Teaching-learning in EVS through Integrated Approach in Early Grades
Perceptions and Awareness of Teachers

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Abstract

Environmental Studies (EVS) is aimed at developing the knowledge, attitude, commitments and skills amongst all, especially the future generations, to enable them work towards the solution of current problems and the prevention of new ones. The National Policy on Education (NPE, 1986) and subsequent Curriculum Frameworks brought out by the NCERT, highlighted the need for including environmental concerns at all levels of schooling. According to NCF-2005, at the primary level, EVS should be a separate curricular area in Classes III-V. However in Classes I and II, the environmental skills and concerns need to be addressed through Language and Mathematics. This paper highlights the importance of integrated learning in EVS, and perceptions and awareness of the teachers teaching Language and Mathematics in Classes I and II.

Prior to the year 2000, Environmental Studies at the entire primary stage was taught in two distinct parts Science and Social Studies in Classes III-V. Integrated approach for EVS curriculum at the primary stage was adopted by NCF-2000, wherein, it recommended that in Classes III-V, children would be introduced to the environment in its totality with no clear-cut distinction between natural and social environment. In Classes I and II, it was not kept as a curricular area and environmental concerns were addressed through Language, Mathematics and Art of Healthy and Productive Living.

NCF-2005, while supporting the continuation and further strengthening of the integrated approach for

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Environmental Studies during the primary years, recommends it as a separate subject for Classes III-V. Accordingly, the syllabi of EVS at these levels bring insights from sciences, social studies and environmental education. In early grades, at Classes I and II it recommends that the environmental issues and concerns will be transacted through the two essential curricular areas Language and Mathematics.

Learning in Early Grades

The NCF-2005 states that during the early childhood years the, child's interests and priorities must direct learning. It should be contextualised by her/his experiences rather than being structured formally. An enabling environment for children would be that which is rich in stimulation and experiences, and allows children to explore, experiment and freely express themselves. We know that learning is always holistic as children do not construct knowledge in a compartmentalised manner, but observe and understand their surroundings in totality. At primary stage, children should be engaged in joyful exploration of the world around. To nurture the curiosity among them, they should be engaged in exploratory and hands on activities. The children between the ages of four and seven begin to identify the characteristics of different objects, make functional correlation between them and learn by understanding the context. They are curious by nature and love to explore and raise questions. They also love to play and work together, doing different activities with their hands/bodies. Inculcation of different skills among the children helps create a sound base for the concept formation in different curricular areas at a later stage.

Keeping in view their abilities, it is important to emphasise that Language and Mathematics for children in early grades should be transacted in a joyful, value based and action-oriented manner so as to develop an attitude of the learners and sensitise them towards various issues and concerns of environment.

Integrated Perspective of Curricular Areas

NCF-2005 states that at the pre-primary stage, all learning occurs through play rather than through didactic communication. Thus, instead of rote learning, children need to learn and understand mathematics in their context. Mathematics learning should enable children to acquire knowledge and skills of learning that include literacy, numeracy, reasoning, logical thinking, problem solving, critical thinking. It should also enable them to access relevant information so as to apply it meaningfully to help them solve day-to-day problems. Recognising the fact that mathematics is all around us, the process of its teaching learning should therefore be contextual and relate to a child's immediate environment and experiences associated with it. Further, the skills identified for mathematics also overlap with that of EVS, that, one wonders how the two curricular areas are different. It is essentially the concepts of Mathematics and the concerns in

EVS related to natural, social, physical and cultural environment that make these two curricular areas distinct from each other.

We also know that language is an effective tool for communication, and listening, speaking, reading and writing are its important skills. Very few of us also know that minute observation, classification, expression, discussion, questioning, estimation, thinking, memorisation, creativity and problem solving are also an important part of language learning and are nurtured through it which are otherwise considered to be the dominance of EVS. Moreover, the content of language doesn't come from vacuum, but our surroundings form the base for it. On a whole, one may conclude, language includes all processes related to other disciplines in it. In day-to-day life, language is a pre-requisite to peep-in, inquire and understand other subjects. It is an essential component for any discipline to exist. Thus, development of knowledge and language is simultaneous and these two are inseparable.

