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A Study of Students' Conceptual Understanding about the Content of EVS Subject at Primary Level

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Abstract: ***A study entitled 'A Study of Students' Conceptual Understanding about the Content of EVS Subject at Primary Level' has been conducted on students of schools of experimental and control groups to promote the thinking skills such as critical thinking, analytical thinking, reflective thinking, integrative thinking and creative thinking of students at primary level. Qualitative & quantitative analysis of the data shows performance of students of experimental group is better as compared to control group in EVS subjects. It is envisaged that teaching thinking skills by infusing it across curricular areas may be made integral part of teaching learning process in today's scenario to help students in becoming independent thinker and life-long learner. Present strategies and practices of designing lesson plans can be modified so as to integrate various components of thinking skills leading to make thinking classrooms a reality.***

Keywords: content of EVS, thinking skills approach, qualitative & quantitative approaches and thinking classrooms.

1. Introduction

The school is one of the places where children are supposed to learn to think and get various platforms which enable them to make full use of their potential. In today's fast changing world, where progress and advancement is going on at a fast pace, one can not, therefore, afford to be lagged behind. Parents want their children to do extremely well in all kinds of activities, so that they can face the competitive world with great assurance and confidence. Hence, they look for a school which boasts of innovative ways of teaching, where students at the end of the school day feel that they have ushered to the 21st century. In recent years there has been a great deal of interest and research into the ways of developing children's thinking and learning skills (1-28). Most of the teacher educators now have the opinion that learning to think is among the most desirable goals of formal schooling and they are of the view that it is possible to increase students' creativity, critical thinking, problem solving, communication and collaboration capability through innovative instructions and practices. Several promising approaches have been developed to foster thinking skills in students (28). Bernard et al. (3) found that mixed instructional approach that combine both content and critical thinking instruction remarkably outperformed all other types of instructions. It has also been found that while developing critical thinking skills among the students, pedagogy matters and collaborative learning conditions have some advantages. Newton & Newton (18) has measured the impact of thinking skills approach in terms of those aspects of classroom interaction known to support conceptual understanding in learners such as the quantity and quality of people talk, pupil to pupil mediation and types of teacher question etc. So in this context each School system must determine what makes the most sense given their unique circumstances. It is now realized that 'Higher Order' thinking skills are required, in addition to basic skills, because individuals cannot 'store' sufficient knowledge in their memories for future use. In England the revised National Curriculum (7) included thinking skills in its rationale, stating that thinking skills are essential in 'learning how to learn'. In the United States, "a national survey of employers, policymakers, and educators found consensus that the dispositional as well as the skills dimension of critical thinking should be considered an essential outcome of a college education" (1-28). The Conference board of Canada expressed the need for Canadians to improve critical thinking skills to strengthen Canada's innovation profile and competitive advantage in the knowledge-based global economy. In recent years a number of articles, books, reports, seminars have highlighted the importance of 'Higher Order Thinking (HOT) Skills' and hence appear in the support of teaching thinking. In India, the National Curriculum Framework 2005 has strongly advocated the development of life skills such as critical thinking skills, interpersonal communication skills, decision-making / problem solving skills, and coping and self-engagement skills is very critical for dealing with demands and challenges of everyday life (16-17). Many teachers now admit this fact that 'Teaching for Thinking' and 'Quality Learning' is desirable. In the 'knowledge society' of 21st century, the idea of thinking children, thinking classrooms, and thinking schools is essential to achieve the mission of education (1-28). Keeping above in view, present study entitled entitled 'A Study of Students' Conceptual Understanding about the Content of EVS Subject at Primary Level' has been conducted in two CBSE affiliated schools of Ajmer district of Rajasthan State with an objective to compare the performance of the students in terms of their responses of research tools based on thinking skills such as critical thinking, analytical thinking, reflective thinking, integrative thinking and creative thinking. Also to examine the effect of thinking skills approach on students' conceptual understanding about the content of EVS subject.

