The Primary Teacher

About the Journal

The Primary Teacher is a quarterly journal brought out by the National Council of Educational Research and Training (NCERT), New Delhi. The journal carries articles and researches on educational policies and practices, and values material that is useful for practitioners in contemporary times. The journal also provides a forum to teachers to share their experiences and concerns about the schooling processes, curriculum textbooks, teaching-learning and assessment practices. The papers for publication are selected on the basis of comments from two referees. The views expressed by individual authors are their own and do not necessarily reflect the policies of the NCERT, or the views of the editor.

© 2019*. Copyright of the articles published in the journal will vest with the NCERT and requests for reproducing the material should be addressed to the Academic Editor.

Single Copy: ₹ **65.00**   *Annual Subscription:* ₹ **260.00**

THE PRIMARY TEACHER
VOLUME XLI NUMBER 2
APRIL 2016

CONTENTS

CHILDREN'S BILL OF RIGHTS

A child is every person under the age of 18 years. Parents have the primary responsibility for the upbringing and development of the child. The State shall respect and ensure the rights of the child.

Dignity and Expression

- I have the right to know about my Rights. *(Article 42)*
- I have rights being a child and no matter who I am where I live, what my parents do, what language I speak, what religion I follow, whether I am a boy or a girl, what culture I belong to, whether I am disabled, whether I am rich or poor. I should not be treated unfairly on any basis. Everyone has the responsibility to know this. *(Article 2)*
- I have the Right to express my views freely which should be taken seriously, and everyone has the Responsibility to listen to others. *(Article 12,13)*
- I have the Right to make mistakes, and everyone has the Responsibility to accept we can learn from our mistakes. *(Article 28)*
- I have the Right to be included whatever my abilities, and everyone has the Responsibility to respect others for their differences. *(Article 23)*

Development

- I have the Right to a good education, and everyone has the Responsibility to encourage all children to go to school. *(Article 23, 28, 29)*
- I have the Right to good health care, and everyone has the Responsibility to help others get basic health care and safe water. *(Article 24)*
- I have the Right to be well fed, and everyone has the Responsibility to prevent people from starving. *(Article 24)*
- I have the Right to a clean environment, and everyone has the Responsibility not to pollute it. *(Article 29)*
- I have the Right to play and rest. *(Article 31)*

Care and Protection

- I have the Right to be loved and protected from harm and abuse, and everyone has the Responsibility to love and care for others. *(Article 19)*
- I have the Right to a family and a safe and comfortable home, and everyone has the Responsibility to make sure all children have a family and home. *(Article 9,27)*
- I have the Right to be proud of my heritage and beliefs, and everyone has the Responsibility to respect the culture and belief of others. *(Article 29,30)*
- I have the Right to live without violence (verbal, physical, emotional), and everyone has the Responsibility not to be violent to others. *(Article 28,37)*
- I have the Right to be protected from economic exploitation and sexual exploitation, and everyone has the Responsibility to ensure that no child is forced to work and is given a free and secure environment. *(Article 32,34)*
- I have the Right to protection from any kind of exploitation and everyone has the Responsibility to ensure that I am not being subjected to be taken advantage in any manner. *(Article 36)*

IN ALL ACTION CONCERNING CHILDREN, THE BEST INTERESTS OF THE CHILD SHALL BE A PRIMARY CONSIDERATION

All these rights and responsibilities are enshrined in the United Nations Convention on the Rights of the Child, 1989. It contains all the rights which children have all over the world. The Government of India signed this document in 1992.

Source: National Commission for Protection of Child Rights (NCPCR), Government of India

Practices and events, particularly, in school education, can be owned by teachers and students alike only when they seem relevant and meaningful.

The first article in this issue titled 'Various Techniques of applying Picture Concept Mapping as an Evaluation Tool at the Primary Level' brings home this idea through the use of a tool called 'concept mapping' in primary classes.

The next article 'Problemetising Prospective Primary Teachers' Understanding of School Textbooks — The Case of Evs' talks of 'text interpretation'. The general perception is that text represents meaning. While this is primarily true, the teachers need to acknowledge that all texts exist within a context. The author uses EVS textbooks as a case to state that more than text interpretation it is the teachers' conceptualisation of EVS that may be needed to be closely examined.

The third article 'Participation of Learners in Functional Literacy Programme — A Study' provides a crossover to adult education. Age does not wither the desire to learn. Further, the presence of young learners and encouragement from them will make adults enrol themselves in education. The article explores conceptual and methodological issues. It argues for a need-based process in vulnerable areas with flexibility in norms, leading to increased feasibility in implementation.

The fourth article 'A Study on CAI as Remedial Teaching on Eye-hand Coordination of Learning Disabled Fifth Grade Students' highlights the fact that Computer Assisted Instruction (CAI) can be used to enhance learning through a combination of texts, graphics, sounds and videos. It investigates the effectiveness of CAI for primary school children in reducing their learning disabilities.

The fifth article 'Rhyming the Rhyme: Rhymes and Songs as Inputs and Instruments for familiarsing Children with the English Language' presents how strategies like snowballing, echo principle, choral and closed eye singing make rhymes draw children's attention to themes and help them acquire the language, thereby, illustrating that rhymes serve as instruments for language, cognitive, emotional and social development.

Fractions, in real life, represent small, minimal amounts. But to students, they may represent large amounts of non-comprehension, dislike and fear. The sixth article titled 'Remedial Programme in Fractions for Primary School Students' addresses this issue. The paper attempts to provide the teachers with best practices for teaching fractions to primary school students.

The paper titled 'Competency Development of Pre-service Teachers in Odisha in preparing English Vocabulary Games' presents a study that focuses

on preparing vocabulary games for elementary school students to enrich their vocabulary stock in a joyful learning environment. The games were developed by teacher–trainees of Diploma in Elementary Education (D.El.Ed).

Devising strategies to bring back out-of-school children is an area of priority for most States and Union Territories. The article titled 'Special Training Centre — An Initiative towards achieving the Goal of UEE in India' focuses on the efforts being made in this direction, in general, and in Delhi, in particular.

The last article titled 'Study of Pre-primary Stage at Mrinalini Ananda Pathsala, Gurudev's Ashram Vidyalaya, Santiniketan — A Holistic Approach' presents the opinion of pre-school and assistant teachers on the importance of curriculum followed at the pre-primary stage of education in Mrinalini Ananda Pathsala. The article highlights the importance of activities for expression of creativity and presents an empirical study that examines the opinions of pre-school and assistant teachers on the importance of educational fields, art genres and extra-curricular activities followed in the school.

The journal also includes its regular features — 'Book Review', 'Did You Know' and 'My Page'.

Book Review examines the book, *Teaching Environmental Education: Trends and Practices in India* by Chong Shimray, which provides fundamental understanding in environmental education and suggests a course of action to be followed in the school curriculum, acknowledging the dynamic relationship between humans and environment.

The feature 'Did You Know' talks about the National Talent Search Examination (NTSE). Since the terminal stages of education are Class V and VIII, with major causes being poverty and low income, it is important that the students know about NTSE much ahead of reaching Class X.

'My Page' reiterates how art can help create empathetic humans. Young students may lose a sense of acceptance and confidence as they get into a routine within the four walls of a classroom, which is not sensitive to their dreams. Creative minds may feel stifled by the sheer rigidity of schedules and stereotypes.

There is a lot to be done in the field of school education, and perhaps, a lot to be undone as well! In a nutshell, practice without theory would eliminate the sense of definitive meaning generally accorded to a lifetime of teaching.

— *Academic Editors*

1

Various Techniques of applying Picture Concept Mapping as an Evaluation Tool at the Primary Level

Ratna Gupta*

INTRODUCTION

Concept mapping is a graphical tool for organising and representing knowledge. It includes concepts, usually, enclosed in circles or boxes of some type and the relationship between two concepts, which is indicated by a connecting line. Words written on the connecting line, referred to as 'linking words' or 'linking phrases', specify the relationship between the two concepts. Can concept mapping be applied as an evaluation tool at the primary level? This research paper inquires about that.

Concept maps are represented in a hierarchical fashion. Most inclusive and general concepts are kept at the top of a map and specific ones are arranged below. Specific examples of events or objects may be added to the concept maps. They help in clarifying the meaning of a given concept but these are not included in ovals or boxes.

Concept mapping is based on Asubel's (1963) 'Assimilation Theory of Learning'. The fundamental idea in this theory is that learning takes place by the assimilation of new concepts into propositional framework held by a learner.

According to J.D. Novak (1990), concept mapping is powerful for the facilitation of meaningful learning. It serves as a template, which helps organise knowledge and structure it, even though the structure is built piece-by-piece with small units of interacting concepts and propositional frameworks. Many learners and teachers are surprised to see how this tool facilitates meaningful learning, permits utilisation of knowledge in new contexts and retention of the same for a long period.

H.M. Shailaja, *Director*, School of Education, Rani Chennamma University, Belgravia, Karnataka, in her work 'Effect of concept mapping strategy in physics on achievement

* *Assistant Professor*, Post Graduate Department of Teacher Education and Research, S.S. (P.G.) College, Shahjahanpur – 242 001, Uttar Pradesh

and attitude of students' published in *Indian Educational Review* (2009) shares that most of the students (93.5 per cent) agree that concept mapping is useful in understanding a concept. Majority of the pupils feel that concept maps help in seeing the relationship between concepts. More than two−third students opine that concept mapping is useful in remembering the content. Around 60 per cent say concept maps help them ascertain a relationship between subordinate and super ordinate concepts. A total of 62.5 per cent students feel that group concept mapping is easier, while 37.5 per cent consider individual concept mapping to be so.

PROCESS OF CONCEPT MAPPING

The process of concept mapping involves three steps.

Start with the main idea, topic or issue

A helpful way to determine the context of a concept map is to choose a 'focus question', something that needs to be resolved or a conclusion that needs to be reached. This will help with the hierarchical structure of the concept map.

Determine the key concepts

Find the key concepts that connect or relate to the main idea and rank them. Put general inclusive concepts first, and then, link them with more specific ones.

Finish by connecting concepts, creating linking phrases and words

Once the basic links between concepts are established, add cross links that connect the concepts in different areas of the map to further illustrate their relationship and strengthen students' understanding and knowledge of the topic.

It is important to recognise that a concept map is never complete. After a preliminary map is constructed in the mind, it is necessary to revise it. Other concepts can be added to this. Concept maps are, usually, the result of at least three revisions. This is one reason why using computer software is helpful. Concept map can also be a class effort, using a projector, where all students can give their opinions and participate in the construction of the map. There is a growing body of research, which shows that when students work in small groups and cooperate to learn the subject, there are positive cognitive and affective outcomes (Berk, 1995).

Vygotsky (1978) introduces the idea that language and social dialogue can support learning, especially, when members of a social group are in the same Zone of Proximal Development (ZPD). He describes ZPD as that level of understanding for a given subject where the learner can progress on one's own, with minimal support from a tutor.

Preszler (2004) says that when students work cooperatively in groups and use concept maps to guide their learning, significant and greater learning takes place.

