFI Value= 0.849 (Less than threshold value 0.9)

Since p-value is insignificant it represents that the model is not fit.

RMR Value= 0.099 (Greater than 0.05)

RMSEA = 0.128 (Value is quite high)

The study concluded that the hypothesised model doesn't fit the data well so test of model fit indicate a poor fit. Therefore model requires re-specification, the study go for Modification Indices. Specify the covariance among the error term, from modification indices; it requires covariance between e_1 and e_5 , it results there will be over change in Chi-square value by 5.777.

II. Model Fit Summary

After specifying the covariance between e_1 and e_5 the study rechecks the model fit. The second model fit summary:

P-value= 0.112 (Greater than 0.05)

GFI Value= 0.975 (Greater than threshold value 0.9)

CFI Value= 0.941 (Greater than threshold value 0.9)

Since p-value is significant it represents that the model is quite fit.

RMR Value= 0.084 (Greater than 0.05)

RMSEA = 0.090 (Value is quite high)

Both RMR and RMSEA is more than 0.05 it shows that model is not fit. Again the study goes for model specification and specify covariance between e_4 and e_5 , it results there will be over change in Chi-square value by 5.363.

III. Model Fit Summary

After specifying the covariance between e_4 and e_5 the study rechecks the model fit. The third model fit summary has given as:

P-value= 0.680 (Greater than 0.05)

CMIN = 0.503 (Greater than threshold value 0.05)

GFI (Goodness of Fit Index) = 0.995 (Greater than threshold value 0.9)

AGFI (Adjusted Goodness of Fit) = 0.973 (Greater than threshold value 0.9)

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	.300	.293	.300
Saturated model	.000	.000	.000
Independence model	1.000	.000	.000

NCP

Model	NCP	LO 90	HI 90
Default model	.000	.000	4.983
Saturated model	.000	.000	.000
Independence model	58.949	36.288	89.100

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	.014	.000	.000	.046
Saturated model	.000	.000	.000	.000
Independence model	.633	.541	.333	.817

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	.000	.000	.123	.762
Independence model	.233	.182	.286	.000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	25.510	26.908	57.916	69.916
Saturated model	30.000	31.748	70.507	85.507
Independence model	78.949	79.531	92.451	97.451

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	.234	.248	.293	.247

ITEM No.9

Write an essay on Environmental Cleanliness (Minimum 5 Lines)

The proposed question included in the EAT in order to test the environmental awareness issues among the students studying in Government Primary School in Grade 4th and 5th. 5 students unable to answered the question, 2 students wrote only one line, 5 students wrote two lines, 8 students wrote only three lines, 4 students wrote four lines whereas 86 students answered the item well. In most of the cases it is found that students make grammatical and spelling mistakes while expressing their feelings, it reflects they have knowledge and understanding regarding environmental issuers but due to weakness in Hindi grammar portion they feel problem to express their ideas in sentence.

DELIMITATIONS & SUGGESTIONS –

The major delimitations of the present study is that it is restricted to study the environmental awareness of the students studying in Grade fourth and fifth in government primary schools of Sagar city, Madhya Pradesh.

The suggestions for the upcoming studies is that they will broadened their area of study in context to student's grade as well as geographical area even some new variables can be added in order to draw some interesting results which force the education world to think seriously in this area.

The suggestions for increasing environmental awareness among students at primary level are:

- Environmental curriculum should be revised and it should be activity based rather than theoretical so that students at primary level enrich their environmental experience through practical work.
- Environmental day and week should be celebrated on monthly basis in order to create awareness among primary students like celebrating; 2nd Feb. as Wetland Day, 20th March as Sparrow Day, 22nd March as World Water Day, 22nd April Earth Day, 5th June World Environmental Day and various other environmental day and week falls in different months throughout the year.
- Environmental Studies teaching strategies should be modified on the basis of need of the topic.
- Environmental Studies teaching-learning aids and supported toolkit should be developed with help of teacher and student in order to learn the complex topics, it makes teaching-learning process more interactive and result oriented.
- Government should establish '*Enviro School*' firstly at primary level in every block at initial stage which focussed towards environmental studies and its infrastructure also designed in eco-friendly manner.
- Environmental activities should be designed on weekly basis in primary schools like; cleaning the campus and surroundings, sapling, drawing the pictures screening various environmental issues etc.
- Summer and Winter Camps related to "*Enviro Awareness*" should be organise at block level on the basis of student's interest and teacher recommendations from every school at the end of such camp student should get certificate which will be useful and valuable throughout their academic life.

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