2. Design, Sample and Research Tools

The quasi-experimental pre-test, post-tests control group design (21-22) was chosen to coduct the present study on the students of Classes III-V of schools of experimental and control groups. The study purports to find out the effect of innovative instructional material, strategies and activities on different thinking skills of students of primary schools. The sample was collected from the two primary CBSE affiliated schools of Ajmer district of Rajasthan State. One of them was designated as experimental group (EG) and other one

was designated as control group (CG). Primary school teachers of experimental group were oriented regarding the innovative instructional strategies & approaches and assessment techniques with a view to promote and monitor thinking skills of the students. Where as the teachers of control group were not oriented regarding aforesaid. In order to stimulate students' thinking and develop their social skills during both inside and outside the classroom, different activities like poster making on different themes of EVS subject for Classes III-V (outside the classroom) and worksheets on different themes of Hindi, English, EVS and Mathematics subjects (inside the classroom) were placed for the students so that they can work individually or in group in the school whenever they get time. Finally, before the conduction of the experiment, students of Classes III-V of experimental group and control group were oriented regarding the use of different graphic organizers. After this, thinking based test items in form of research tools (21) for pre-tests and post-tests were developed and administerd on the students of Classes III-V in respect of EVS subject of school of both the groups. After collection of the data, a minute analysis was carried out through both qualitative & quantitative approaches. Size of the sample of experimental and control groups was as mentioned below:

Class	*Size of the sample in experimental group (EG)*	*Size of the sample in control group (CG)*
III	34	40
IV	34	42
V	34	35

Working Procedure for Conduction of experiment

Step	*Control Group (CG)*	*Experimental Group (EG)*
I	Grouping	Grouping
II	Pre test	Pre test
III	No treatment	Experimental treatment for one year
IV	Post-test I (during experiment)	Post-test I (during experiment)
V	Post-test II (during experiment)	Post-test II (during experiment)
VI	Post-test III (after end of the experiment)	Post-test III (after end of the experiment)
VII	Post-test IV (after a gap of 4weeks) (Final test)	Post-test IV (after a gap of 4 weeks) (Final Test)

3. Instructional Materials

Innovative instructional materials (21-22) in respect of EVS subject were developed by the experts and practicing teachers in workshop mode. Instructional materials and strategies of EVS (i.e. thinking lessons & thinking tools) to teach different thinking skills viz critical thinking, analytical thinking, reflective thinking, integrative thinking and creative thinking in the classroom situation with exixting curriculum time-frame were developed. Details of instructional materials, strategies, tools and classrooms activities both inside and out side are given in reference (21-22). Teachers of experimental group have used these materials, strategies, tools and activities in their teaching learning processes. Photographs below depict students' activities of school of experimental group.

4. Data Analysis

Teachers of Primary school of experimental group were oriented regarding the instructional strategies and assessment techniques with a view to promote and monitor thinking skills of the students of Classes III-V. They used innovative instructional materials, strategies, tools and activities (21-22) during teaching-learning process. Before the conduction of the experiment, the students of Classes III-V of experimental group and control group were oriented regarding the use of different graphic organizers. After this, research tools for pre- and post-tests in form of thinking based test items were administered on students of both the groups in respect of EVS subject for Classes III-V. It is, worthwhile; to mention over here that the teachers of school of control group did not use innovative instructional materials developed by us for the classroom trasaction. Afterward, quantitative and qualitative analysis of the data was carried out. Responses of the students of both the groups were categorized in to three categories viz acceptable responses (AR), unacceptable responses (UAR) and not responded responses (NR) (21-22). Graphical representations of percentages of the responses of the students for both the groups are shown are shown in figures 1-15 for Classes III-V in respect of EVS subject. Analysis of the data in terms of percentage of average accepted responses of students of experimental and control groups has been carried out. Percentages of average accepted responses of students of both the groups were calculated and shown in Table. Graphical representations of percentages of average accepted responses of students of both the groups are depicted in figures 16-18 for Classes III-V. Primarily attention has been focused to accepted responses of students of both the groups. Hence percentages of average unaccepted and not responded responses of students have not taken into consideration deliberately simply with the fact that same can be estimated by subtracting these responses from 100.

Table 1 Percentage of Average Accepted Responses of Students of Classes III-V of EG & CG in EVS.

Class	Percentage of Average Accepted Responses (EVS)									
	Pre-Test		Post -Test I		Post -Test II		Post -Test III		Post -Test IV	
	EG	CG	EG	CG	EG	CG	EG	CG	EG	**CG**
III	42.53	43.13	49.31	45.68	59.59	53.59	59.72	54.55	62.75	54.90
IV	37.90	41.59	40.40	37.5	55.06	39.56	62.75	55.62	65.66	57.41
V	44.78	49.31	55.72	44.54	56.09	51	57.92	53.38	66.30	54.30