At the primary level, a teacher can teach concept maps to the students based on pictures. The teacher can

use some picture cutouts and colour pencils, and paste those cutouts on a chart paper. The teacher can draw lines and cross links with colour pencils, and can also write connecting words using markers. An example of picture concept map is shown in Fig. 1

This technique can also be used for evaluation. The teacher can make use of the following techniques for this purpose.
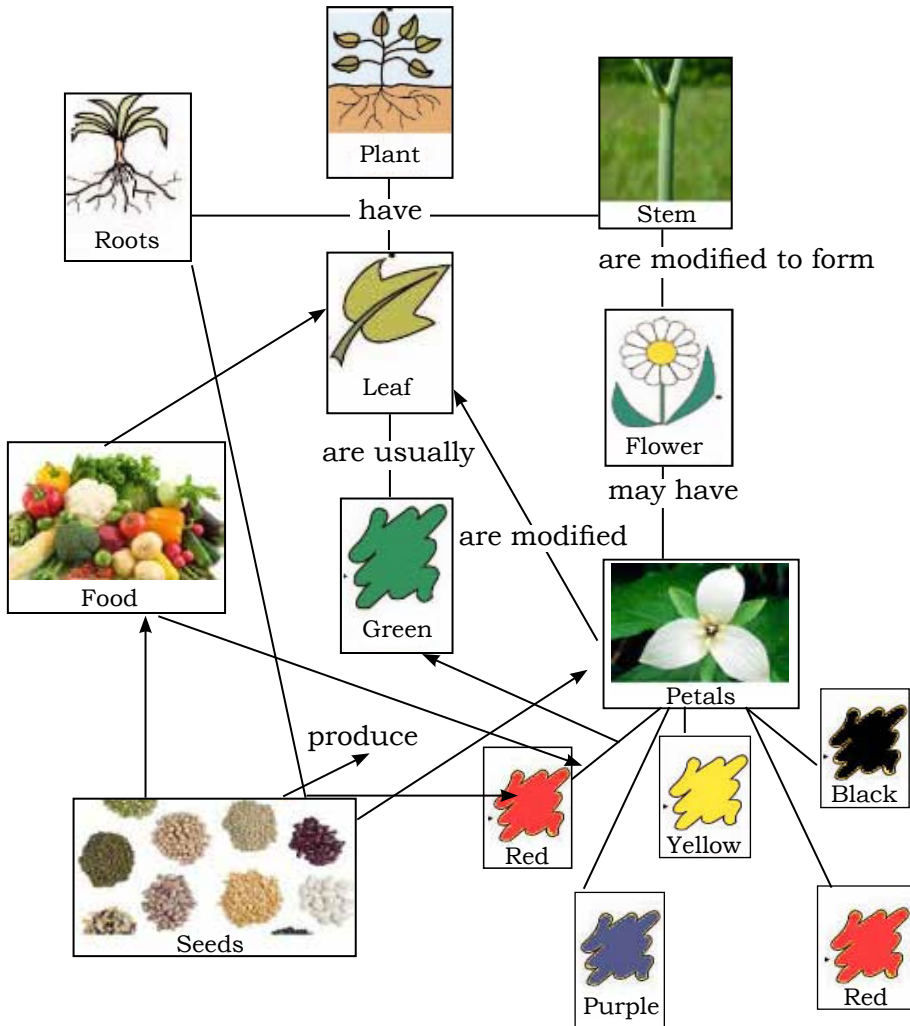
Fig. 1: An example of picture concept map for the 'structure of a plant'

Linkages and linking words missing technique

The teacher can paste the picture cutouts on the chart paper and ask the students to draw linkages and write the linking words with colour pencils as shown in Fig. 2.

Picture missing technique

Another technique may be 'picture missing technique'. Some pictures may be missing from a map. But it may be complete otherwise. The students may be asked to stick the missing pictures in the blank spaces (see Fig. 3).

There is a concept map for the 'structure of a plant', in which linking words and lines are missing. Complete it by adding these words and drawing lines with the help of a marker.

Roots

Plant

Stem

Flower

Seeds

Food

Leaf

Green

Petals

Red

Yellow

Black

Purple

Red
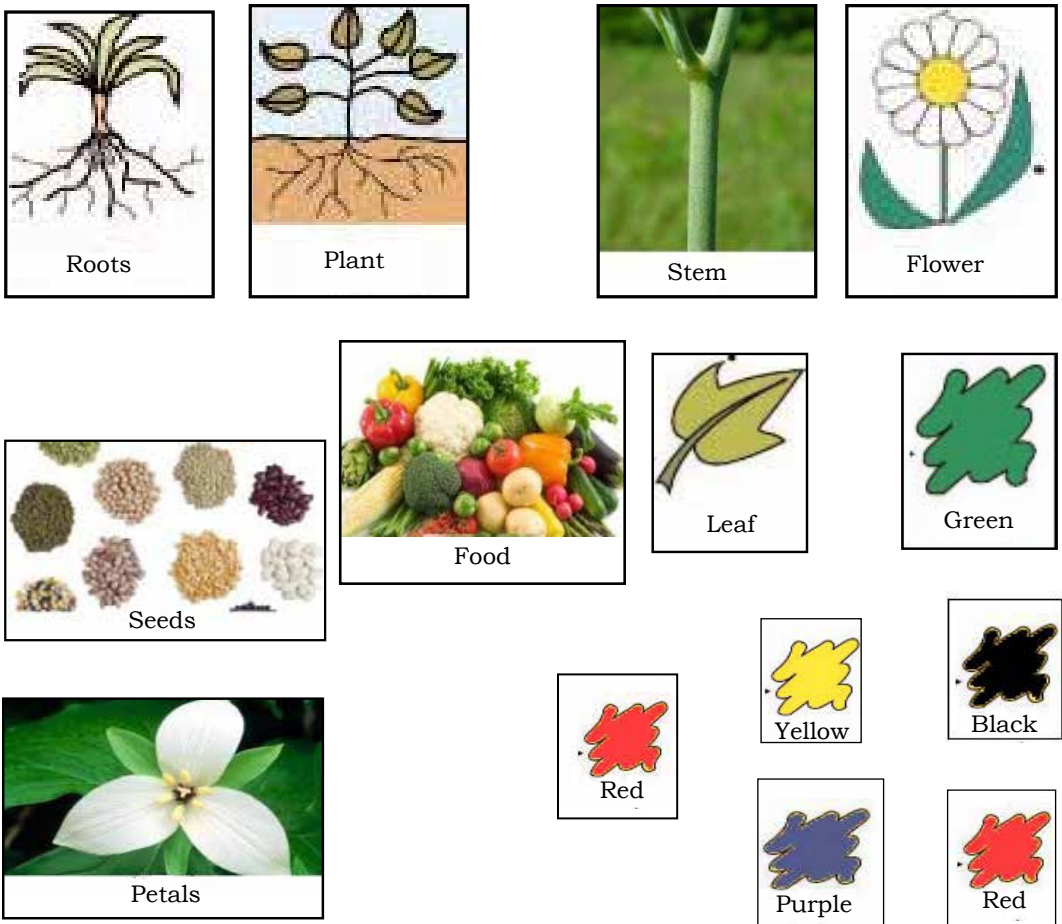
Fig. 2: Linkages and linking words missing technique
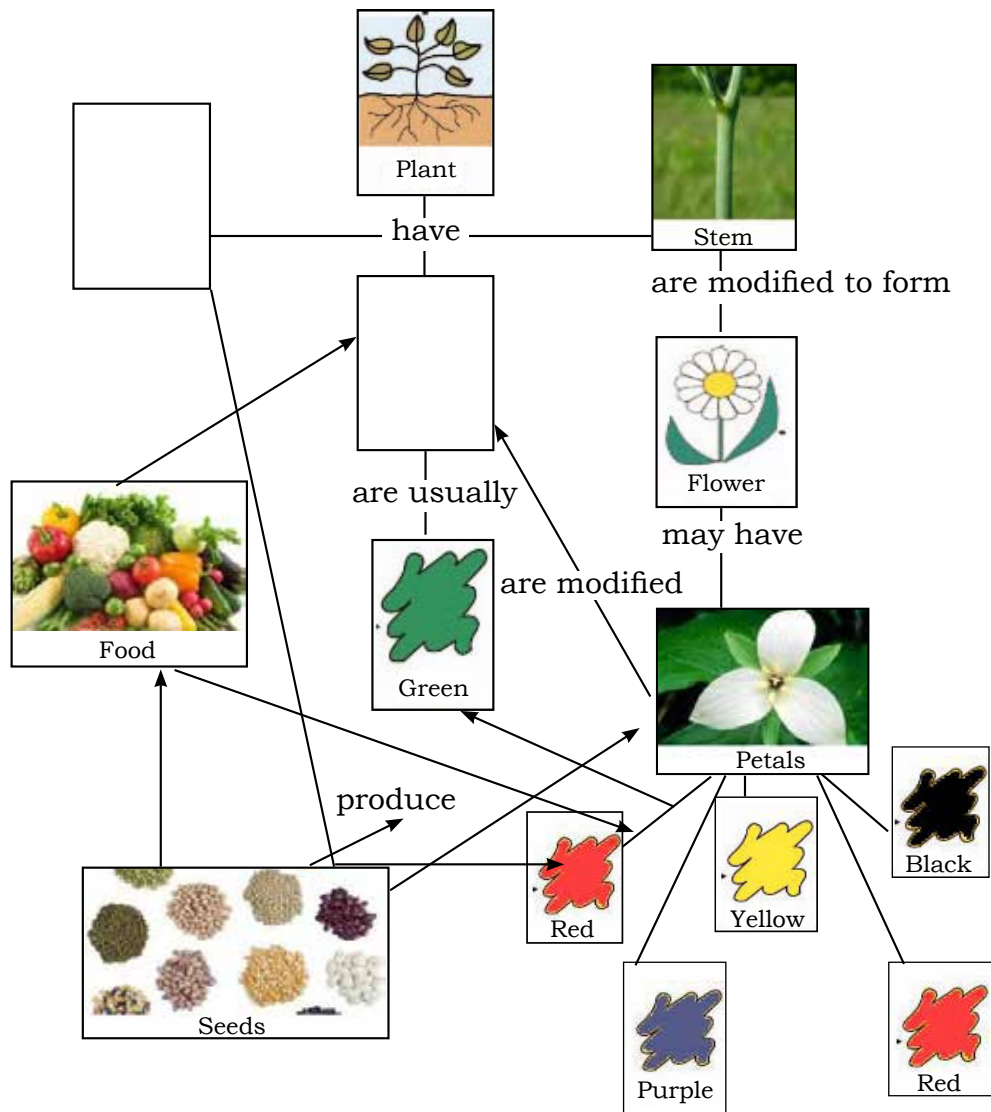
Fig. 3: Picture missing technique

