AN INVESTIGATION INTO THE CONCEPTUAL UNDERSTANDING OF STUDENTS ABOUT THE CONTENT OF EVS AT THE PRIMARY LEVEL

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An investigation into the conceptual understanding of content of EVS at the Primary level has been carried out in 10 sample schools. Three schools were English medium and seven schools were Hindi medium from both rural and urban areas in Ajmer district of Rajasthan. Investigators observed the classroom transactions of the content of EVS of the sample schools and administered the research tools on students and teachers. Investigators also interviewed the subject teachers to seek specific information in relation to their academic and professional qualifications as well as classroom transaction. Analysis of the data was done through both qualitative and quantitative approaches indicates that there is a considerable difference in conceptual understanding of EVS between the two groups of students: those who were studying in Hindi-medium schools and those who were studying in English-medium schools.

Keywords: Conceptual Understanding of EVS.

Introduction

The objectives at the Primary stage are to nurture the curiosity of the child about the world to have the child engage in exploratory and hands-on activities for acquiring the basic cognitive and psychomotor skills through observation, classification, inference, etc., to emphasise design and fabrication, estimation and measurement as a prelude to the development of technological and quantitative skills at later stages; and to develop basic language skills: speaking, reading and writing not only for science but also through science. Science and social sciences should be integrated as 'environmental studies' with health as an important component and its teaching should be recast so that it enables children to examine and analyse everyday experiences. Concerns and issues pertaining to the environment should be emphasised in every subject and through a wide range of activities involving outdoor project work. Some of the information and understanding flowing from such projects could contribute to the elaboration of a publicly accessible, transparent database on India's environment, which would in turn become a most valuable educational resource (1-17). It is a long held debate in India whether the medium of education should be universally recognised English language or the regional language.

There are pros and cons of both the options. However, it is universally recognised that students learn better through their mother tongue as medium of instruction. Let us begin with some crucial questions related with medium of instruction. What is the impact of medium of instruction on conceptual understanding of content of EVS? Do students face problems in understanding concepts due to medium? What can be possible points which we should observe in class when teacher is teaching or what can be some of the possible statements that can be put in questionnaire for the teachers to fill? Keeping above in view, investigations into the conceptual understanding of students about the content of EVS at the Primary level have been carried out in 10 sample schools (three English-medium and seven Hindi-medium from both rural and urban areas) in Ajmer district of Rajasthan.

Plan of the Study and Tool

The research study was planned to be conducted in two types of schools – one following English-medium and the other teaching academic courses in Hindi including regional language. This study was restricted to only 10 schools (three English-medium and seven Hindi-medium) of Ajmer district situated both in rural and urban areas. Research tools were designed (Yadav and Sharma, 2011) for assessment of conceptual understanding of students about the content of EVS in three workshops using following performance indicators:

List of Performance Indicators

Interpreting → Clarifying → Changing from one form of representation to another
→ Paraphrasing
→ Representing
→ Translating

Exemplifying → Illustrating → Specific examples
→ Instantiating

Classifying → Categorising → Determining something that belong to category
→ Subsuming

Summarising → Abstracting
→ Generalising

Inferring → Concluding → Drawing logical conclusion from information
→ Extrapolating
→ Interpolating
→ Predicting

Comparing → Contrasting → Detecting correspondence in two ideas
→ Mapping
→ Matching

Explaining → Constructing modules

Above indicators were used to prepare the questions of EVS subject by a team of experts of education and teachers at Primary level and passed through a process of refinement and validation. To do this, the questions were revised based on the reactions of the two Primary school teachers about face validity, clarity of language and suitability for the age level of concerned students. In order to optimise the reliability and validity of the test, the test was first given to a group of 30 Primary level students. After necessary revisions stemming from the item

analyses of the study, in terms of item difficulty and item discriminatory indexes, conceptual tests for Classes III - V were formed (Yadav and Sharma, 2011). Finally 7 to 10 questions were kept in the conceptual tests. During the process of structuring the tools, concepts in EVS for Classes III-V were first identified and the subject experts prepared the questions covering those concepts. Additionally, experts' opinions were taken into consideration and the questions were translated from English into Hindi which was necessary for the students of Hindi-medium schools. The tool of conceptual understanding test was tested on two focus groups, one from the school taught in Hindi and one from the school taught in English for trial/vetting purposes. After interviews with experts in the field and students about the comprehensibility and clarity of the questions, the questions were revised and finalised. Conceptual tests (tools) were administered to students of Classes III-V at three English-medium schools and seven Hindi-medium schools. All the responses given by the students were analysed and classified into three categories namely (i) Acceptable Response (AR), (ii) Unacceptable Response (UR), and (iii) No Response (NR) for the analysis purpose.

Sample and Size of the Sample

In order to administer the said tools ten Primary Schools—three English-medium and seven Hindi-medium —from both rural and urban areas were identified in Ajmer district of Rajasthan. The list of sample schools is given here:

1. Government Upper Primary School, Rural Hindi-medium (RHM)
2. Government Upper Primary School, Urban Hindi-medium (UHM)
3. Government Upper Primary School (UHM)
4. Private Public School (UHM)
5. Government Girls Upper Primary School (UHM)
6. Government Upper Primary School (RHM)
7. Government Upper Primary School (UHM)
8. Demonstration Multipurpose School Urban English-medium (UEM)
9. H.K.H. School (UEM)
10. Sacred Heart Public School (REM)

The research study was conducted in two types of schools – one following English-medium and the other teaching academic courses in Hindi-medium including regional language. Researchers have compared the methods of both types of teachers applied in the classroom, their experiences, the curriculum and the materials they used in the classroom. Present study was conducted in only ten schools (three English-medium and seven Hindi-medium) with 60 teachers and 625 students studying EVS in Classes III – V of Ajmer district of Rajasthan situated both in rural and urban areas.