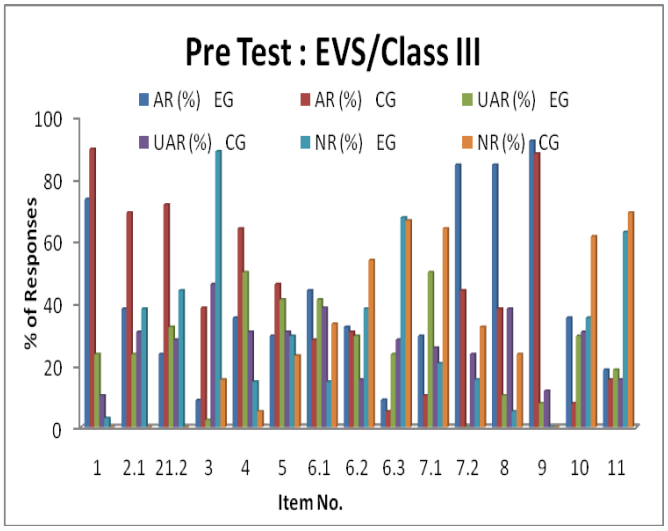

Figure 1: STUDENT's RESPONSES OF PRE TEST (EVS) CLASS III

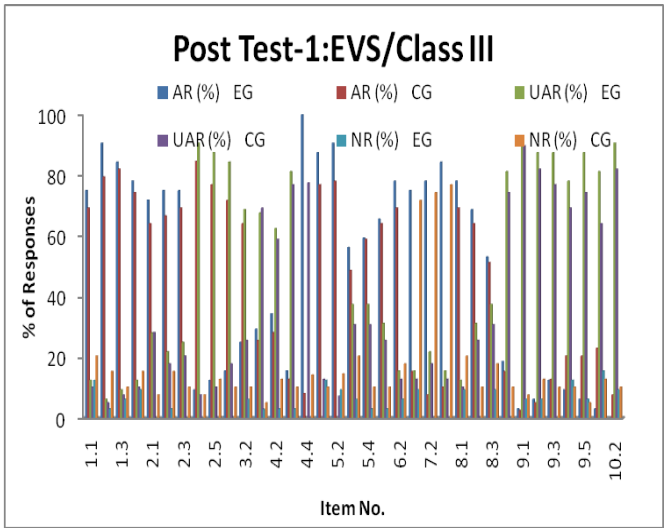

Figure 2: STUDENTS' RESPONSES OF POST TEST-1 (EVS) CLASS III

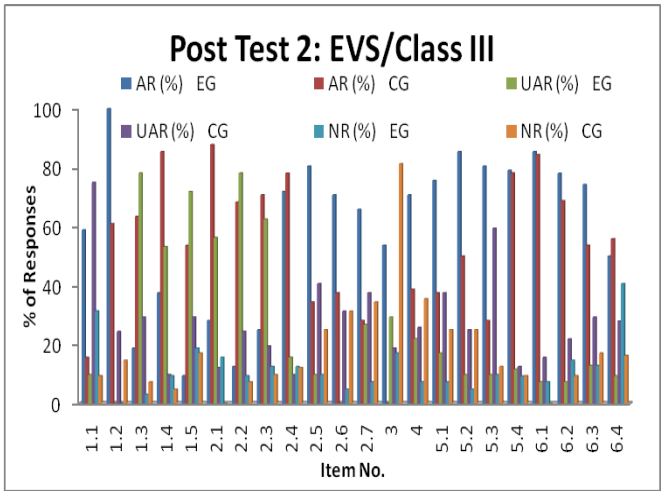

Figure 3: STUDENTS' RESPONSES OF POST TEST-2 (EVS) CLASS III

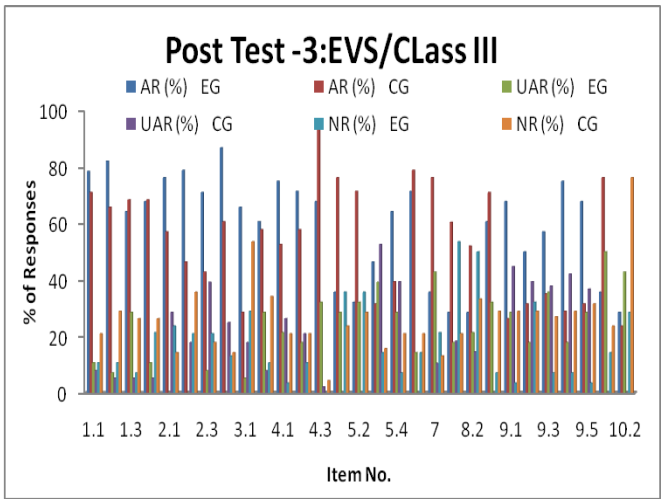

Figure 4: STUDENTS' RESPONSES OF POST TEST-3 (EVS) CLASS III

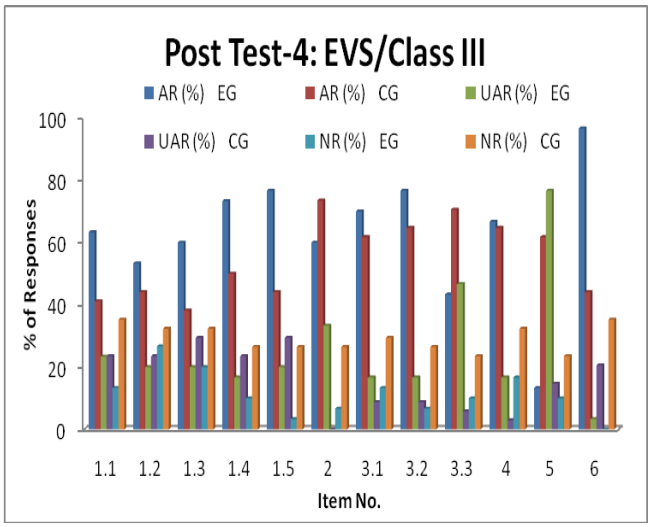

Figure 5: STUDENTS' RESPONSES OF POST TEST-4 (EVS) CLASS III

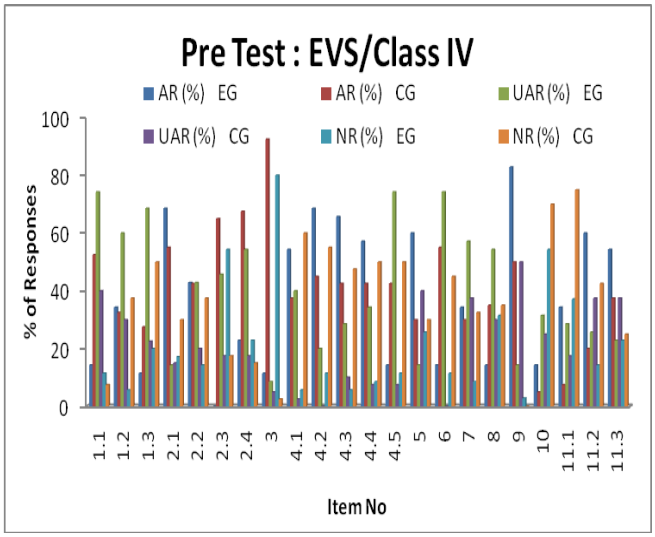

Figure 6: STUDENTS' RESPONSES OF PRE TEST (EVS) CLASS IV

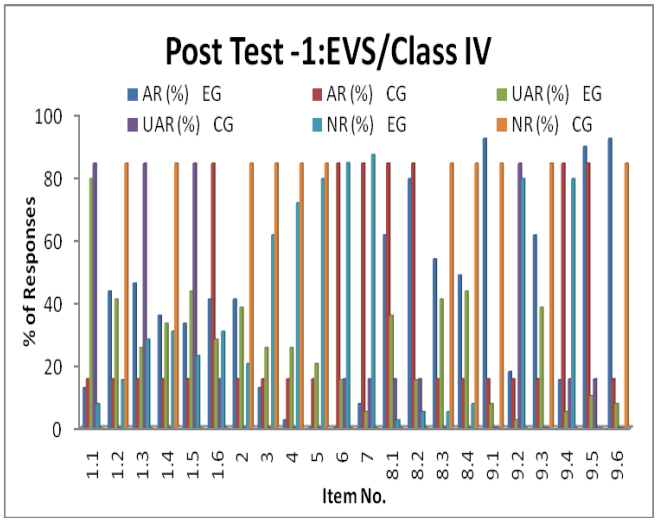

Figure 7: STUDENTS' RESPONSES OF POST TEST-1 (EVS) CLASS IV

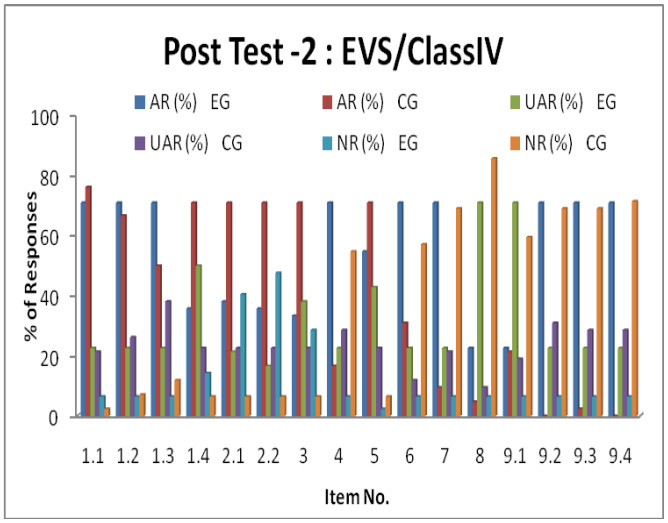

Figure 8: STUDENTS' RESPONSES OF POST TEST-2 (EVS) CLASS IV

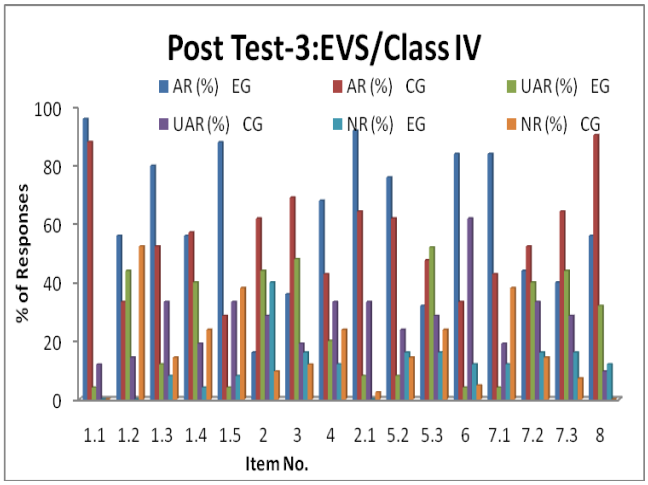

Figure 9: STUDENTS' RESPONSES OF POST TEST-3 (EVS) CLASS IV

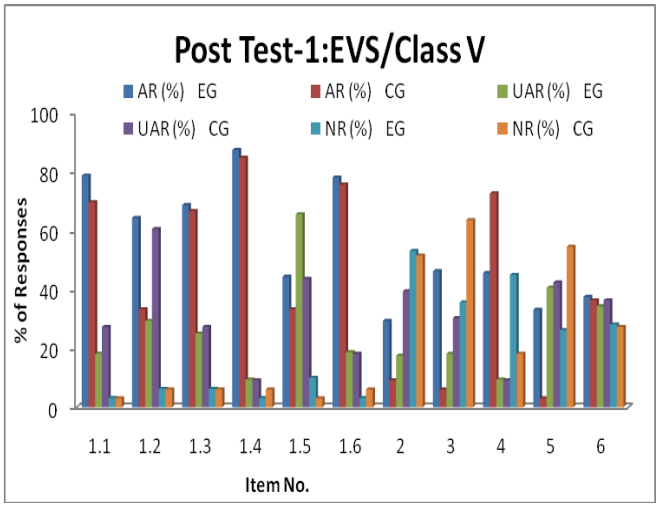