Hence, there should be a second thought that Language and Mathematics teaching-learning should project environmental concerns. A careful observation will reveal that Language and Mathematics are essential tools to explain the interaction and mutual relationship between natural processes and human activities. Language and Mathematics have an important role to play in learning of EVS, Arts, Health and Physical Education and other disciplines. Therefore, different activities designed for teaching-learning of Language and Mathematics are that of the EVS by themselves. Therefore, in order to promote learning, emphasis should be given on the following for taking care of the environmental component through languages and mathematics. The teacher should:

- Provide scaffolding to the child for constructive interaction with her/his environment to facilitate the processes of assimilation and accommodation for the child to build a mental representation.
- Provide greater opportunities to explore the physical and social environment around children through active learning and play-based experiences, which will nurture their curiosity and encourage habits of questioning and experimentation.
- Develop of psychomotor skills by keeping diversity in activities to accommodate individual abilities and skills of children.
- Emphasise pre-number concepts, such as patterns, colours, size and distance etc., to facilitate development of skills of observation, comparison and interpretations in the later years.
- In addition to providing opportunities through group work and peer learning to children, they must be exposed to the rich sources of knowledge, i.e. their elders and community as well.

Rationale of the Paper

Thus we can say that, sensitivity for the environment is an important concern of the curriculum which can be nurtured

and promoted through integrated perspective of various subjects. Different environmental concerns that are true to all stages, from pre primary stage onwards include:

- Relationships between natural, social, physical and cultural environment.
- Conservation (preservation and improvement) of natural resources, culture and heritage, and public property.
- Safety, security, health and hygiene of self and others.
- Equality and justice against issues of human dignity, gender bias, disability, marginalisation, rights and duties of different living organisms.
- Nurturing creativity and aesthetic sense.

Early grades are best to sensitise children towards these concerns and teachers can use integrated approach for that. This makes them achieve the desired objectives of the curricular areas without enhancing their load. Since, teachers are the key agents for the success of any curriculum related exercise, they should essentially be clear about the transactional strategies to make Language and Mathematics learning EVS oriented.

Therefore, an attempt was made to understand the awareness and perceptions of teachers about the teaching-learning of EVS through Language and Mathematics in early grades.

A questionnaire was developed which had eight items. Thirty-five primary teachers teaching classes in I and II in Kendriya Vidyalayas of Delhi region were selected for administering this questionnaire. Each teacher was given sixty minutes to fill up the questionnaire. There were eight items in the questionnaire, question no.1, 2 and 4 dealt with some general information, two questions (no.5 and 6) were to assess their awareness and three questions (no.3, 7 and 8) were related to the perceptions of these teachers. Each teacher was asked to design one learning situation each for the four mathematical concepts - shapes, patterns, time and data handling reflecting integration with EVS. Likewise, they were asked to design one learning situation each for the four learning modes-story/poem, game/puzzle, drama and interview/ interaction for language enrichment, where skills and concerns of EVS will also be strengthened.

Item-wise Analysis of the Questionnaire

The analysis and discussion of each of the eight items in the questionnaire related to the integration of EVS with Language and Mathematics is given below. First two items were of general information about the teachers.

Item No.1 inquired about the classes in which each teacher was teaching

The respondents were primary teachers teaching in Classes I and II and some teachers were also teaching in Classes III, IV and V.

Item No.2 inquired which subject they teach in the class.

These respondents were primary teachers teaching Language and

Mathematics and most of them were teaching EVS for Classes III-V.

Subjects Taught	*No. of Teachers*
Language, Maths, EVS	14
Language, Maths	9
Maths, EVS	2
Language, EVS	10
Total	35

Item No. 3 inquired if EVS could be integrated with other subjects. If the answer is no, what are the reasons and if the answer is yes, which are those subject areas.

In response to a closed ended (Yes/ No) question, twenty-six participants opined that EVS can be integrated with Language and Mathematics. One of the respondents said that it can be integrated with Social Studies and Science. Another one expressed that it can be co-related with drawing. Six of them said that it can be integrated but they have not mentioned the subject areas. One teacher did not respond to this item.