Analysis of the Responses and Results

Qualification of Teachers

The qualifications of the teachers teaching EVS in sample schools were determined using tools given in the reference (Yadav and Sharma, 2011). In Hindi-medium schools, 83.3 per cent teachers are postgraduate, 14.3 per cent graduate and 2.4 per cent teachers are with qualification of 10+2 whereas in case of English-medium schools 38.9 per cent teachers are Postgraduate, 44.4 per cent are graduates and 16.7 per cent are having 10+2 qualification. These percentages reveal that teachers in the Hindi-medium schools have higher

qualification than that of English-medium school teachers. The professional qualifications of teachers of Hindi-medium and English-medium indicate that the percentage of untrained teachers in Hindi-medium schools is only 4.8 per cent whereas in English-medium it is 11.1 per cent. It also revealed that in Hindi-medium schools the percentage of B.Ed. degree holder teachers is 76.2 per cent and in English-medium 73.2 per cent.

Medium-wise Responses

Classified into three categories – Acceptable Response (AR), Unacceptable Response (UR) and No Response (NR) for the analysis purpose. Students' responses on the basis of medium of instruction were obtained by administering assessment tools for studying the students' conceptual understanding about the concepts of EVS in Classes III, IV and V of Hindi and English-medium schools. Graphical representation of AR, UR and NR is shown in Fig. 4. Examination of responses shows that out of 10 items pertaining to conceptual understanding of students studying in Classes III, IV and V, the performance of students of English-medium schools is better than students of Hindi-medium schools.

Class-wise Responses

Details of students' class-wise responses for class III, IV and V respectively are graphically shown in Fig. 2 (a), 2(b) and 2(c). On examination of class-wise responses of EVS, it was found that the conceptual understanding of the students of Class V is better in comparison with other Classes (III and IV).

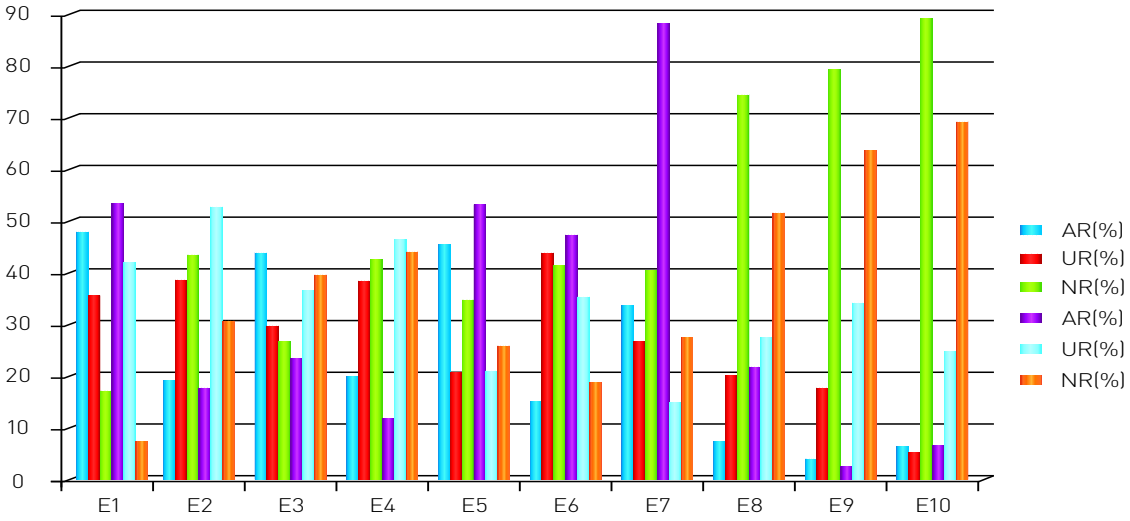

Fig.1: Students' Responses on the Basis of Medium of Instruction: EVS (Percentage of responses is given on Y-axis and number of item is given on X-axis).

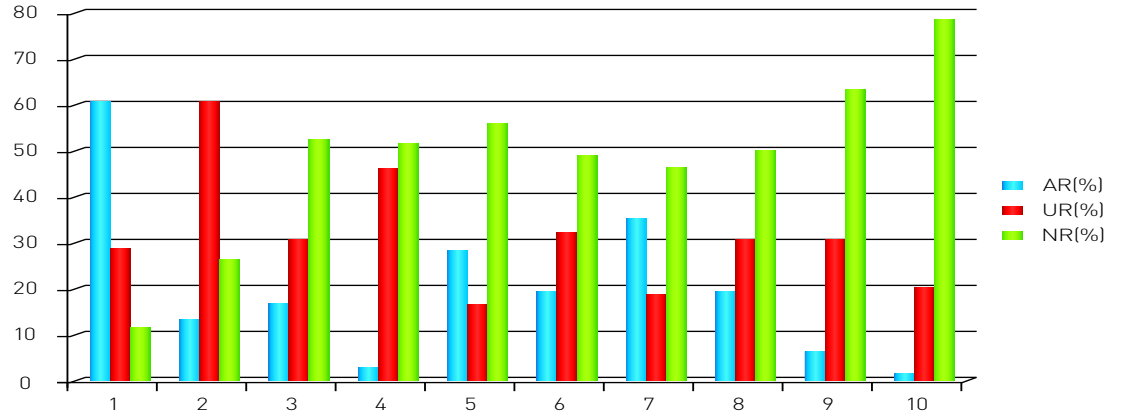

Fig. 2 (a): Class-wise Students' Responses of Conceptual Understanding of EVS (Class III)