Picture rearranging technique

Another technique is that all pictures may be placed at wrong places in the concept map and the students may be asked to rearrange the pictures, putting them at their respective places, else the map may not be complete. An example of this is shown in Fig. 4.
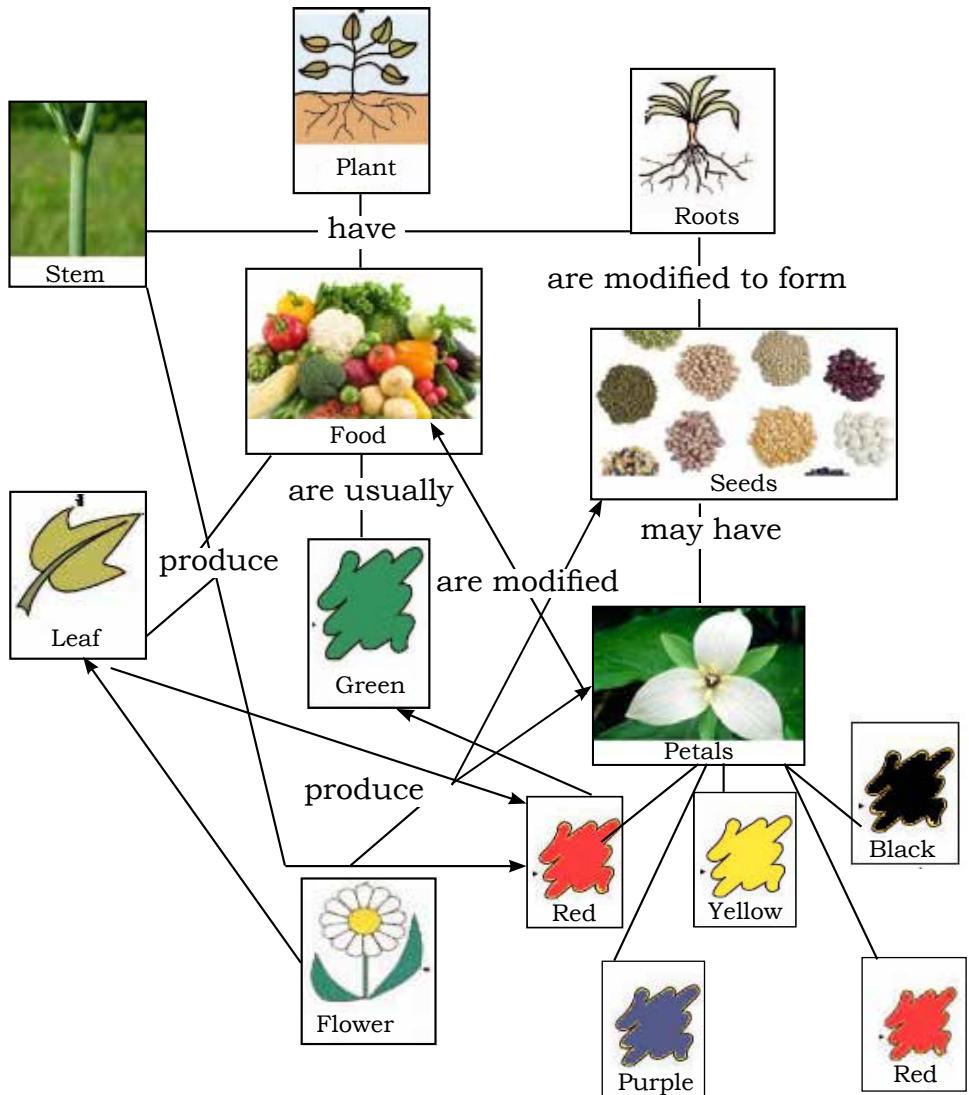
Fig. 4: Picture rearranging technique

Complete picture map construction technique

The teacher can also evaluate the students with complete picture map construction technique. The teacher can give the picture cutouts and a chart paper to the students with a focus question written on it and ask them to prepare a picture concept map. An example for this technique is shown in Fig. 5.
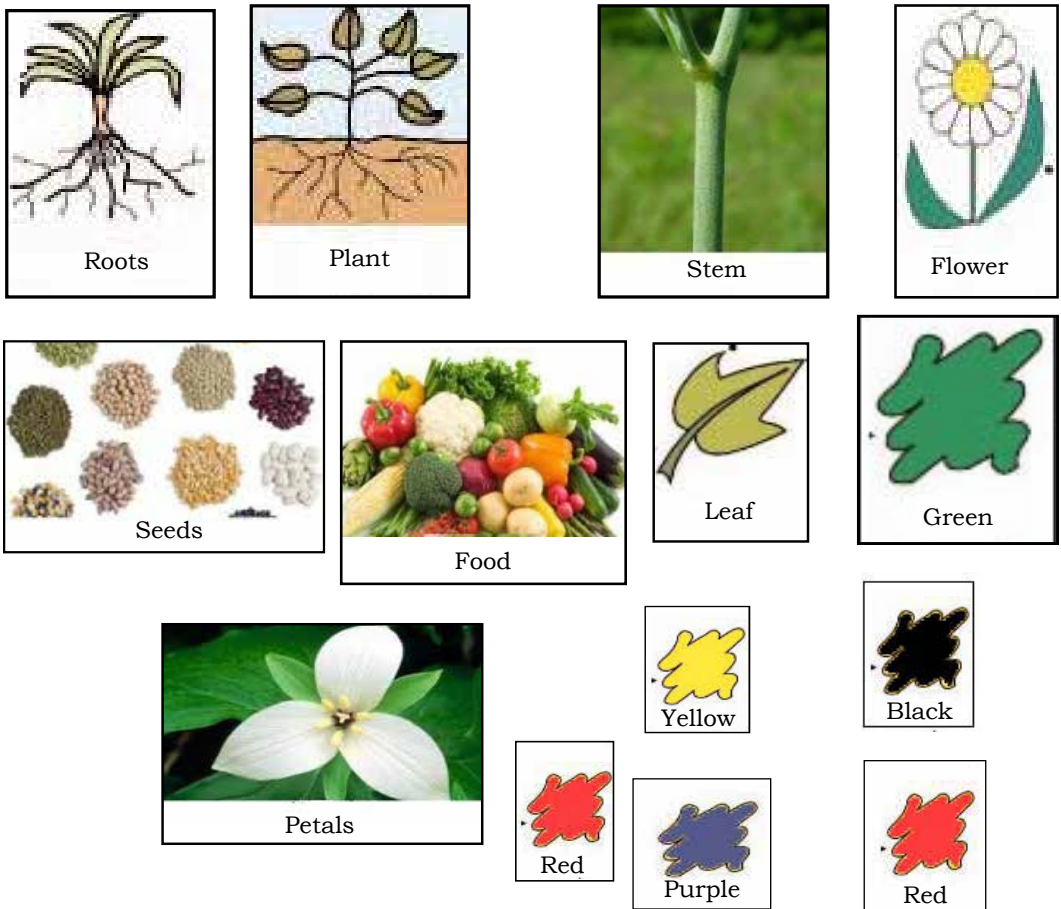
Fig. 5: Complete picture map construction technique

Concept mapping method can also be used as an assessment tool. In concept mapping, we can identify the difference in the students' knowledge, which is not possible in the conventional questionnaire method. It is easier to understand the knowledge of the students with concept maps than with ordinary tests (Katrin Soika, Pritt Reiska and R. Miksen, 2012). Concept maps can be used for formative assessment too (Trumpower and Sarwar, 2010). Using concept maps with written examination is a reliable instrument to test and evaluate mathematical knowledge. To evaluate concept maps, we need certain dimensions of measuring.

Various Techniques of applying Picture Concept Mapping as an Evaluation...

11

Canas, et al. (2006) developed a topological taxonomy for evaluating created concept maps. Topological levels were defined based on five criteria. They are as follows.

- recognition and using concepts
- presence of linking phrase
- degree of ramification
- hierarchical depth

Conclusion

If evaluation technique is applied at the primary level, it can help the teachers understand whether the students have grasped the content or not, and if they have understood interrelationships well. If not, why. Accordingly, the teachers can re-plan the teaching–learning process. Not only this, the technique can also be helpful for those students, who have writing problems and do not achieve high grades because of this. As students need to write little in this technique, they can perform academically better. Also, the content is presented in a systematic way. Hence, it makes the presentation attractive. Besides other evaluation techniques, concept mapping evaluation technique can be applied at the primary level. However, more researches need to be conducted to judge the reliability and validity of this technique. We will have to train our present and prospective teachers in this technique. For this, we will have to include concept mapping in the curriculum of teachers' training programmes, such as B.Ed., BTC, etc. We will also have to organise seminars and workshops on this technique and publish books on the same. Besides, we will have to spread knowledge about this technique by publishing articles in journals and magazines.

REFERENCES

Anderson-Inman, L., L.A. Ditson and M.T.C. Ditson. 1998. 'Computer-based Concept Mapping: Promoting Meaningful Learning in Science for Students with Disabilities'. *Information Technology and Disabilities.* Vol. 5, pp. 1–2.
Retrieved on 6 September 2005 from http.//www.edu/ease.itd/iddv5vn12/article.htm

Asubel, D.P. 1963. The Psychology of Meaningful Verbal Learning: An Introduction to School Learning. *Journal of Educational Psychology.* Grune and Stratton, New York.

Berk, L.E. and A. Winster. 1995. *Scaffolding Children's Learning: Vygotsky and Early Childhood Education.* National Association for Education of Young Children, Washington DC.

Bradford, J. 1999. *How People Learn: Brain, Mind, Experience and School.* The National Academies Press, Washington, DC.
Available at https://doi.org/10.17226/6160

CARNEGIE, D. 2012. *How to Develop Self-confidence and Influence People by Public Speaking?* Pocket Books, a division of Simon & Schuster Inc., New York.

EDMONDSON, K. 2000. 'Assessing Science Understanding through Concept Maps'. In J.J. Mintzes, J. Wandersee and J.D. Novak (Eds). *Assessing Science Understanding.* Academic Press, San Diego.

MINTZES, J.J. 2002. *Assessing Science Understanding: A Human Constrictive View.* Academic Press, San Diego.

NOVAK, J.D. 2006. 'The Theory of Underlying Concept Maps and How to Construct and Use Them'. Technical report, IHMC Cmap Tools. Florida Institute for Human and Machine Cognition, Pensacola.
Available at www.ihmc.us

PRESZLER, R. 2004. Cooperative Concept Mapping: Improving Performance in Undergraduate Biology. *Journal of College Science Teaching.* Vol. 33. No. 6, pp. 30–35 Retrieved from e-reality home blogsopt.com/2009/05

SHAILAJA, H.M. 2009. 'Effect of Concept Mapping Strategy in Physics on Achievement and Attitude of Students'. *Indian Educational Review.* Vol. 4. No. 1, pp. 105–111

SOIKA, K., P. REISKA and R. MIKSEN. 2012. 'Concept Mapping as an Assessment Tool in Science Education'. In J. Sanchez, A.J. Canas, J.D. Novak (Eds). Concept Maps: Theory, Methodology and Technology. Procedures of the Fifth International Conference of Concept Mapping. Vallelta, Malta.

TRUMPOWER, D. and G.S. SARWAR. 2010. 'Formative Structural Assessment using Concept Maps as Assessment for Learning'. In J. Sanchez, A.J. Canas, J.D. Novak (Eds). Concept Maps: Making Learning Meaningful. Procedures of the Fourth International Conference of Concept Mapping. Vina del Mar, Universidad de Chile, Chile.

VYGOTSKY, L. 1978. *Mind in Society: The Development of Higher Psychological Processes.* Howard University Press, Cambridge.

2

Problemetising Prospective Primary Teachers' Understanding of School Textbooks — The Case of EVS

Gurjeet Kaur*

Abstract

A textbook is a significant curricular input that propels and navigates the curriculum. NCERT Environmental Studies (EVS) textbooks for Classes III to V, written in the light of the National Curriculum Framework–2005, demonstrate an unconventional approach to knowledge and teaching–learning process. However, there has been a growing concern if these textbooks are actually reaching learners or even teachers. Text interpretation, in its intended sense, is often not as straightforward an intellectual activity as may be presumed, and more than text interpretation, it is the teachers' conceptualisation of EVS that may be needed to be closely examined. This lends support to the view that the teachers need to be facilitated in understanding the content, its transaction and significance. Hence, it is important that the teachers develop an understanding of the textbooks so that they can transact them in the intended sense. This paper discusses the results of an intervention that aims at enhancing future teachers' understanding of the EVS textbooks.