Figure 12: STUDENTS' RESPONSES OF POST TEST-1 (EVS) CLASS V

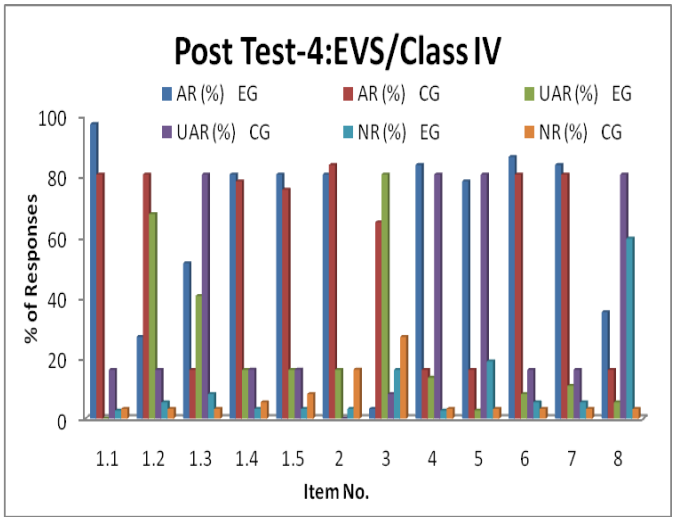

Figure 10: STUDENTS' RESPONSES OF POST TEST-4 (EVS) CLASS IV

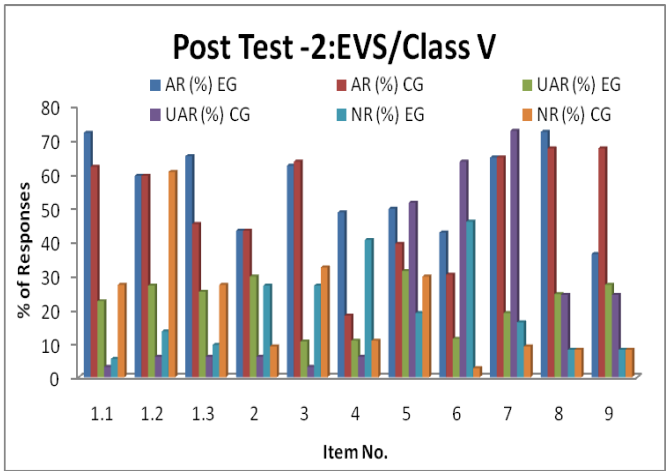

Figure 13: STUDENTS' RESPONSES OF POST TEST-2 (EVS) CLASS V

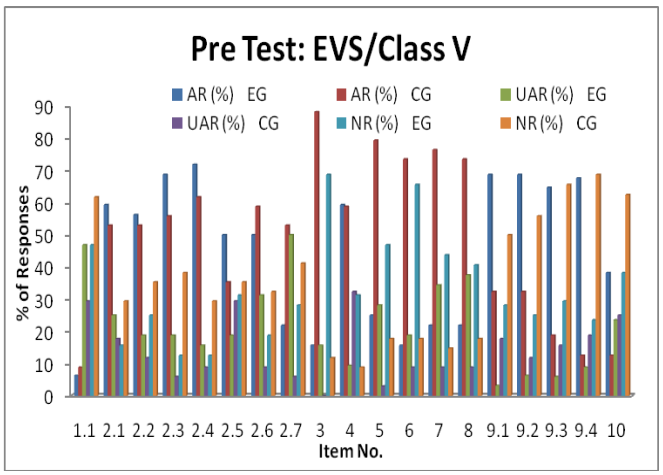

Figure 11: STUDENTS' RESPONSES OF PRE TEST (EVS) CLASS V

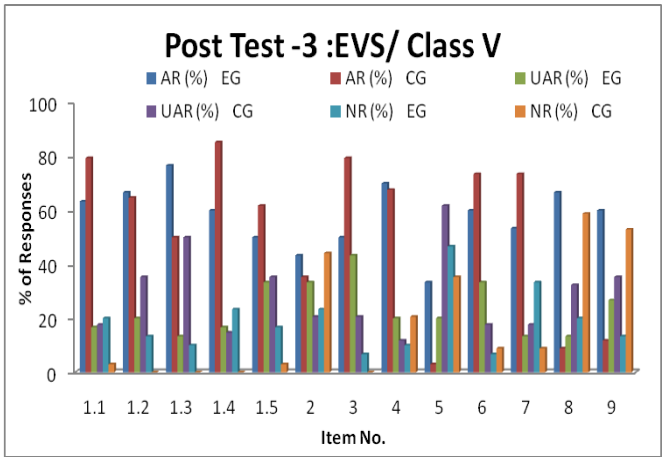

Figure 14: STUDENTS' RESPONSES OF POST TEST-3 (EVS) CLASS V

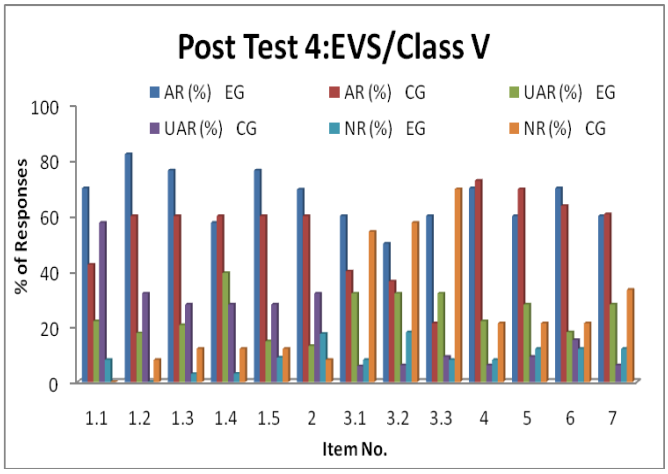

Figure 15: STUDENTS' RESPONSES OF POST TEST-4 (EVS) CLASS V

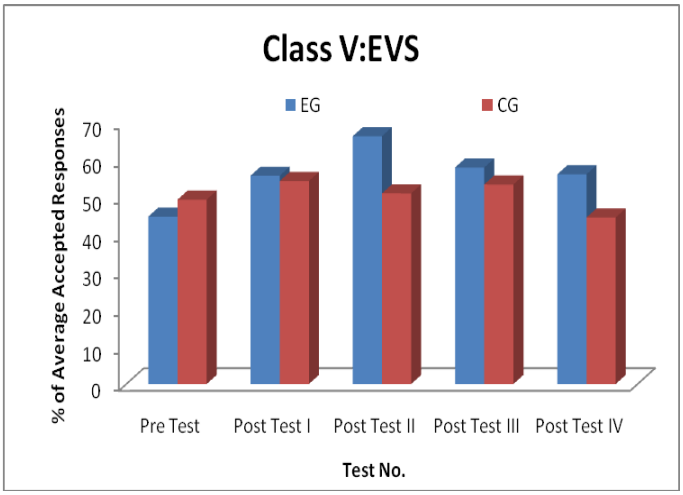

Figure18: Percentage of average accepted responses of students of Class-V: EVS

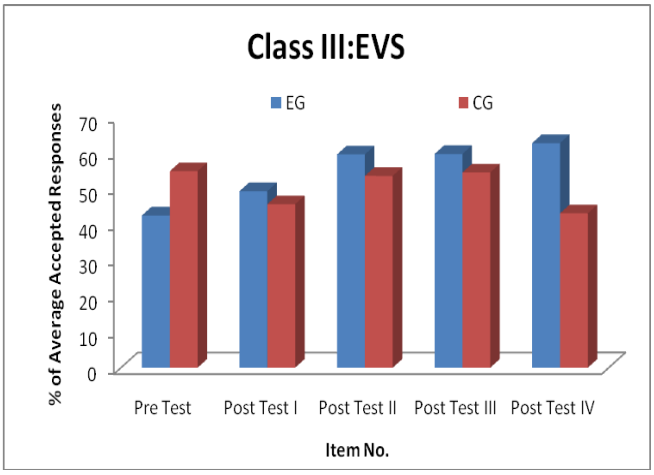

Figure 16: Percentage of average accepted responses of students of Class-III: EVS

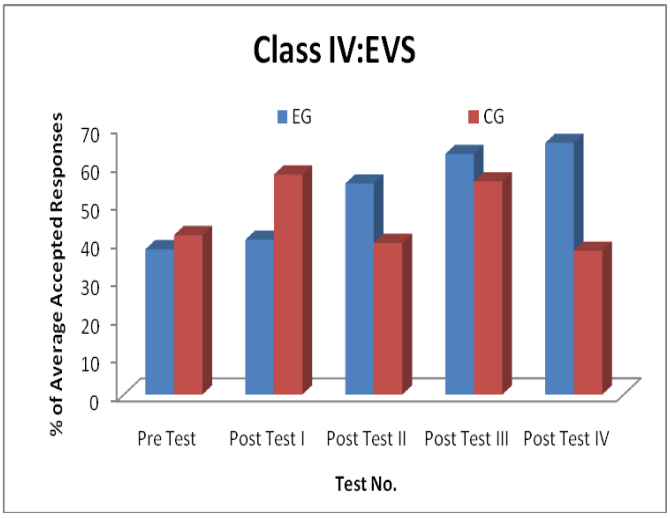

Figure 17: Percentage of average accepted responses of students of Class-IV: EVS