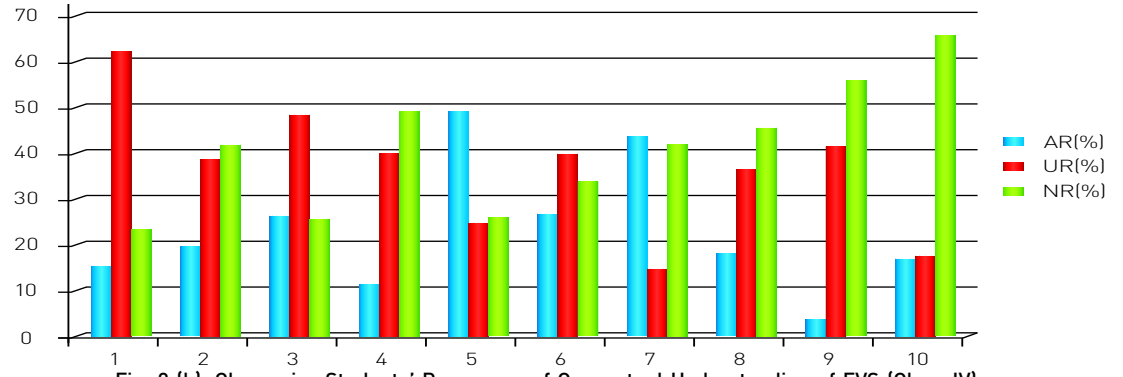

Fig. 2 (b): Class-wise Students' Responses of Conceptual Understanding of EVS (Class IV)

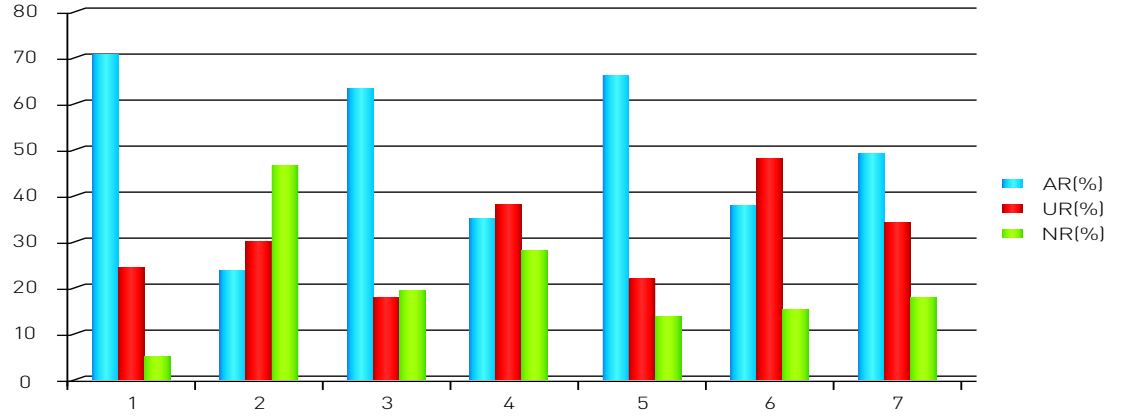

Fig.2(c): Class-wise Students' Responses of Conceptual Understanding of EVS (Class V)

Location-wise Responses

Students' responses were examined on the basis of location of schools (urban/rural). It is evident from Fig. 3 that the conceptual understanding of students in EVS of urban schools was better than that of rural schools.

School-wise Responses

Graphical representations of school-wise responses of students in EVS are shown in Fig. 4(a) – (j). In order to analyse the response we assumed that if students' response was equal or greater than 40 per cent, their conceptual understanding was considered as up to the mark. It is evident from Fig. 4(a) that the performance of the students of school No. 1 is satisfactory in EVS whereas in school No.2 performance of the students is not up to the mark as can be seen from the acceptable responses shown in Fig. 4(b). Analysis of the responses of students of school No.10 in EVS indicates that the performance of the students is sound whereas performance of students of schools No.8 and 9 is better. School No.8 and 9 are located in urban area whereas school No.10 is situated in rural area. School No. 8 only is Government school and the remaining two English-medium schools are private. Out of three English-medium schools, conceptual understanding of the students about the content of EVS is not up to the mark in school No. 10 where only one item was responded to correctly by 43.8 per cent students.