Keywords: Prospective primary teachers, textbooks

Introduction

A school curriculum is premised on certain assumptions about learners, the subject matter and its pedagogy. These assumptions may be assessed from policy documents, such as the National Curriculum Frameworks. The policy vision spelled out in such documents is concretised in the form of syllabi. Textbooks are developed in light of the syllabi, which take the curricular idea to classrooms through teachers. Textbook is the prime curricular input, which shapes the process of curriculum enactment.

* *Associate Professor*, Department of Teacher Training and Non-formal Education (IASE), Faculty of Education, Jamia Millia Islamia, New Delhi

Textbooks represent to each generation of students an officially sanctioned, authorised version of human knowledge and culture (Luke, DeCastell and Luke, 1989, p. vii). The statement is, especially, true in the context of a country like India, where a large part of textbooks is considered equivalent to the curriculum. McCutcheon (1982) came up with specific factors that were responsible for teachers' widespread use of textbooks. These were — requirement of school board (a committee in-charge of education in a particular city, area or school, especially, in the US, where this study was carried out), peer and parent pressure, belief in the necessity for uniformity and parity, lack of other material, ease of use, clear organisation, and responsibility to plan and teach multiple subjects to multiple ability groups.

Teachers, as mediators of curriculum and curricular material, intervene in a significant way to influence the understandings that are communicated during the process of classroom teaching and learning. Innovative and radical ideas can lose edge if not implemented in the intended sense. Unless a reform is adequately understood, the process of curricular reform may be severely impeded. One among the three key impeding factors for the implementation of curricular reform put forward by Cheung and Wong (2012), on the basis of a large-scale study, was teachers' inadequate understanding of the curricular reforms.

The teachers' understanding of textbooks is, usually, taken for granted as textbooks are meant for school children and the teachers have studied the subject at a much advanced level. This is more the case for primary school teachers as they supposedly deal with concepts and ideas that are considered 'simple'.

However, this premise may need to be revisited as demonstrated by various studies. Contrary to the expectation, it is found that teachers may not always comprehend the essence of ideas laid out in textbooks. Land, et al. (2015) observed that pre-service teachers tended not to read educative text features in potentially educative ways and often read them descriptively — not making an effort to understand the pedagogical approach. The personal meanings attributed by a teacher to new curriculum reforms give direction to one's path to curriculum implementation (Bantwini, 2010).

Yan and He (2012) made an important point when they stressed on the need to bridge the gap between macro-level driving ideas and micro-level school realities. Remillard (1997) suggests that teachers play a more direct role than textbooks in enacted curriculum as they are the key people, who informed by their beliefs, understandings and dispositions, interpret and implement the curriculum.

Enacted curriculum comprises teacher–student interactions focused on instructional material and teacher

intended curriculum. It may be understood as the operational form of the intended curriculum. Chau, et al. (2006) also support the view that local implementation of instructional reforms is not a straightforward exercise but quite a forbidding challenge to bring about substantive rather than cosmetic change.

Moulton (1997), on the basis of an extensive review of studies examining teachers' use of textbooks, observes that teachers tend to develop specific patterns of textbook use, which they maintain over the years. This means that once a teacher's pattern is crystallised, it is unlikely that the person will change it. It follows that future teachers need to develop an appropriate understanding of the curricular material before they start working. Therefore, teacher training programmes need to serve as junctures for the cultivation of understanding of curricular material.

Environmental Studies (EVS) textbooks for Classes III to V, written in light of the National Curriculum Framework–2005, demonstrate an unconventional approach to knowledge and the teaching–learning process by presenting EVS as a composite area of study.

Two underpinning thoughts that could perhaps best summarise the philosophy of these texts are — plurality of contexts and concern for social justice. Plurality is actively catered to by bringing in varied and diverse experiences and life situations — variety in landforms, lifestyles, vegetations and food habits are reflected throughout, and inequalities are consistently questioned.

There has, however, been a growing concern, as suggested by off-hand observations, if the import of the text is actually reaching learners or even teachers. The present study was designed to investigate and address the issue at teacher preparation level. It was conceptualised in four phases — preliminary, pre–interventional, interventional and post–interventional.

Preliminary Phase

An exercise to gauge the relevance and need for the study was carried out on first-year students of the two-year Diploma course in Elementary Teacher Education in the year 2015–16 in a teacher training institution, where the researcher was teaching. Forty-three students were divided into seven groups, each consisting of five–six students. Each group was assigned one of the following seven chapters of Class V EVS textbook — (i) 'Chakhne se Pachne tak', (ii) 'Boond-boond, Darya-darya', (iii) 'Paani ke Prayog', (iv) 'Bolti Imaratein', (v) 'Sunita Antariksh mein', (vi) 'Jaayen to Jaayen Kahan', and (vii) 'Kiske Jungle'. The students were asked to read and collectively identify the embedded concepts, issues, sensitivities and skills in the chapters. The findings lent support to the premise that a systematic attempt to enhance the understanding of future teachers of the textbook was indeed warranted.

Sample

The group consisted of 50 students. However, some students dropped out and few new ones joined during the course. In the end, 43 students, who were present at the time of initiation of the study, remained. These students comprised the sample of the study.

Tool description, preparation and validation

The study was spread over seven months and was confined to seven chapters of the Class V textbook. The chapters were read out by the researcher, who has been teaching the course in Pedagogy of EVS for 15 years. Drawing upon her experience and familiarity with the textbooks, she prepared a template that highlighted the inhering concepts, issues, sensitivities and skills in each chapter. This template was discussed on a wider forum with three experts and their views were sought on the same. The template was, then, modified in light of the suggestions received. An exemplar of the template pertaining to the chapter *'Paani ke Prayog'* is as follows.

Table 1: Template exemplar
Name of the chapter: *'Paani ke Prayog'*

Concepts or understandings	i) floating and sinking
	ii) floating and sinking of an object depends on the material it is made of, its mass, shape and presence of solutes in the water, in which it is dissolved
	iii) solubility and insolubility of different substances in water
	iv) particulate nature of matter
	v) conditions affecting the solubility of substances in water
	vi) viscosity of liquids
	vii) conditions affecting the rate of evaporation
	viii) separation of dissolved substances — getting salt from water
Issues	i) state ownership and levying of tax on natural products (salt)
	ii) mass mobilisation over an object of everyday use and common concern
Skills	i) hypothesising
	ii) planning and investigation
Sensitivities	i) providing science–society interface
	ii) challenging gender stereotypes
	iii) challenging stereotypes related to science and scientists
	iv) challenging science as an 'exclusive' practice

Pre-interventional Assessment Phase

The students were divided into seven groups, each having almost equal number of members initially. However, it may be pointed out that the study was initiated in the early days of the academic session and there was a considerable influx and withdrawal of students. Consequently, the number of students in each group varied in the end. During the pre-interventional assessment session, each student was asked to identify the concepts, issues, sensitivities and skills in the chapter assigned to the child's respective group. The time taken by the students to complete the task was about one-and-a-half to two hours. The students' responses were recorded. Each student was assigned a code and the response was marked as 'yes' or 'no', depending on whether the student was able to identify a particular understanding, figuring on the template developed for each chapter. Reflecting on the responses received, the researcher designed an interventional exercise.

Interventional Phase

The pattern of responses received during the pre-interventional phase was reflected upon so as to come up with the nature of interactions that would help the students understand the intent of the textbook in a better way. The intervention consisted of the following components.

EVS *kya hai*

This module was written with the primary objective of broadening the concept of Environmental Studies in prospective teachers.

Syllabus and textbook scan

This module was intended at familiarising the participants with the EVS curriculum and Class V textbook, and ensuring that they read both in entirety. The questions raised as part of this interaction were specific and dealt with the nature of the two documents.

Vision, curriculum and textbooks

This module was premised on the hypothesis that the prospective teachers would be able to appreciate the intent of the curriculum and textbook in a better way, if they were themselves facilitated to trace how the ideas reflected in the vision documents found correspondence in the content of the syllabus and textbook.

Interaction with textbook adviser

It was opined that participating in a face-to-face interaction with the textbook adviser would give a humane face to the entire process of textbook conceptualisation and development. The understanding, thus, forged would help the teachers comprehend the ideas and insights that form the essence of the textbook in a better way.

Lekhakon ke mukh se

This module was based on the researcher's interaction with the adviser and two authors of the textbook to gauge the philosophical backdrop against which it was written. Certain

key ideas that were highlighted by them were sifted out to ascertain if these had reached the students and the students were asked to cite examples from the textbook to support how they saw a particular idea being reflected in the book.

EVS — perspective and pedagogy

A face-to-face interaction of the students with the advisor and one of the authors of the textbook was again organised to give them a first-hand account of the considerations that shape the content and process of developing a textbook, the rationale behind the inclusion of certain concepts and the challenges faced.

It was opined that this would help the students arrive at an understanding, which is illuminated by the basic premises and key ideas of the book. The modules varied in their content and scope, and therefore, the students' time of engagement with each module differed.

Post-interventional Assessment Phase

Like the first session, the students were again divided into seven groups and asked to work on the chapter that they had worked on in the previous session. They were asked to identify the various concepts, issues, sensitivities and skills included in the chapter. The time taken for post-interventional assessment was one-and-a-half to two hours.

Identifying the challenges

The students responded differently to the intervention. While there was an increase in the number of students' ability to identify many concepts, issues and sensitivities, there were some for whom the intervention proved completely ineffective. It would be informative to examine these uncommunicative understandings to actually be able to gauge the challenges that beset the textbook writing process.

Use of narratives

The textbook consistently uses narratives as pedagogic devices in the form of historical instances, biographical notes or first-hand experiences of people, who have made significant contributions to the society and knowledge, life stories or everyday events in the lives of people. These have been included for specific educative purpose, which does not seem to always reach the prospective teachers. The text is layered in meanings. Though the prospective teachers may be able to access the outside of an explicitly stated idea, they may not often be able to reach the fundamental and core issues being addressed through it.

Challenge to stereotypes

Prior to intervention, gender stereotypes were not easily identified even in iconic cases, such as that of Sunita Williams. Gender stereotype,

however, seems to be more amenable to recognition on providing appropriate cues. Challenges to other kinds of stereotypes are not easily recognisable.

Linkage between textbook knowledge and contemporary national concerns

Despite there being an explicit reference in one of the modules to raging national debates, it has been found that a linkage between political goings-on and classroom is not readily established. This also brings to question self-awareness of the prospective teachers and their responsiveness to socio-political issues, which need to be addressed perhaps through more coherent and concerted systemic efforts.

Identification of 'science' vs. 'social science' concepts

It was observed that during pre-intervention, concepts of science were more easily recognised by the students as compared to social science concepts. This could perhaps be attributed to the tendency among the students (especially, before the intervention) to equate Environmental Studies with Environmental Education, and predominantly, with conservation and plantation perspectives. Also, insights from social sciences are mostly classified as sensitivities and not as concepts. Post-intervention, there is a definite increase in the number of students, who are able to identify the various social science concepts in a given chapter.

CONCLUSION

Given that the sample size was small and the scope limited, the study can claim no generalisations. However, some pointers that emerge from the endeavour need to be flagged for further probing. It was observed that the students often found it difficult to differentiate between concepts, issues or sensitivities. This led the researcher recognise that there was a need to revisit this idea.

Though the students were able to identify several additional understandings post-intervention, it may perhaps not be academically tenable to attribute it solely to intervention. In some instances, those ideas were identified to which there was no explicit reference in intervention. This leads the researcher to hypothesise that sometimes re-reading of the text may in itself be a useful exercise.