Item No. 4 inquired whether they use an integrated approach in teaching learning of EVS.

Thirty-three respondents said that they used an integrated approach in teaching learning of EVS. Two teachers did not respondent to this item.

In item No. 5, the teachers were asked to design a learning situation in the four mathematical concepts (shapes, patterns, time and data handling), where skills of EVS would be strengthened.

Four respondents designed learning situations on the concept – **'Data handling'.**

- Two of them mentioned that children can name, count and differentiate different vegetables, fruits, birds and animals, and classify them on the basis of the shapes and colour of vegetables and fruits, and shape of the beaks, claws and habitat of birds and animals. But they didn't mention the skills of Mathematics and EVS that can be strengthened through this activity.

It may be difficult for children of Classes I and II, to classify animals/ birds on the basis of their claws, beaks, habitat, etc. However, if presented pictorially, as puzzles or games, it could be brought to the cognitive level of children below eight years. Since the teachers did not design the activity, it was not clear that how they would have introduced these to the young children.

- Another teacher mentioned that children could be asked about means of transport using pictures and it would strengthen observation (skill of Mathematics) and discovery of facts (skill of EVS).
- Another respondent said that children could be made to count the number of boys and girls in each section of Class II in their school and it would enrich the ability of computation (skill of mathematics) and observation and discovery of facts (skills of EVS).

All these responses show that these teachers think that environment-related themes/ concepts such as birds, animals, plants and means of transport etc. as EVS and do not seem to be

familiar with the issues, concerns and skills of EVS.

Three teachers designed learning situation on the concept - 'Patterns'.

- One of them stated that children could make patterns with small leaves by pasting them on a sheet. According to her, it will strengthen the concept of arrangement and identification of leaves and flowers.
- Another one said that children would learn through patterns on different things in the house, school and surroundings such as glass, cup, bed sheet, table cloth, tiles, paintings and floor designs etc. to identify the sequence of the patterns.

Although the activities reflect integration, the teachers seemed to be oblivious about the skills and concerns of EVS and they could not identify/ mention these.

- Another teacher stated that they could make children co-relate various things in surroundings with EVS and Mathematics, for example, wheel is just like a circle, some stones are like squares, rectangles and children could make patterns with these.

It is not clear that the teacher intends to teach shapes or patterns. Further, she does not seem to be familiar with the skills of both the subject areas.

Eight teachers designed learning situations on the concept- 'Time'.

- Three teachers said that they could start with children's daily routine, i.e. different activities children do at different intervals of a day, for example, going to bed, getting up in the morning, going to school, having lunch, going out to play, studying and having dinner, etc. One of them expressed that it will enhance observation as the EVS skill and the other two teachers were of the view that through this activity good habits can be discussed.
- Two teachers responded that students can observe the sun during morning, day time and evening for a day. Then on the next day, they will be shown a clock to understand how the time changes.

Although these activities do reflect the integration of Maths and EVS, the non familiarity of the teachers with the issues, concerns and skills of EVS that may be effectively addressed/ nurtured through these activities is a problem. For example, if the teachers asked children to sequence the activities of their daily routine or group them on the basis of the time intervals. Similarly, if they allowed children to observe the morning, evening and night sky, and ask those children to draw or colour followed by relevant discussion on their experiences, observations and relating them with time, would have helped enrich the processes of Maths and EVS, and the concerns of EVS. However, using these activities to inculcate good habits among children shows the ambiguity of value education as EVS in the minds of teachers.

Individual responses of the other three teachers are given below. None of them could mention the skills of Maths and EVS integrated with these activities.

- Children can be shown the model of clock.

- Asking children that at what time they listen a cock's voice.
- Solving sums during the target time.

These activities do not seem to be appropriate and reveal ignorance of the teachers even about the objectives of the respective curricular areas.

Ten teachers designed the learning situation in the concept – 'Shapes'.

- One of the teachers said that children could identify shapes in a house and another said that through training it can be done. Both were of the view that skills of computation in Maths, and observation and identification in EVS, will be strengthened through it.

The teachers talked about identification of shapes but strengthening of computation was not clear.