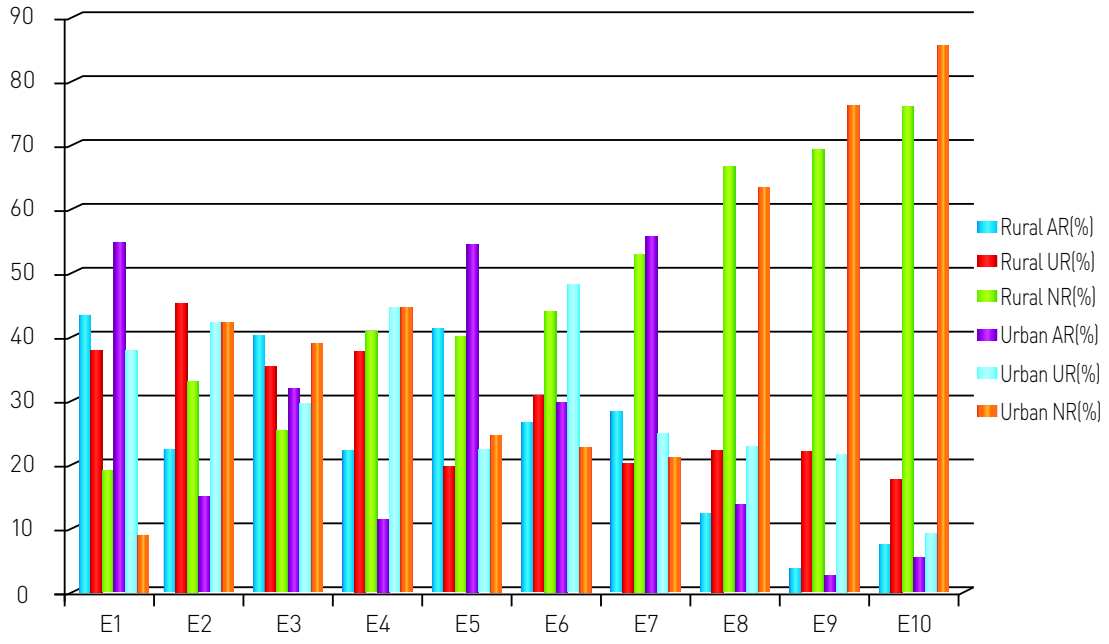

Fig. 3: Students' Responses on the Basis of Location of Schools: EVS

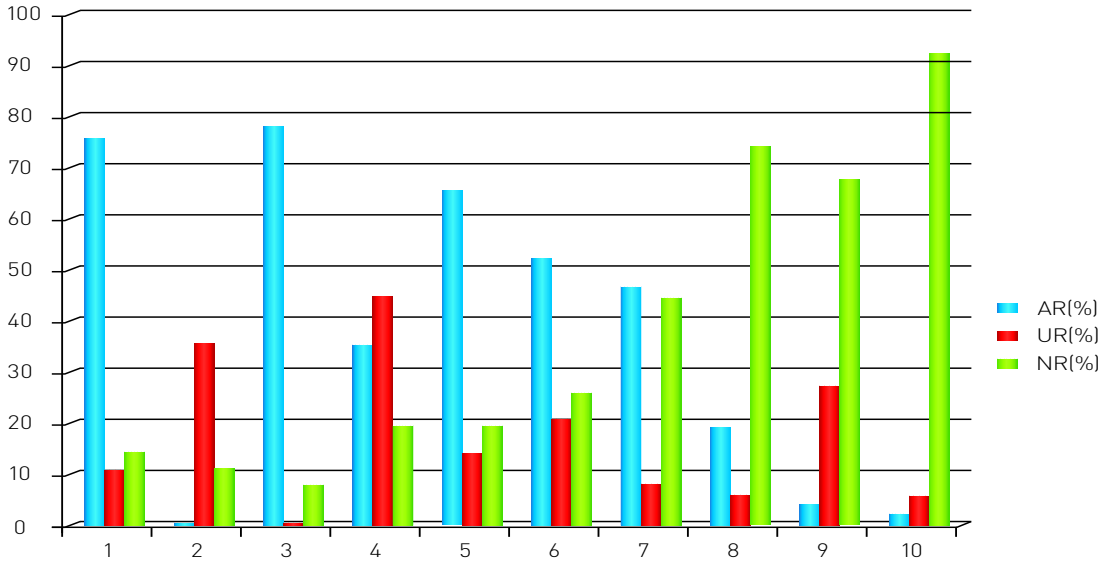

Fig. 4(a): School-wise Students' Responses for Conceptual Understanding of EVS: (School 1)

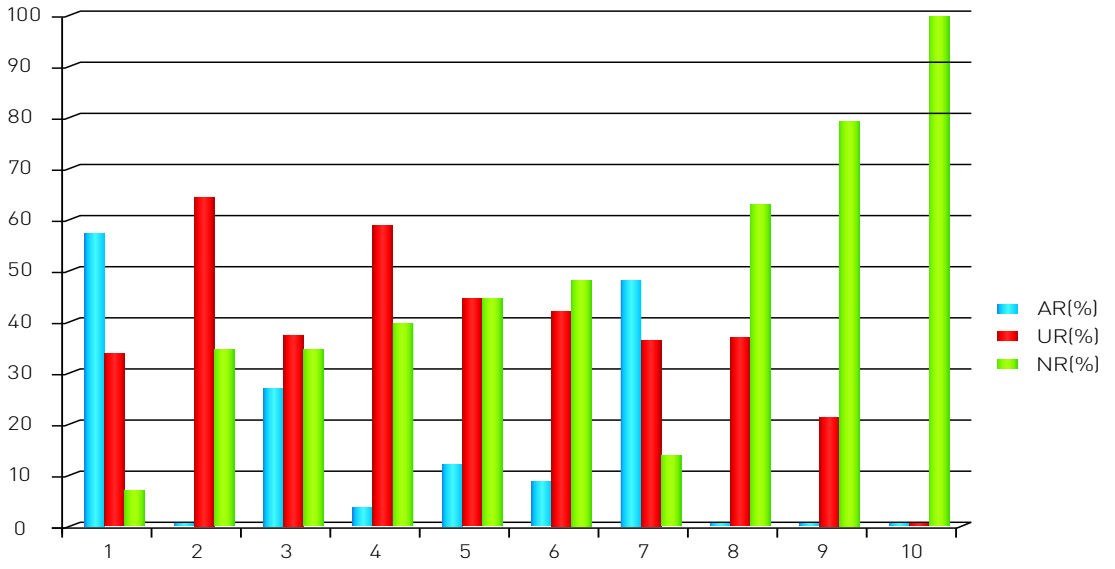

Fig. 4(b): School-wise Students' Responses for Conceptual Understanding of EVS: (School 2)