Contrary to how it may seem, textbook interpretation comes across as a complicated process impinged upon by many factors. The study highlights that the understanding of future teachers of primary level textbooks cannot be taken for granted. Elementary teacher preparation courses need to find space for systematically engaging prospective teachers with the school curriculum and textbooks.

REFERENCES

BANTWINI, B.D. 2010. How teachers perceive the new curriculum reform: Lessons from a school district in the Eastern Cape Province. *International Journal of Educational Development.* South Africa. Vol. 30, pp. 83–90.

CHAU, D., V.L. WILLIAMS, LE VI-NHUAN, A. ROBYN, BRIAN M. STECHER AND LAURA S. HAMILTON. 2006. Teachers as Implementers of Mathematics and Science Systemic Reform Policies. Working paper. RAND Education

CHEUNG, A.C.K. AND P.M. WONG. 2012. Factors affecting implementation of curricular reform in Hong Kong: Key findings from a large-scale survey study. *International Journal of Educational Management.* Vol. 26. No. 1, pp. 39–54.

LAND, T.J., A.M. TYMINSKI AND C. DRAKE. 2015. Examining pre-service elementary mathematics teachers' reading of educative curriculum materials. *Teaching and Teacher Education.* Vol. 51, pp. 16–26.

LUKE, C., S. DECASTELL AND A. LUKE. 1989. 'Beyond criticism: The authority of the school book'. In S. DeCastell, A. Luke and C. Luke (Eds). *Language, Authority and Criticism.* Falmer Press, London. pp. 245–260.

MCCUTCHEON, G. 1982. 'Textbook Use in a Central Ohio Elementary School'. Paper presented at the American Educational Research Association.

MOULTON, J. 1997. How do teachers use textbooks — A review of the research literature. Technical paper No. 74. SD Publication Series: Office of Sustainable Development Bureau for Africa.

NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING. 2007. *Environmental Studies — Looking Around* (Textbooks for Classes III–V). NCERT, New Delhi.

REMILLARD, J.T. 1997. 'Mathematics teaching as improvisation: A problem for policy implementation'. Paper presented at the annual meeting of the American Educational Research Association, Chicago.

YAN, C. AND C. HE. 2012. Bridging the implementation gap: An ethnographic study of English teachers' implementation of curricular reform in China. *Ethnography and Education.* Vol. 7. No. 1, pp. 1–19.

3

Participation of Learners in Functional Literacy Programme — A Study

S. B. Joshi*

Abstract

This paper is based on the low participation of learners in the existing implementation framework of functional adult literacy programmes. It explores conceptual and methodological issues, leading to low participation due to gaps in the planning of programmes and impact of feasible planning in enhancing the participation of adult beneficiaries in contemporary literacy programmes. The paper compares planning perspectives on literacy and their implementation to achieve goals through increased learner participation. It argues that instead of merely chalking out plans on the basis of centralised and uniform norms, the process, particularly, in vulnerable areas may be need-based, leading to feasibility in implementation.

The outcomes of literacy programmes can be increased by implementing the best practices adopted nationally or internationally along with convergence with various departments. The association of vocational education in literacy programmes has better output in the form of participation and achieving functional literacy.

It has been the experience of implementers that socio-economic factors, geographical diversities and difference in age groups have to be included in planning and implementation. Due to less space for flexibility in norms in various activities, interventions have not been executed to their expected level, which in turn not only resulted in prolonged time of execution but also escalation of project cost. This paper, primarily, focuses on critical review of concurrent interventions, impact of uniform norms, amount of flexibility and decentralised need-based planning for better attainment of objectives.

Keywords: Functional literacy, decentralised planning, implementation, adult literacy programme

* *Additional Director,* State Institute of Educational Management and Training *(SIEMAT), Uttarakhand*

INTRODUCTION

The United Nations Educational, Scientific and Cultural Organization (UNESCO) defines functional literacy as the "ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts. Literacy involves a continuum of learning in enabling individuals to achieve their goals, develop their knowledge and potential, and participate fully in their community and wider society."

The attainment of functional literacy through basic literacy programmes has been one of the focus areas in all non-formal education projects in India. Realising the close association of functional literacy and development, the *Saakshar Bharat* programme was implemented across the country in September 2009 through the National Literacy Mission and State Literacy Mission, the implementing agencies at the national and State levels, respectively.

Various non-formal education programmes, such as Total Literacy Campaign and Post Literacy Programme, had basic literacy as one of the prime aims. *Saakshar Bharat* is a variant of the earlier literacy programmes and has been implemented in districts having female literacy rate below the national average and increased gender gaps.

Implementation units of *Saakshar Bharat* programme at the village panchayat level have been named 'adult education centres' and 'literacy centres'. Adult education centres are management units and function as nodal centres for all literacy activities at the panchayat level. The performance of functionaries, such as *Prerak* (village coordinator) and volunteer teachers, especially, at this level, has been crucial to achieve the objectives.

This paper focuses on the review of implementation pattern and participation of learners in its major activities, such as survey, trainings and quality of teaching–learning material, along with methods of instruction amalgamated with vocational education.

OBJECTIVES

This paper aims to achieve the following objectives.

- To analyse the participation of non-literates or beneficiaries with respect to the present norms and implementation methods
- To explore ways to increase the participation of beneficiaries on the basis of successful interventions

RESEARCH METHOD

Research method is mostly based on secondary data and findings of various researches in the area of adult literacy, which has been a vast unorganised area of non-formal education system. Case study, referring to the participation of learners, is also taken as an example. Besides, primary data have been collected from learners.

Survey and identification of implementation areas

The identification of implementation areas of functional literacy programme was on the basis of Census 2001. Areas having more than 26 per cent gap in male and female literacy level and literacy below the national average were selected.

The secondary data reflect that districts selected for adult literacy programme, i.e., *Saakshar Bharat* districts, have a low female literacy rate.

The Asia-Pacific region does not have a comprehensive framework for adult learning and education. Efforts are fragmented and divided between multiple actors in the field without a clear targeting of the clientele and strategy for participation and equity. While adult education programmes in developing countries focus on providing 'basic competencies' in literacy, and sometimes numeracy, participation in these programmes is still disparate and unequal in terms of gender, age, location, and ethnic and linguistic categories (Ahmad, 2008).

A mid-term study conducted by the Indian Institute of Management (IIM)−Lucknow (Vikas, 2013) stated that identification of areas for literacy implementation should be based on a survey. Such a survey must study areas having very low literacy rate with focus on religious groups, gender disparity, tribal areas and working sites.

For effective planning, research work needs to be reinforced in areas, where deficits have been identified, such as gender differentials, dropouts, lapsing into illiteracy, as well as, ways of empowering women and village panchayats to activate progress towards adult literacy (Paintal, 2006).

Table 1: Literacy rate (in %) in various Uttarakhand districts

Districts	Male literacy		Female literacy		Gender gap in literacy	
	2001	2011	2001	2011	2001	2011
Almora	89.2	89.26	60.56	70.44	28.64	18.82
Chamoli	89.66	94.18	61.63	73.20	28.03	20.98
Dehradun	85.87	90.32	71.2	79.61	14.67	10.71
Pauri	90.91	93.18	65.7	73.26	25.21	19.92
Nainital	86.32	91.09	69.53	78.21	16.77	12.88
Pithoragarh	90.06	93.45	62.59	72.97	27.47	20.48
Rudra Prayag	89.81	94.97	59.57	70.94	30.24	24.03
*Bageshwar	87.65	93.2	56.98	69.59	30.67	22.61
*Champawat	87.27	92.65	54.18	68.81	33.09	23.84

*Haridwar	73.83	82.26	52.1	65.96	21.73	16.30
*Tehri Garhwal	85.33	89.91	49.42	61.77	35.91	28.14
*Udham Singh Nagar	75.22	82.48	53.35	65.73	21.87	16.75
*Uttarkashi	83.6	89.26	46.69	62.23	36.91	27.03

Source: Census 2001   *Saakshar Bharat districts

Regional imbalance was not considered while planning for the programme, resulting in uneven progress in Uttarakhand. Gram panchayats in hill areas have lagged behind for want of human and financial resources (Vikas, 2013).

Planning for permanent adult literacy centres for lifelong learning

In hilly areas with low population density, operational cost and cost of education for literacy per learner has been comparatively higher.

Making rooms available for Adult Education Centres (AECs) in classrooms of schools or in panchayat buildings or any other government building has not been a problem. However, some AECs in government buildings are not utilised by beneficiaries as they are in a dilapidated condition.

AECs have to be established within the reach of the learners and appropriate space through resource allocation has to be ensured.

Continuing education, as a component of adult literacy programmes, has been the objective of AECs, which could not be made functional because of more concentration on volunteer mode programme, i.e., to convert non-literate into neo-literate with teaching–learning of nearly six months. Hence, the idea of converting continuing education centres into lifelong learning centres has to be implemented.

Assessment method

There are two major problems with the existing approaches to obtaining exact data on literacy. First, they are based on different definitions and methods of data collection, such as self-referential categorisation, proxy indicators or standardised test, etc. Second, they do not take into consideration the pluralities of literacy, i.e., multiple illiteracies.

The dominant approach to literacy assessment does not pay attention to literacy practices embedded into the social context. It is assumed that literacy is universal and literacy skills (reading, writing and arithmetic) are detached from social practices (Ila Patel, 2009).

Planning for effective training and motivation of village level functionaries

Training is imparted in 'cascade model', where state-level trainers develop key resource persons at

the district level, who train master trainers and the cascade goes down to volunteer teachers and village-level coordinators. Training is conducted through key resource persons and master trainers — one master trainer for every 25–30 volunteer teachers and one key resource person for every 25–30 master trainers. Firstly, the key resource persons are trained, who in turn train the master trainers. Volunteer teachers are then trained by the master trainers in batches (National Literacy Mission document, 2008).
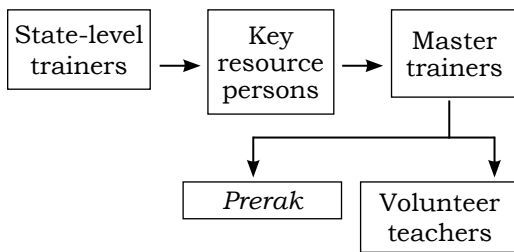
Fig. 1: Cascade approach of training

In order to design training programmes for all functionaries, training needs must be regularly assessed. Due to the absence of assessment of training needs or training based on the need of learners, volunteer teachers and *Prerak* have not been able to motivate the learners and increase their participation based on their interests.

Shah (2004), on the basis of several evaluation studies, reported that although the cascade approach of training has been useful in training a large number of functionaries in the Total Literacy Campaign (TLC),

training of volunteer instructors has become a low priority because of diminishing resources in terms of training content, material, duration, funds and technical inputs to TLCs. Training inputs are, generally, based on literacy-based Primers and very little on andragogy (method and practice of teaching adult learners; adult education), adult psychology and learning styles.

Most government institutes reduce training to mere transmission of knowledge and follow the top-down and lecture-based approach of training (Dighe, 1995).

Linking with equivalency and credit transfer system

An equivalency programme, generally, focuses on deprived populations but it can also be an alternative route to education for those who lack access to conventional education systems. Equivalency programme under the government's *Saakshar Bharat* programme aims to provide a second chance to those who have missed out opportunities of formal education.

Equivalency programmes will have to be inbuilt in the system of adult education programmes for appropriate implementation of adult literacy programmes and compulsory primary education. Various studies have shown that neo-literates, who have achieved basic literacy, are keen to attain higher level certification, i.e., at least up to the elementary level of education. They can be linked with some utility,

such as proof of qualification, basis for enrolment in school education and basis for the calculation of age.