- Two respondents said that different items such as match-box, pencil box, ball, toys and other things which they saw in their environment could be given to children to learn shapes.
- Another teacher wrote that shapes could be introduced through road signs.
- One of the teachers designed a learning situation where students can be taken to the playground and would be asked to observe different shapes over there.

The responses show that these teachers wish to introduce shapes through surroundings but they too seem to be ignorant about the issues, concerns and skills of the concerned subjects.

- Two teachers said that children could be made to count the number of shapes such as circles, triangles, rectangles in a given picture. One of them said that this would strengthen the skills of EVS like observation and identification.
- Another respondent stated that students would be shown different shapes and then, they can be taken to ground and made to stand in the shapes drawn as triangular, rectangular, circular and square. But she didn't mention the skills that would be enriched through this activity.

These two learning situations do not reflect integration of Maths and EVS but may enhance the skills of observation and identification.

- Five respondents wrote that shapes in Maths can be taught in integration with EVS through observation of leaves, fruits, vegetables or solar system. But none of them mentioned anything about enrichment of skills or concerns of EVS or the skills of maths through these.

It may create confusion in children's minds as majority of vegetables, fruits, leaves and plants do not have any regular shapes. Further, all these teachers do not have much clarity about concerns of EVS and skills of both EVS and maths.

In item No. 6 the teachers were asked to design a learning situation in language (Hindi or English) for the learning modes such as story or poem, game or puzzle, drama and interview/interaction for language enrichment where skills of EVS would be strengthened.

Four respondents mentioned that through dramatisation, skills of language such as speaking, listening and that of EVS such as identification and observations, are enhanced. However, only one of them made an attempt to design a learning situation in which children can enact a drama based on the body parts and their functions. She mentioned that they would be given dialogues related to various functions of body parts.

However, when encouraged, even young children came up with dialogues by themselves and this also helped nurture creativity among them.

One of the teachers was of the view that children could say a few lines about themselves or interview someone. She mentioned about enrichment of skills of language such as speaking and listening and skills in EVS like observation and group discussion.

However, she did not design any questions, which children can ask or children could say about themselves.

For poems as a learning mode, none of the participants tried to design any activity. However, four respondents agreed that poem recitation helps enhance the skills of language (speaking and reading) and skills of EVS (identification, describing, and group discussion) but it was not explained how it would lead to that. Only one teacher mentioned that while teaching a poem on 'Trees' parts of a tree could be taught.

It must be noted that all of them mentioned speaking and listening as skills of language exclusively and others such as observation, identification and group discussion as the skills only of EVS. Further, it can also be observed that in EVS, teachers think of transacting the content such as parts of a tree, body parts and their functions, but no emphasis is given to the skills of language and EVS, and to address the concerns of the environment.

One of them was of the view that vocabulary enrichment is feasible through stories. She said that outlines/pictures might be provided to children who could use them to extend their ideas to narrate stories. However, she expressed that integration could be effective only through moral-based stories. One of the teachers explained that cleanliness of our body could be taught through the following poem,

'Brush, Brush your Teeth, Brush them every day,

Father, Mother, Brother, Sister, Brush them every day.'

She did not mention any skills of language and EVS that could be enriched through this poem.

From this, it may be inferred that according to these teachers EVS is about value inculcation.

One of the teachers mentioned that cross word puzzles could be given for words (new vocabulary) such as the names of animals and birds, means of transport, etc. Another one mentioned that puzzles such as maze with clues, could help strengthen the skills of language (such as reading, understanding) and skills of EVS (such as logical reasoning and analysis). Two respondents expressed that different games could be used based on animals, birds, vegetables, water animals and land animals. Crossword puzzles can

be used to find out the names of fruits, animals, flowers, trees, helpers, means of transport etc.

Majority of teachers who designed the puzzles/games thought of only paper pencil tasks and the activities were also limited to creating awareness. Also none of them knew anything about the skills and concerns of EVS integrated with these activities except the one who mentioned enrichment of observation and logical reasoning through the activity of maze.

Item No. 7 inquired whether integration of EVS helped in Language and Mathematics.

Five categories emerged out of fifteen responses.