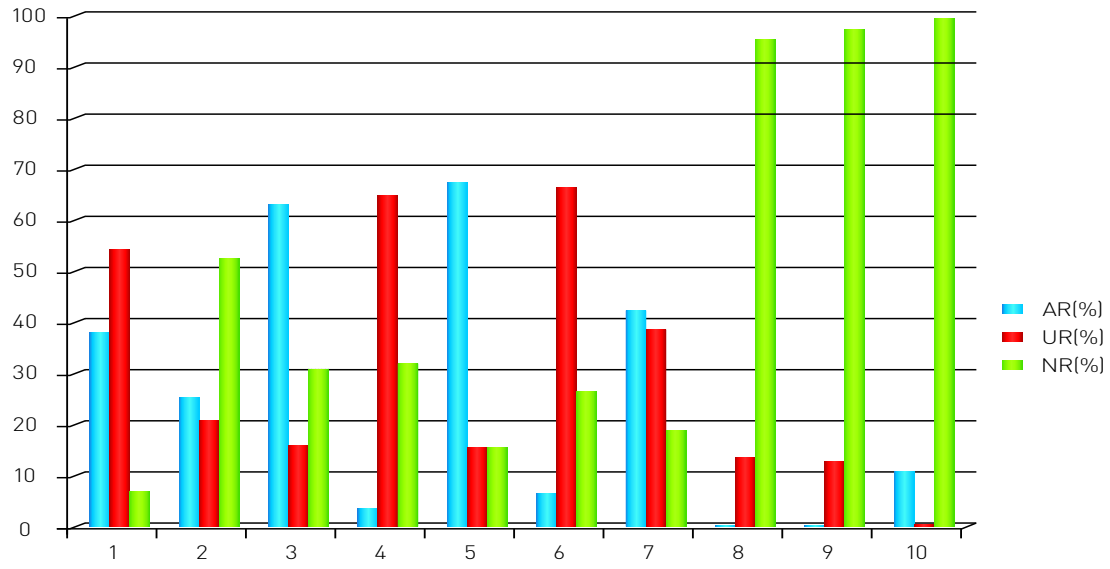

Fig. 4(c): School-wise Students' Responses for Conceptual Understanding of EVS: (School 3)

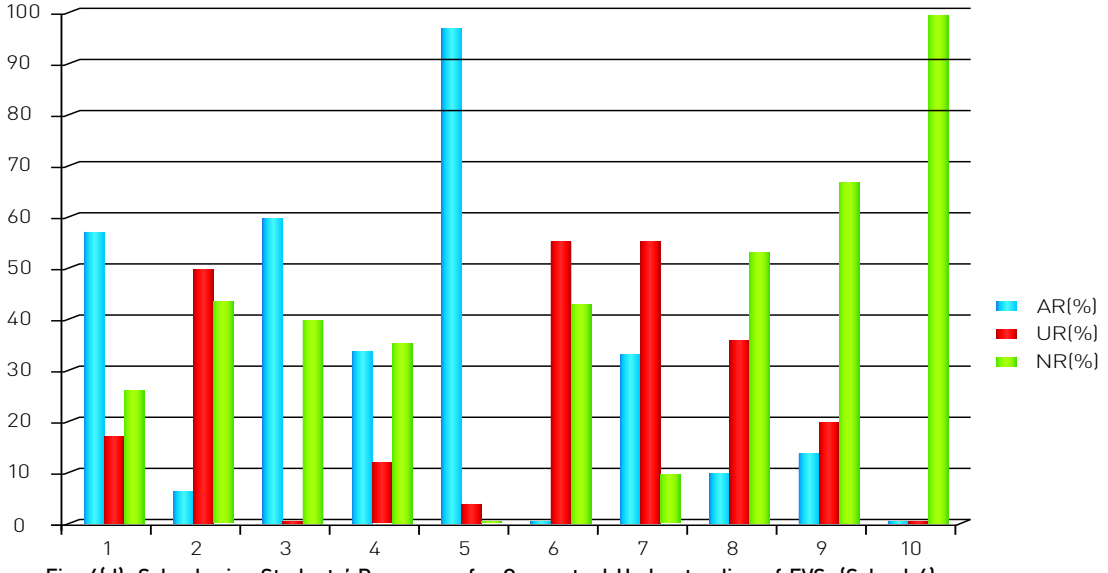

Fig. 4(d): School-wise Students' Responses for Conceptual Understanding of EVS: (School 4)