Recognition of Prior Learning (RPL) needs to become a part of equivalency and it will help sustain learning interest among adults, especially, neo-literates (expert committee on National Curriculum Framework on adult education, 2011).

The National Literacy Mission, introduced as a technological and societal mission, adopted a campaign to eradicate illiteracy on a large scale but it did not pay attention to post-literacy and continuing education.

Linking functional literacy with income generation

Adult literacy programmes must include component of vocational education right from the initial stage. Functionality needs to be treated as the core for adult learning.

The mobilisation of adult illiterates and that of the society is a challenge for countries. Motivation and enrolling the illiterates in adult education centres is a challenging task but ensuring their regularity has always been a problem. Meeting their daily needs and earning is a prime concern for the learners. Therefore, training in vocational education has been tried to motivate them.

Adult literacy emphasises on equipping the learners with literacy skills. Having acquired this instrument, the learners may continue to participate in education. The somewhat narrow and restrictive view of literacy skills, as well as, their separation as a goal from life skills, appears to have denied it a role within the common framework of lifelong learning. There is a pronounced 'skill gap', both in terms of quality and quantity. Besides, the current vocational education and training infrastructure is not geared to meet the industry requirements [Confederation of Indian Industry (CII) report on the case for setting Sector Skill Councils, 2009].

Success story

Kanaura, a village panchayat with more than 80 per cent minority population in Bajpur block of Udham Singh Nagar district, has been covered under the *Saakshar Bharat* programme on account of low literacy and higher gender gap in literacy. A village coordinator (*Prerak*) took the responsibility of managing the teaching–learning and other activities of programme. She, initially, found it difficult to increase the participation of learners but, gradually, started linking earning activities like tailoring with sewing machine of her own. She was able to maximise learner participation and community by nearly up to 100 per cent and the panchayat won the *Saakshar Bharat* Award−2012 for her work.

Convergence with departments

China's literacy programmes aimed at ensuring literacy among working groups and farmers. They were easy to organise. Flexible classes were planned, in terms of spare time, seasonal and night schools. The cadres were motivated to teach adults. There was a strong political will in the system (Paintal, 2006).

The primary data on the need for literacy programmes to be associated with various other activities, which have been obtained from learners or neo-literates of one of the panchayats in Bajpur block, Uttarakhand, reflected that nearly 70 per cent of them felt the need for skill development programmes, 55 per cent for equivalency, 70 per cent for opportunity cost, 55 per cent for linking with jobs and 70 per cent for literacy with awareness programmes.

Teaching–learning methods

Malcolm Knowles (1913−97), a pioneer in the study of adult learning, observed that adults learn the best when they understand why something is important to know or do, and have the freedom to learn in their own way. Learning is experiential, i.e., the time is right for them to reflect on their experiences and learn, and the process is positive and encouraging. Teaching–learning methods must be based on andragogy, where adult learners must feel that they are participating directly in the teaching–learning process.

Funding pattern

The mid-term assessment of the *Saakshar Bharat* programme has concluded that the State Literacy Mission Authority (SLMA), in
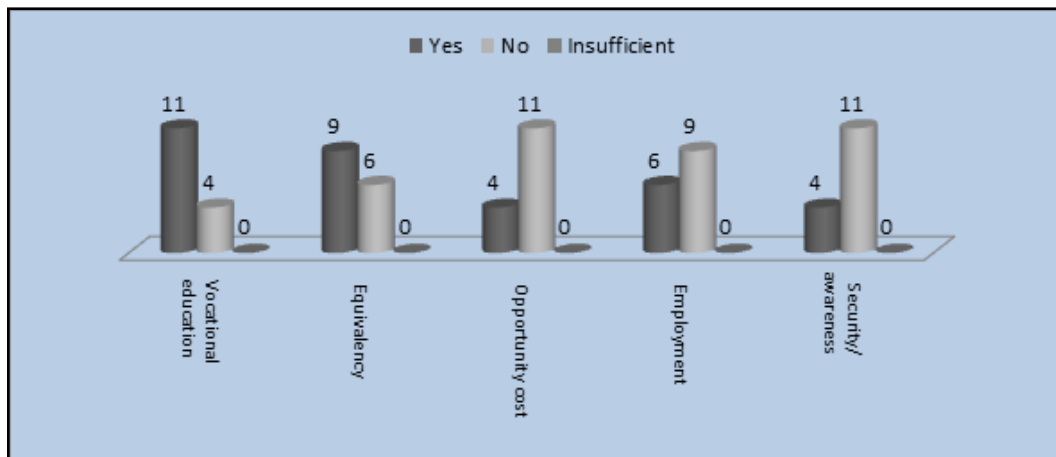

Fig. 2: Primary data collected from a village panchayat of Bajpur block, Uttarakhand

consultation with the National Literacy Mission Authority (NLMA), may work on a mechanism that takes care of the learners in remote hilly areas.

Grant on the basis of the learners' count neither works logistically nor financially in these locations. Special provisions need to be made to accommodate geographical variations. For example, the *Prerak*–learner ratio would be low in certain geographical areas compared to other parts. Provision for adequate transport allowance should be made (Vikas, 2013).

Selection, motivation and attrition rate of volunteers

According to the guidelines of the *Saakshar Bharat* programme, voluntary literacy educators are not paid remuneration. They need to be motivated to carry out the job of spreading literacy through different means, including public recognition at various levels and acknowledging their contributions, besides other incentives and rewards.

The payment of honorarium to literacy educators may also be considered by the State governments, gram panchayats and NLMA through funding sources, including donations or funds generated from public–private partnership. Volunteer teachers are seldom available to run literacy centres in sparsely populated hilly areas. There has been a consistent demand for incentives in lieu of volunteer teaching. Studies emphasise

that mobilising the youth to volunteer can be accelerated by incentives and certification.

The introduction of paid project staff in continuing education appears to have shifted the focus away from volunteering at the grassroot level. With growing emphasis on paid functionaries in running post–literacy and continuing education centres, the involvement of volunteers has been reduced (Mathew, 2002).

Conclusion

- It is evident from various studies that inclusive decentralised planning, based on disaggregated data, will lead to the achievement of objectives of adult literacy along with increased participation of beneficiaries.

- Adult education centres play a crucial role but permanent buildings are necessary to increase the participation of learners.

- Effective training of participants, based on the Training Needs Analysis (TNA) of all stakeholders, is compulsory in order to find out the actual needs of the learners, and all primers-based teaching–learning activities must be inclined in the same direction.

- Low income groups are keen to acquire skills of income generation. Hence, adult literacy programmes linked with income generation skills necessarily increase participation.

- The involvement of skilled volunteers and literacy instructors

well-versed with andragogy leads to increased participation. Honorarium, certification or weightage in government services increase the learners' enthusiasm.

- Convergence with other departments working at the village panchayat level will necessarily enhance learner participation.

- Further, the funding pattern has been weak in adult literacy schemes. This needs to be made spontaneous. Discontinuity in release of funds affects the outcomes of the programmes.

REFERENCES

AHMAD, MANZOOR. 2008. The state and development of adult learning and education in Asia and the Pacific Regional Synthesis Report 2008.

COMINGS, J.P., C. SMITH, S. LEVINE, A.J. DOWD AND B. GARNER. 1997. 'A comparison of impact from schooling and participation in an adult literacy program among women in Nepal'. National Center for the Study of Adult Learning and Literacy, Harvard University, Cambridge, Massachusetts.

CONFEDERATION OF INDIAN INDUSTRIES. 2009. 'Case for Setting up Sector Skill Councils in India'. CII National Conference on Education 2009. 'Linking Education to Employability'. New Delhi.

DIGHE, A. 1995. 'Deconstructing Literacy Primers'. *Economic and Political Weekly.* India. pp 1559–1561.

UNESCO. 2006–11. Global LIFE Mid-term Evaluation Report. *LIFE-Literacy Initiative for Empowerment 2005&15.* UNESCO, Paris.

OXENHAM, ET AL. 2002. 'Skills and Literacy Training for Better Livelihoods'. Human Development Sector, Africa Region. World Bank, Washington, D.C.

PAINTAL, MANJEET. 2006. Adult Education in India, Indonesia, Thailand and China — A Comparative Study.

PATEL, ILA. 2009, 'Adult learning and lifelong learning in India'. Mid-term Assessment. NUEPA, New Delhi.

PRIYADARSHI, PUSHPENDRA AND R.M. VIKAS. 2013. 'Term Review of *Saakshar Bharat* Programme: A Comparative Report'. North India.

REPORT OF THE EXPERT COMMITTEE. 2010. National Curriculum Framework for Adult Education 2010. NCERT, New Delhi.

THE BELEM FRAMEWORK FOR ACTION (Final document of the Sixth International Conference on Adult Education), 4 December 2009.

Working Group on 'Elementary Education and Literacy' for the Twelfth Five Year Plan (2012–17).

4

A Study on CAI as Remedial Teaching on Eye–hand Coordination of Learning Disabled Fifth Grade Students

Ravindra Kumar*

Abstract

Computers are increasingly being used in school education today, even in remote and rural areas. Internet connectivity is possible through the ubiquitous mobile. Computer serves a number of purposes in a classroom and can be utilised to help students in all subjects. Computer Assisted Instruction (CAI) refers to the use of computer as a tool to enhance learning through a combination of texts, graphics, sounds and videos. This article presents a study, investigating the efficacy of CAI in remedial teaching for eye–hand coordination among learning disabled children in the fifth grade for boys and girls. The study adopted pre– and post–test control group design. A random sample of 64 school students was drawn from Meerut, Uttar Pradesh. The researcher used CAI (games and simulations) as an instrument for studying the eye–hand coordination for learning disabled children in the experimental group, while students in the control group were exposed to traditional teaching method. The instrument for data collection was Diagnostic Test of Learning Disability (DTLD). T–test statistics were used to analyse the hypothesis. The findings revealed that the experimental group performed better than the control group. It was found that the CAI method was better than the traditional method for improving the eye–hand coordination of learning disabled fifth grade students.

Keywords: Eye–hand coordination, computer assisted instruction, learning disabled, diagnostic test of learning disability, remedial teaching

* *Assistant Professor,* Education Technology, CIET, NCERT, New Delhi

INTRODUCTION

Computer programs are interactive and can illustrate a concept through animation, graphics and sounds. They allow students to progress at their own pace and work individually or solve problems in a group. Computers provide immediate feedback, letting the students know if their answers are correct. If an answer to a question is not correct, then a program gives the correct answer. Computers offer a variety of activities and enable a refreshing change from teacher-led or group instruction.

Computer Assisted Instruction (CAI) is a new teaching–learning strategy, in which the topics to be taught are planned, written and programmed in a computer. These can be run at the same time in several computer units, allowing one computer terminal to each student. The instructions are also programmed on a compact disc (CD), which can be played using audio, video, drag and drop, gaming and simulation activity for each student to learn the topic at one's time and pace. The potential benefit of CAI cannot be underestimated in the contemporary world. There are a lot of established findings on the instructional value of computer, particularly, in advanced countries. There are several CAI packages for different subjects. The current trend in research is towards investigating the use of computer facilities and resources to enhance students' learning. Chang (2000)

and Yusuf (2009) opined that many exercises that depart from traditional method are now accessible on the web (p. 521), even though teachers do not use these facilities. Jenk and Springer (2005) stated that the way CAI is delivered can affect its effectiveness. Instructional material and strategies through CAI have been found to aid academic achievement and retention. Orisebiyi (2007), who investigated the effect of computer assisted package on students' achievement in learning disability, found CAI to be effective. However, from reviews, it was observed that many studies focused on some parts of mathematics, such as algebra, statistics, word problem and quadratic equation, and not much on geometry using CAI package.