5. Findings and Recommendations

It is evident from figures1-18 that performance of the students of control group is better in all the pre- tests administered on the students of Classes III-V whereas the performance of students of experimental group is better in all the post- tests administered on the students of Classes III-V (Table1). Quantitative and qualitative analysis of the data of both the groups shows that threre exists a difference in performance of students of two groups in EVS subject of Classes III-V (21). There is an increament in the average percentage of accepted responseses of the students. However, it is in larger proportion to the students of experimental group. It was obsereved that most of the questions based on higher order thinking were remain unresponded in case of contol group whereas students of experimental goup attempted these questions and responded most of them correctly. This forms a strong background to make use of the innovative instructional materials & strategies and both inside and outside classroom activities during the teaching learning process. It is, worthwhile, to mention over here that in school of experimental group teachers have used innovative instructional materials developed on subject EVS for Classes III-V and inside & outside classroom activities & strategies during the teaching-learning process. Also primary school teachers of experimental group were oriented regarding the use of instructional materials & strategies and assessment techniques using graphical tools with a view to promote and monitor thinking skills of the students. As a result of the orientation, all the teachers of Primary section of school of experimental group designed thinking based test items in the respective EVS subject they teach for the summative assessment i.e. first term, second term and final term of students of Classes III-V. In order to stimulate students' thinking and develop their social skills during both inside and outside the classroom, different activities like poster making on different themes of EVS subject for Classes III-V (outside the classroom) and worksheets on different themes of EVS (inside the classroom) were placed for the students so that they can work individually or in group in the school whenever they get time. In addition to this, audio-video recording of the teachers transacting subject content using innovative approaches in the classroom of experimental group and video recording of students of Classes III-V

working outside the classroom was done. Also feedback from the students and teachers has been collected. Accordingly additional input to the teachers was given whereas in the school of control group (CG) neither teacher used exemplar instructional materials for transaction of content of EVS subject nor they were oriented. Keeping aforementioned in view, following recommendations (21-22) are made:

- As teachers, challenge is to match the needs of the learners to a world that is changing with rapid pace. To meet this challenge, there is a need to become strategic learners. It is, therefore, suggested that teachers should act as strategic learners i.e. active researchers and developers of innovations and new directions by deliberately expanding perspectives and updating their approaches. Most of the teachers and teacher educators now agree that learning to think is among the most desirable goal of formal schooling and it is, in fact, possible to increase learners' creativity and innovation, critical thinking and problem solving, communication and collaboration capability through instruction and practice. It is, therefore, recommended that innovative approaches/models/ infused programmes (across- the-curriculum approach) have to be developed to foster thinking skills in the students.
- The innovative instructional strategies/practices are considered to be helpful to facilitate learners' conceptual change, improve their thinking skills and develop quality learning among learners.These strategies are helpful to make existing teaching learning process more effective. It is, therefore, recommended that workshops can be organised for in-service teachers to develop insight about innovative instructional materials, strategies, practices and assessment techniques and how to make them work in their schools with an existing curriculum and time-frame.
- It is now realized that 'Higher-Order Thinking Skills' are required, in addition to basic skills, because individuals cannot 'store' sufficient knowledge in their memories for future use. Information is expanding at such a rate that individuals require transferable skills to enable them to address different problems in different context, at different times throughout their lives. It is, therefore, recommended that the curriculum for school education should put emphasis on 'Higher-Order Thinking (HOT) Skills' in its rationale, stating that thinking skills are essential in 'learning how to learn'.
- It is recommended that there is a need of well organized teaching-learning strategies for classrooms that invites and supports 'Teaching for Thinking' and 'Quality Learning'. Acoordingly, teachers need to be specially trained and methods need to be introduced into the curriculum for teaching thinking skills and associated cognitive and metacognitive strategies. Also innovative instructional materials and strategies (i.e. thinking lessons, thinking tools, resource materials i.e. print, video and audio) for primary teachers to teach different thinking skills such as critical thinking, analytical thinking, reflective thinking, integrative thinking and creative thinking are suggested in present time-frame of Primary school to achieve the mission of quality education and to exercise the idea of thinking children, thinking classrooms and thinking schools in a reality.
- It is recommended that teachers of Primary school must be oriented/trained and equiped with innovative instructional materials, strategies, activities and continuous comperenssive evaluation /assessment techniques to promote and monitor thinking skills of students at primary level to create thinking classrooms and ultimately leading to thinking schools. Teachers must try to infuse continuous comperenssive evaluation /assessment techniques in the current curriculum transaction process to assess learners' learning growth.
- Use of graphical tools for designing assessment items of EVS and assessing students' learning growth in terms of learning indicators is very much recommended and it can be accomplished in terms of learning indicators. For example, basis of learning indicators for assessment of learning at Primary stage may be taken as-

Indicators	*Needs improvement*	*Satisfactory*	*Ou tstanding*
Active participation of students in the activities within the classroom and outside the classroom.			
Engagement of the students in new strategies without prompting them by the teacher.			
Students respond to the teacher's questions and elobarate & explian their learning concepts.			
Demonstration the ability to initiate, locate and evaluate information from multiple sources by the students and motivation within and out side the classroom/school.			
Students seek/explore information from different sources and apply in new situation.			
Active involvement of students in learning tasks and asking higher order questions during the teaching learning process.			
Students reflect active listening and involvement in the class room activities.			
Students demonstrate learning beyond classroom by discussing with colleague and teacher.			
Students clearly state main ideas /themes/concepts logically & connect coherently to supporting information and to analyse & synthesie it.			

6. Conclusion

It may be concluded on the basis of the findings of the present research study that there is a need of well organized teaching-learning strategies and practices that supports 'teaching for thinking' and 'quality learning' to to make thinking classrooms and schools a reality. Present practices of designing of lesson plan, instructional materials and strategies needs to be modified and integrated with thinking skills across curricular areas to achieve the mission of quality education in the 'knowledge society' of 21st century.

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