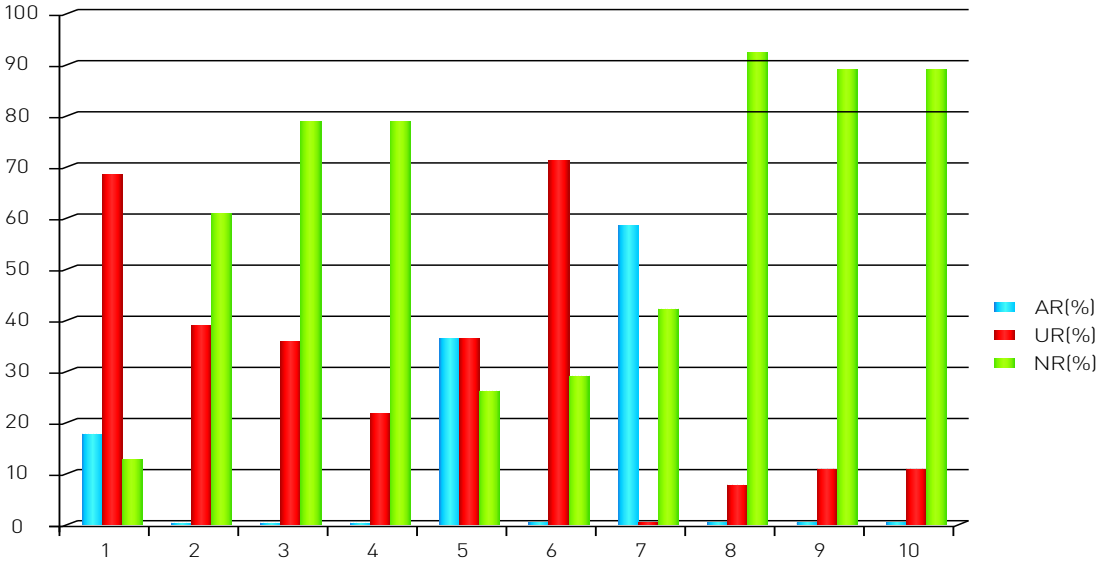

Fig. 4(e): School-wise Students' Responses for Conceptual Understanding of EVS: (School 5)

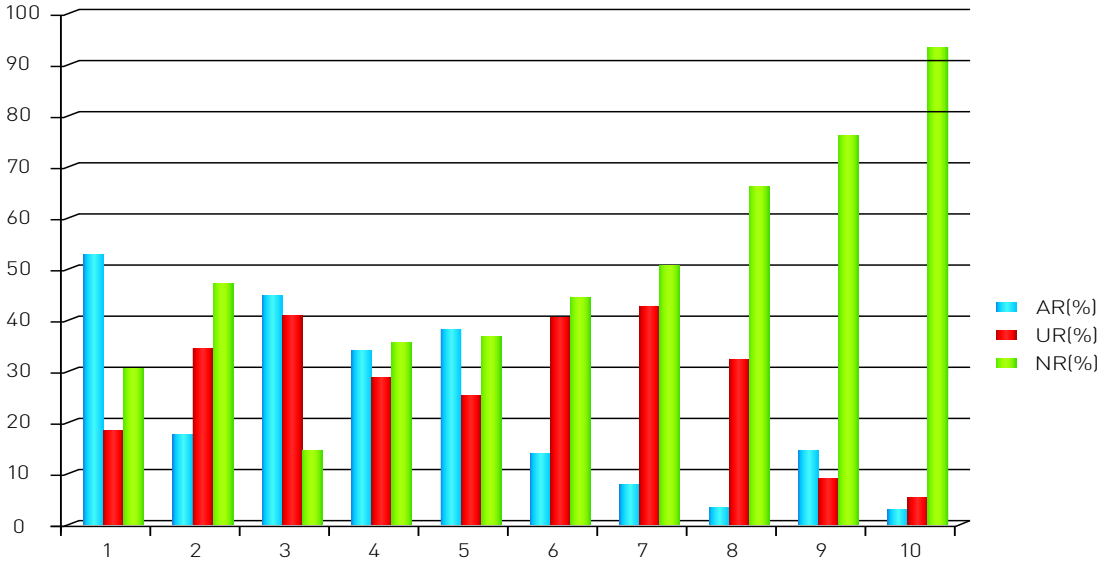

Fig. 4(f): School-wise Students' Responses for Conceptual Understanding of EVS: (School 6)

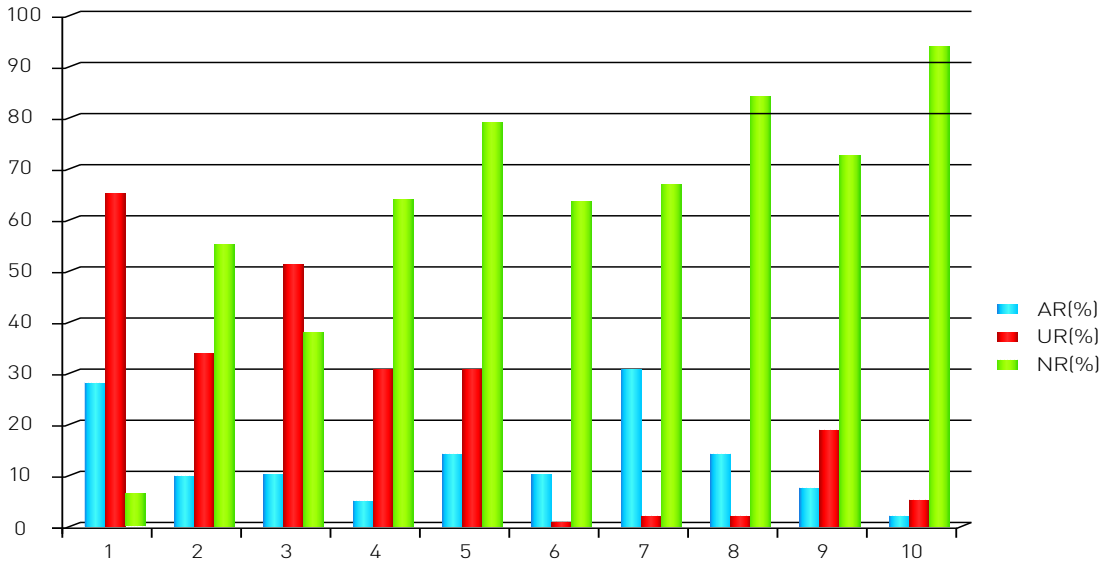

Fig. 4.4(g): School-wise students' responses for conceptual understanding of EVS: (School 7)