CAI improves instruction for students with disabilities because they receive immediate feedback and do not continue to practise wrong skills. Computers capture the students' attention as the programs are interactive and encourage to increase their scores. Also, CAI progresses at the students' pace and, usually, does not move ahead until they have mastered a skill.

LEARNING DISABILITY

Learning disability is a term that refers to a heterogeneous group of disorders manifested by significant difficulties in the acquisition and use of listening, speaking, reading, writing, reasoning or mathematical abilities. These disorders are intrinsic to an individual and presumed to be due to the dysfunction of the central nervous system. Even

though a learning disability may occur concomitantly with other handicap conditions (e.g., sensory impairment, mental retardation, social and emotional disturbance) or environmental influences (e.g., cultural differences, insufficient or inappropriate instruction, psychogenic factors, etc.), it is not a direct result of these conditions or influences.

EYE–HAND COORDINATION

It is the ability to coordinate vision with hand movements effectively. A child having deficient eye–hand coordination might face difficulty in controlling movements required for smooth flow in writing. Such a child may read, spell and comprehend well, and may also be good at oral work. However, the visual–motor production deficit due to problems in eye–hand coordination may hamper the child's scholastic performance.

The purpose of this study was to investigate the effectiveness of CAI developed by the researcher for use by primary school children, particularly, fifth graders, for reducing their learning disabilities. Follow-up data were gathered in order to determine whether CAI was used regularly and check its efficacy.

OBJECTIVES OF THE STUDY

- To compare the effectiveness of remediation of eye–hand coordination learning disabilities with pre– and post–test of traditional method of teaching

- To compare the effectiveness of remediation of eye–hand coordination learning disabilities with pre– and post–test of CAI method of teaching

- To compare the relative effectiveness of remediation of eye–hand coordination learning disabilities with CAI and traditional method of teaching

HYPOTHESES OF THE STUDY

- There was no significant difference between pre– and post–test in the traditional method of teaching in the remediation of the eye–hand coordination of learning disabled children.

- There was no significant difference between pre– and post–test in the CAI method of teaching in the remediation of eye–hand coordination of learning disabled children.

- There was no significant difference between the effectiveness of CAI and traditional methods of teaching in the remediation of eye–hand coordination of learning disabled children.

SCOPE OF THE STUDY

The study focused on the effectiveness of CAI as a remedial teaching method for learning disabled fifth grade school students in Meerut, Uttar Pradesh. It was limited to the eye–hand coordination of the learning disabled children there.

METHODOLOGY

Two groups were formed for the study and both were pre– and post–tested. The sample for this study consisted of 64 students using simple random sampling technique (behavioural checklist, non-verbal group of intelligence test, DTLD). The experimental group consisted of 32 students — boys (n=17) and girls (n=15), while the control group had 17 boys (n) and 15 girls (n). The experimental group was taught using CAI package (game and simulation), which covered eye–hand coordination of learning disability, while the control group was taught using the traditional method.

RESEARCH INSTRUMENTS

The following tools were used by the researcher to conduct the study.

- Behavioural checklist for screening the learning disabled developed by Swaroop and Mehta
- Diagnostic Test of Learning Disability (DTLD) developed by Swaroop and Mehta
- Non-verbal Group of Intelligence Test (NVGIT) developed by Imtisungba
- CAI package involving games and simulations developed by Shikha Chatruvedi and Ravindra Kumar

CAI FOR EYE–HAND COORDINATION OF LEARNING DISABLED

In this group, six games were selected for the remediation of graphic motor sequencing disability.

Eyesight challenge game

In this game, the children were needed to match the names with various objects being shown on screen. The efficiency between children was compared on the basis of time taken and scores secured.

Join the numbers

In this game, the children were required to join the dots, point-to-point, and work out a complete figure as shown on screen.

Fleabag vs. mutt game

This is a group playing game. In this game, one or two children were required to play at the same time. Firstly, they needed to select a character either dog or cat. Then, they were required to start attacking each other with inbuilt weapons. The game was divided into three levels like 'I am a beginner', 'I am average', and 'bring it on'.

Mini golf game

In this game, four children can play at a time. Here, many levels were arranged as per the difficulty order. The children were required to play with mouse and their efficiency was compared on the basis of their scores.

Ping-pong 3D

The children needed to select the level of difficulty like easy, medium and hard. In this game, they hit a ball left or right side of the paddle to make it go left or right. The efficiency between children was compared on the basis of the scores secured by them.

Flashman

This is a fast game. The player is required to help the Flashman reach the destination, avoiding ghosts by shooting down all yellow dots.

All games were arranged in the order of difficulty level and the children were trained to participate in the games. Eye–hand coordination test was applied to check if these games and simulations overcame this particular type of disability completely or partially. After performing this activity, it was found that the children were able to coordinate the eye–hand tasks satisfactorily.

METHOD OF DATA COLLECTION

Teachers in the selected schools were trained as research assistants in the use of CAI package. The study period was 45 classes for five months, twice a week. The classes were conducted in a computer institute with CAI for eye–hand coordination among learning disabled students. There was an orientation between the researcher and the students of the selected schools, who took the test. The experimental group students were exposed to CAI package (games), which had been installed on desktop computers, while those in the control group were taught using traditional teaching method having the same content being used for the experimental group. At the end of the experimental study, DTLD was administered as a post–test to measure the outcome of learning

disability of the students. The test was conducted simultaneously in each school with the help of research assistants. T–test was used to test the null hypotheses using Statistical Package for Social Sciences (SPSS) version 20 at 0.05 alpha level.

RESULTS AND DISCUSSION

Phase 1

Remediation of learning disability through traditional method with reference to eye–hand coordination of learning disabled children

Table 1

Statistical values on DTLD sub-test of eye–hand coordination of Group A (control group) students on pre– and post–test

Testing	n	M	S.D.	'r'	't'
Pre–test	32	3.06	0.91	0.75*	7.26**
Post–test	32	3.84	0.76		

* Significant at 0.05 level
** Significant at 0.01 level

Table 1 shows that the mean scores on DTLD sub-test of eye–hand coordination of Group A students on pre–test and post–test were 3.06 and 3.84, respectively. The 't'–value for the difference in mean scores came to be highly significant (t=7.26, p<0.01). It infers that the traditional method of teaching was helpful in improving the eye–hand coordination among the selected subject, i.e., grade five learning disabled children, significantly. Furthermore, a highly positive (r = 0.75) correlation was

yielded between pre– and post–test scores on this sub-test, thereby, meaning that the traditional method was consistent and equally effective for almost all children, i.e., there was an improvement in the eye–hand coordination regardless of their prior achievement on DTLD sub-test of eye–hand coordination.

Phase 2

Remediation of learning disability through CAI method of teaching with reference to eye–hand coordination of learning disabled children

Table 2

Statistical values on DTLD sub–test of eye–hand coordination of Group B (experiment group) students on pre– and post–test

Testing	n	M	S.D.	'r'	't'
Pre–test	32	3.09	0.82	0.53*	12.34**
Post–test	32	5.23	0.92		

* Significant at 0.05 level
** Significant at 0.01 level

The data shown in Table 2 reveal that the mean scores on DTLD sub-test of eye–hand coordination of Group B students on pre– and post–test were 3.09 and 5.23, respectively, the difference being 2.14. The difference was found to be highly significant (t=12.34, P<0.01). Thus, the CAI (game and simulations) method was effective in improving the eye–hand coordination among fifth grade learning disabled students.

The product-moment correlation achieved between pre– and post–test scores was again high and positive (r=0.53). However, the correlation coefficient for the computer assisted method (r=0.53) is much less than its value for traditional method (r=0.75). This shows that the traditional method of teaching is more consistent in improving eye–hand coordination among fifth grade learning disabled students as compared to the CAI method. The reasons may be the same as stated earlier for the overall remediation of learning disability.

Phase 3

Comparing relative effectiveness of CAI (games) and traditional methods in the remediation of eye–hand coordination of learning disabled children

Table 3

Statistical values on DTLD sub-test of eye–hand coordination of Group A (Control Group) and B (Experiment Group) students on post–test

Groups	n	M	S.D.	't'
Group A	32	3.84	0.76	5.63**
Group B	32	5.23	1.13	

* Significant at 0.05 level
** Significant at 0.01 level

An observation of Table 3 shows that the mean scores achieved on DTLD sub-test of eye–hand coordination on post–test by Group A and Group B students differ significantly (t=5.63, p<0.01). It implies that CAI was better than the traditional method in improving the eye–hand coordination among fifth grade learning disabled children.

Graph 1: Presentation of post–test scores of traditional method (Group A) and CAI method (Group B)
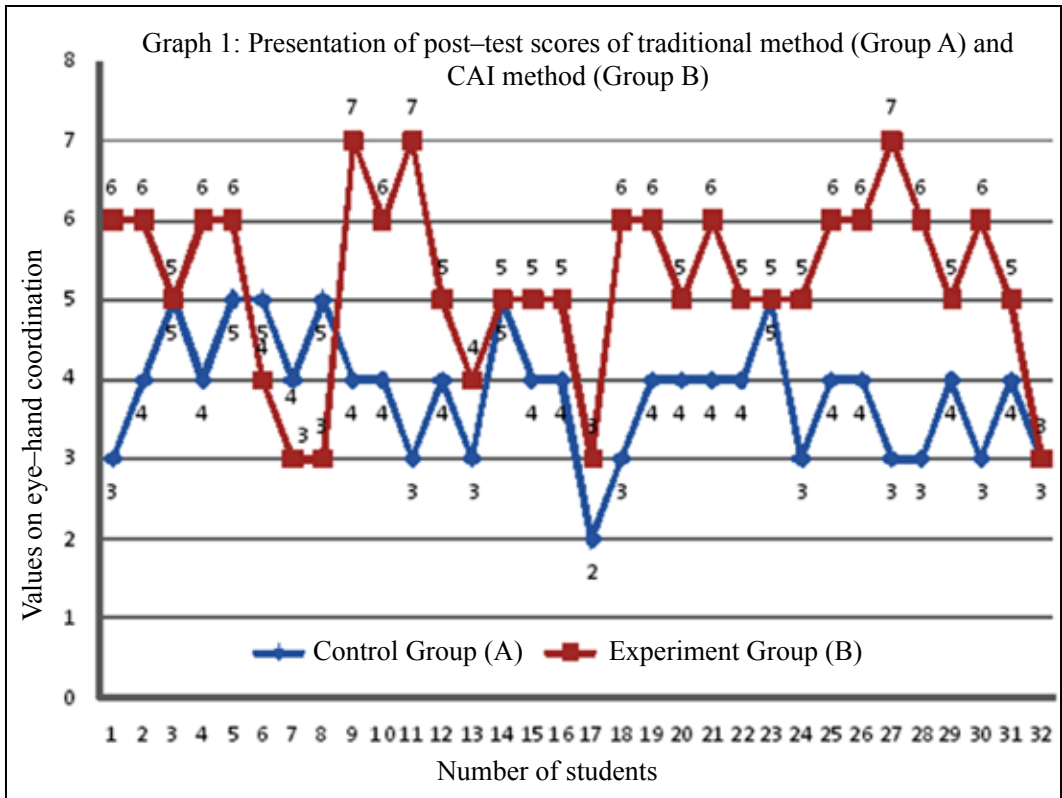
Graph 1

Graphical representation of post–test values on DTLD sub-test of the eye–hand coordination of Group A (Control Group) and B (Experimental Group) students on post–test

FINDINGS

Hypothesis 1

The traditional method of teaching, which included individual attention, drill and practice, was significantly effective in the remediation of eye–hand coordination of fifth grade learning disabled children.