The most prominent one was that;

- It helps children to express effectively.(9)
- The other was that it helps in vocabulary development.(3)

The other three categories which occurred only once are the following;

- To enhance listening, speaking, identification and understanding skills.
- Children frame better sentences.
- In clarifying different concepts.

For integration of EVS with Mathematics, following are the four major responses.

- The one with the highest frequency (10) was that integration helps in making the concept clear.
- It helps children acquire problem solving ability.(4)
- It develops interest and psychomotor skills.(1)
- To develop skills of logical reasoning and analysis.(1)

Item No. 8 tried to find out whether integration of EVS leads to the difficulties/problems in Language and Mathematics.

Following two types of responses appeared four times.

- Integration of EVS with Language leads to lack of expression.
- Integration of EVS with mathematics leads to lack of accuracy.

Some other category of responses which had a frequency of one is following:

- It leads to difficulties in speaking skills and understanding of the English language.
- It leads to lack of concentration and practice.
- It creates problems in different subject areas.
- It leaves behind the concept.
- Sometimes children go off the track.
- Another respondent said that it would lead to problems in understanding.

Findings

- Although 28 teachers were teaching Maths at Classes I and II and eighteen out of them were also teaching EVS at the primary level, yet only 3-10 teachers made an attempt to design the activities under the given concepts of maths.
- Similarly, 32 teachers were teaching language (Hindi or English or both) at Classes I and II and 23 out of them were also teaching EVS at the primary level, but only 5-7 teachers tried their hand at creating learning situation

in languages having integration with EVS.

- Majority of the teachers appeared to be ignorant about the objectives of learning EVS, Mathematics and Languages at the primary level as they considered only the concepts or themes under each curricular area, and were not aware about the rationale behind choosing those at each level.
- They were also not familiar with the skills of each curricular area. According to them, listening, speaking etc. were language skills. Observation, identification, group discussion etc. were EVS skills and computation, problem solving etc. were mathematics skills.
- Most of them considered birds, animals, plants and means of transport i.e. environment related themes/concepts as EVS and do not seem to be familiar with the issues, concerns and skills of EVS.
- At times some of them were not aware about the concepts as well.
- Some of the teachers considered inculcation of values and good habits as EVS.
- Majority of the designed activities were limited only to creating awareness and did not have enough scope for experiential learning.
- These also had a limited scope to go beyond the classroom having paper pencil tasks.
- Their responses under item no.8 reflect their lack of understanding of the integrated approach to teaching-learning. The responses such as 'it might lead to lack of accuracy, concentration and students going off the topic' show that the teachers think about each curricular area in a compartmentalised manner.

Conclusion

NCF-05 has recommended using integrated approach towards teaching-learning across all curricular areas at all stages. The teachers teaching early grades are quite optimistic about the implementation and use of integrated approach to teaching-learning. However, the awareness about it is almost lacking which is apparent from the learning situations designed by them. Their views about the problems faced due to integration of the curricular areas also reflect that they need to be thoroughly oriented not only towards the integrated approach but even for the aims and objectives of each curricular area.

To achieve the desired objectives of different curricular areas at the primary level, five guiding principles are envisaged in NCF-05. The two most important ones are; to go beyond the classroom and provide opportunities for experiential learning relating with the daily life of children. The teachers were either unaware or were unable to put those into practice. The foundation of learning is laid in the early grades, therefore, to propagate and implement the ethos of NCF-05 in right spirit, there is an urgent need to build the capacity of teachers teaching these grades. Relevant support material in addition to textbooks that enables teachers to design context-specific learning situations needs to be developed and provided to the them.

REFERENCES

NCERT. 2008. *Source Book on Assessment for Classes I-V Environmental Studies*. New Delhi.

_____ 2006. *Syllabus for Classes at Elementary Level*. New Delhi.

_____ 2005. *National Curriculum Framework–2005* (December, 2005). New Delhi.

_____ 2006. *National Focus Group on Teaching of Science* (2006). *National Curriculum Framework*–2005. Position Paper. New Delhi.

_____ 2009. *Skills of EVS through Language and Mathematics in Early Grades*. New Delhi.