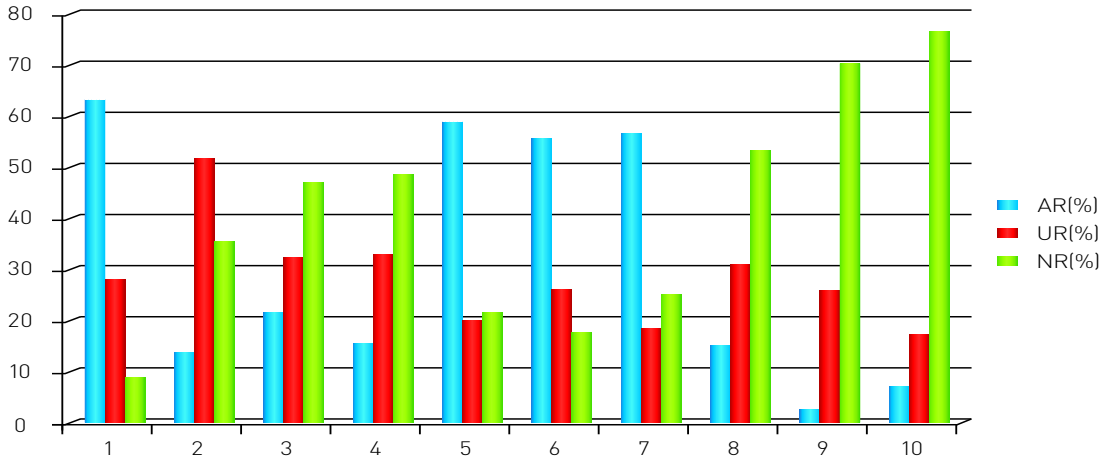

Fig. 4.4(h): School-wise students' responses for conceptual understanding of EVS: (School 8)

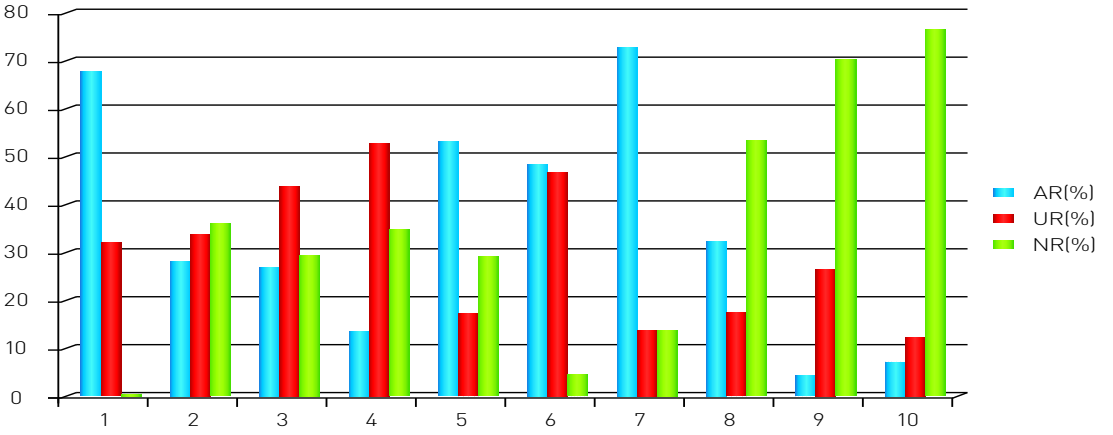

Fig. 4(i): School-wise Students' Responses for Conceptual Understanding of EVS: (School 9)

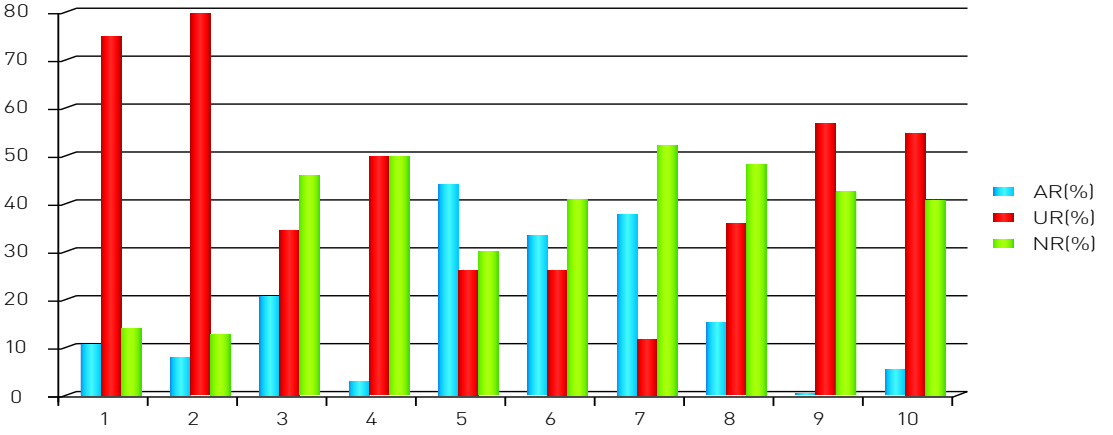

Fig. 4(j): School-wise Students' Responses for Conceptual Understanding of EVS: (School 10)

It has been found from the classroom observations that the Hindi-medium Government schools were lacking in infrastructure and physical facilities and the teachers by and large were using traditional teaching methods (photographs 2–5), whereas the English-medium private schools were found rich in infrastructure and the teachers were using latest computer-assisted techniques in classroom transaction as can be seen in the Photograph 1.

Photograph 1

The different methods used by the teachers in classroom for transacting the content of EVS in Government schools are shown in the following photographs (2–5):

Photograph 2

Photograph 3

Photograph 4

Photograph 5

Findings

On the basis of qualitative and quantitative analysis of data of ten primary schools (three English-medium and seven Hindi-medium) in Ajmer district of Rajasthan, the major findings are as follows:

- The medium of instruction in none of the schools was purely English or Hindi for transacting the content of EVS. When the teachers asked questions in English about the content of EVS to the students, only a few students replied in English only, that too in broken English. When students faced problem in replying in English about the content of EVS, the teachers used Hindi (including local dialect) and as a result, students were able to answer the questions in Hindi.
- When the teachers used English in some of the rural English-medium schools, students were found passive and showed no sign of enthusiasm and eagerness towards learning the content of EVS. But the same students showed keen interest and great

enthusiasm and took active part in learning when the teachers interacted in Hindi. The teachers used English only when the texts were read out from the books. All other teaching-learning interaction in EVS took place mostly in Hindi. When the teachers had to write something on the blackboard, they used English in English-medium schools and Hindi in Hindi-medium schools, respectively.

- From the analysis of students' response of conceptual understanding of EVS on the basis of medium of instruction it was found that the performance of students of English-medium schools was better than that of Hindi-medium schools. Analysis of responses revealed that conceptual understanding of students in EVS of urban schools was found better than that of the students of schools situated in rural areas. The maximum percentage of teachers in Hindi and English-medium schools who encouraged students' participation for classroom interaction and contributed in creating conducive learning environment is 69 per cent and 89 per cent, respectively.
- Academic qualifications of Hindi-medium school teachers were found higher than that of their English-medium counterparts. In regard to professional qualifications of teachers of Hindi and English-medium schools, data revealed that the percentage of untrained teachers in Hindi-medium schools was only 9.8 per cent whereas in case of English-medium schools the percentage of untrained teachers was 11.8 per cent. Analysis also revealed that the percentage of B.Ed. degree holder teachers was 76.2 per cent in Hindi-medium school and in English-medium School it was 73.2 per cent. Hindi-medium school teachers possessed more teaching experience in terms of years than that of English-medium school teachers. However, teachers were unexposed to the in-service programmes.
- The number of students was found less in Hindi-medium schools and the teachers were also not in sufficient number to engage the classes. It was also noted that there was no use of ICT in the classroom of Hindi-medium schools. However, some of the English-medium schools do have.

Discussion and Implications

The present study was conducted in only ten schools (three English-medium and seven Hindi-medium) of Ajmer district of Rajasthan situated both in rural and urban areas. The study was carried out with 60 teachers and 625 students studying EVS in Classes III – V. Therefore, results of the study can not be generalised to other parts of the country. However, on the basis of findings after the analysis of data pertaining to the study, the following recommendations are made:

- It was found from the analysis of the responses of conceptual understanding test of EVS that the performance of students of Hindi-medium schools was not up to the mark as compared to that of students of English-medium schools. Reason for this performance may be related with the lack of infrastructure in Government Hindi-medium schools. It was also observed that in English-medium schools there were sufficient number of teachers, but in Government Hindi-medium schools, there was shortage of teachers. Lack of sufficient number of teachers may be one of the reasons

for students not performing well in subject content of EVS. So, it is suggested that sufficient number of teachers should be made available in government schools.

- Although the Hindi-medium schools teachers are more qualified and experienced than their English-medium counterparts, however, students' performance in their schools is not as good as that of English-medium students. It may be because of teachers' frequent involvement in other assigned duties and responsibilities, which may adversely affect the performance of the teachers as well as students in conceptualisation of the content of EVS. Hence, it is suggested that these additional responsibilities may be minimised so that teachers can devote more time in teaching-learning activities related with EVS in schools.
- It was found that there were teachers who were unexposed to in-service training programmes for refreshing their subject both in content and pedagogy. Therefore, teachers may be provided opportunity to participate in in-service training programmes for refreshing their subject knowledge at least once in a year. Emphasis may be given to the activity-based teaching-learning process by involving students in it.

Interaction with the students while transacting the subject content of EVS needs to be encouraged. Teachers are expected to link classroom experiences with experiences outside the classroom situations during content transaction. The infrastructural challenge involved in making available computer hardware and software and connectivity to every school should be ensured for making teaching of EVS interesting and meaningful to the students.

Conclusion

On the basis of findings of the study it may be concluded that together with other factors such as the teachers' ability and their methods, mother tongue as medium of instruction plays a vital role in students' full participation in classroom teaching-learning process and conceptual understanding of the subject content of EVS.

Acknowledgement

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