Hypothesis 2

The CAI (games and simulations) method of teaching was found to be significantly effective in the remediation of eye–hand coordination of fifth grade learning disabled children.

Hypothesis 3

The CAI (games and simulations) method was significantly better than the traditional method in the remediation of eye–hand coordination of fifth grade learning disabled children.

The findings are consistent with the results reported by Haberman

(1977) for socially or emotionally disturbed school children, as well as, research conducted by Lavine (1980); Watkins and Webb (1981); Bukatman (198I); Maccini Gagnon, Hughes (2002); Vasanthal (1994); Kim (1998); Gleason et al. (1990); Reddy et al. (1997); R.A. Sharma (2014); Crute (2000); Agrawal (2000); Chiang (1986); Seo and Bryant (2009); Scheid (2010); Anyamene (2012); Singh (2013); Brown et.al. (2013); etc. It was found that various forms of CAI have the potential for improving student achievement scores.

Educational Implications of the Findings

The findings of the study provide awareness to teachers, parents and guardians of learning disabled children. The educational implications of the findings of study are as follows.

- All games and simulations may be used for helping the learning disabled children because in CAI package all games and simulations are easy to download and are supported by almost all operating systems.
- The findings of the study may help develop the habit of practice, trial and error in the students.
- It was found that the CAI package may prove to be effective but is not a panacea for students with learning disabilities.
- The findings of the study show that the CAI package may improve the thinking process of learning disabled children and can also be useful in providing ways to teach learning disabled students.
- The findings reveal CAI package may be helpful in making the teachers aware enough to teach. They may use the selected games and simulations as a teaching material to improve the students' performance.

REFERENCES

Agarwal, A. 2000. Remediation of learning disabilities through CAI and traditional method. Unpublished Ph.D. thesis, Mahatma Jyotiba Phule Rohilkhand University, Bareilly.

Anyamene A., et al. 2012. Effect of computer assisted packages on the performance of senior secondary students in mathematics in Awka, Anambra State, Nigeria. *American International Journal of Contemporary Research*. Vol. 2. No. 7.

Brown, D., P. Standen, M. Saridaki, N. Shopland, E. Roinioti, L. Evett, S. Grantham and P. Smith. 2013. Engaging students with intellectual disabilities through games based learning and related technologies. In C. Constantine Stephanidis and M. Antona (Eds). *Universal Access in Human Computer Interaction: Applications and Services for Quality of Life — Part V*. Springer, Berlin, Heidelberg. pp. 573–582.

BUKATMAN, K.L. 198I. The effect of computer assisted instruction for mastery of multiplication facts on learning disabled elementary school aged children differing in locus control. Doctoral dissertation, Boston College. *Dissertation Abstracts International*. Vol. 42. No. 9, pp. 39-44

CHANG, C.Y. 2000. Enhancing Tenth Graders' Earth Science Learning through Computer Assisted Instruction. *Journal of Geo-science Education*. Vol. 48, pp. 636–641.

CHIANG, B. 1986. Initial learning and transfer effects of micro-computer drills learning disabled students' multiplication skills. *Learning Disability Quarterly*. Vol. 9. No. 2, pp. 118–123.

CRUTE, T.D. 2000. Classroom nomenclature Games-BINGO. *Journal of Chemical Education*. Vol. 77. No. 4, pp. 481–493.

HALLAHAN, D., J. LLYOD, J. KAUFFMAN, E. MARTENIZ AND M. WEISS. 2005. *Learning Disabilities: Foundations, Characteristics and Effective Teaching* (3rd Ed). Allyn & Bacon, New York.

JENK, M. AND J.M. SPRINGER. 2005. A view of research on the efficacy of CAI. *Electronic Journal for the Integration of Technology in Education*. Vol. 1. No. 2, pp. 43–58. Retrieved 15 July 2006 from http://ejite. Isu.edu/volume1No.2/Jenks.pdf

KIM, S.C. 1998. The relative effects of rule-based strategy and traditional method of instruction on the spelling performance of elementary students with learning disabilities. Doctoral dissertation. Auburn University. *Dissertation Abstracts International*. Vol. 59. No. 8, pp. 292–5

KUMAR, R. AND S. CHATURVEDI. 2015. Effectiveness of computer assisted instruction as remedial teaching for learning disabled children, PhD thesis, Chaudhary Charan Singh University, Meerut.

LAVINE, J.A. AND Y. KAREEV. 1980. Personal computers and education: The challenge to schools. San Diego, C.A.; University of California Center for Human information Processing (Report No. 98)

MACCINI, P., J.C. GAGNON AND H.A. HUGHES. 2002. Technology-based practices for secondary students with learning disabilities. *Learning Disability Quarterly*. Vol. 25. No. 4, pp. 247–261.

MILLER, K., G. FITZGERALD, K. KOURY, H. MITCHEM AND C. HOLLINGSEAD. 2007. Kids' Tools: Self-management, Problem-solving, Organizational and Planning Software for Children and Teachers. *Intervention in School and Clinic*. Vol. 43, pp. 12–19.

MOHAMMAD, A. 2006. Cognitive development in kindergarteners with low level of pre–academic skills as precursors for consequent learning disabilities. Paper presented at the First International conference for Childhood Impairments. Faculty of Education, Kuwait University, Kuwait.

ORISEBIYI, O.O. 2007. Effects of instructional video tape package on senior secondary school students' performance in biology in Fidit, Oyo state. Unpublished M. Tech. thesis F.U.T, Minna.

Reddy, G.I. and J. Kumar. 1997. Effectiveness of remedial package in learning spoken English by low achievers at the secondary level. *Perspectives in Education*. Vol. 13. No. 1, pp. 43–52.

Scheid, J.M. 2010. 'Effectiveness of computer aided instruction in mathematics for students with learning disabilities'. Northern Michigan University, Marquette, Michigan.

Sharma, R.A. 2004. Exploring effective remedial teaching for learning disabled children. UGC Project, New Delhi. India.

Seo, Y., and D.P. Bryant. 2009. Analysis of studies of the effects of computer assisted instruction on the mathematics performance of students with learning disabilities. *Computers and Education*. Vol. 53, pp. 913−928.

Singh, Y. and A. Agrawal. 2013. Teaching mathematics to children with mental retardation using computer games. *Educationia Confab*, pp. 44–58.

Vasanthal, S.P. 1994. Developing problem solving strategies in learning mathematics among IX standard students. Unpublished M.Phil. thesis, Alagappa University, Karaikudi.

Watkins, M. and C. Webb. 1981. Computer assisted instruction with learning disabled students. *Educational Computer Magazine*. Vol. 1. No. 3, pp. 24–27.

Yusuf, I.F. 2009. Effect of using computer assisted instruction on learning statistics in selected senior secondary schools in Minna, Niger State. Unpublished M. Tech. thesis, F.U.T Minna.

5

Rhyming the Rhyme: Rhymes and Songs as Inputs and Instruments for familiarising Children with the English Language

R. Meganathan*

INTRODUCTION

Children are active and curious. They like actions and songs. When they sing and do actions, they actually learn things by doing. It is not just learning by doing, it is also learning to do things by doing things. Rhymes and songs are useful for creating phonemic awareness among learners, and they are the predictors of a child's reading development. This paper tries to list the benefits of using rhymes and songs as inputs for the development of literacy and cognitive skills in children, and prepare them for listening, speaking, reading, and in due course, writing. The paper also presents some strategies for the teaching–learning of rhymes and songs. Strategies like snowballing, echo principle, choral and closed eye singing make rhymes interesting, and draw the attention of children to themes and help them acquire a language. Thus,

rhymes and songs become inputs for language processing, leading to language acquisition.

WHAT DO RHYMES DO?

Children find rhymes entertaining for their rhythm. The rhymes and songs engage them with music, ideas and language used. Rhymes motivate the children to repeat, recite, practise and remember. This 'repeat, recite and practise' is not just mechanical for it enables the children to repeat or recite. As a result, the children undergo sensory experiences, emotions and thoughts, along with fun and humour. Sensory training is essential for the children to understand action and pragmatics of language, i.e., language in action, in a way speech acts. Let us see how rhymes serve as instruments for language, cognitive, emotional and social development. Most of these ideas have been drawn from various

* *Associate Professor,* Department of Education in Languages, NCERT, New Delhi

sources, primarily Monro (year not mentioned) and Kenney (2005).

Language development

Nursery rhymes are short and easy to repeat, so they become children's first sentences. Therefore, when the children hear and sing nursery rhymes, they:

- hear the sounds vowels and consonants make, and learn how to put these sounds together to make words.
- practise pitch, volume and voice inflection, as well as, rhythm of a language.
- hear new words that they would not hear in everyday language (like 'fetch' and 'pail' in 'Jack and Jill went up the hill to fetch a pail of water').

Cognitive development

- Since nursery rhymes are patterns, they help the children learn, memorise and recall.
- The events and characters in rhymes trigger and exercise the imagination of the learners.
- Nursery rhymes, usually, narrate a story with a beginning, middle and an end. This teaches the children that the events happen in a sequence, and they begin to learn how to understand the stories and follow along.
- Many rhymes also use numbers, counting and other math words that the children need to learn, such as size and weight.

- Nursery rhymes introduce alliteration (like 'Goosie Goosie Gander'), onomatopoeia (like 'Baa Baa Black Sheep') and imaginative imagery. 'Imaginative imagery' is a creative process that human beings experience subconsciously and it is expressed through dreams and daydreams. Sometimes, we wonder that we have had dreams that we never imagined, which are related to us, and the characters and events are strange. Some rhymes provide experiences, which kindle the creative expressions of children. They hear these rhymes and enact what they imagine the characters to be doing.

Physical development

- Children develop muscles of their mouth and tongue by producing different sounds while reciting rhymes.
- Rhymes that involve movement help with coordination.
- In a dramatic play, children use their entire body to enact the nursery rhymes they hear.

Social and emotional development

- Sharing nursery rhymes provides a safe and secure bond between parents and children, and between teachers and children.
- Positive physical touch between a parent and a child or between children, for example clapping during rhymes, is important for social development.

- Funny nursery rhymes allow children to develop a sense of humour.
- Nursery rhyme characters experience different emotions. These can help children identify their own emotions and understand the emotions of others.
- When children enact nursery rhyme stories they hear, they learn to imagine, become creative and express themselves.

SOME STRATEGIES TO USE RHYMES

(Recitation with actions)

Let us recite a rhyme. We will touch the respective body parts as we sing.

Head, shoulders, knees and toes

Head, shoulders, knees and toes

Eyes, ears, mouth and nose

Eyes, ears, mouth and nose

Snowballing principle

In snowballing principle, the teacher first recites or speaks aloud a sequence (a chunk of a rhyme) and increases the sequence longer. The students repeat in the same way as shown below. People play snowballing during the snow season by rolling a small snowball, which accumulates more and more snow by the time it reaches down the hill.

Teacher: This is...
Students: This is...
Teacher: This is a cat.

Students: This is a cat.

Teacher: This is a cat and a cat.

Students: This is a cat and a cat.

Here is how a rhyme is done

Teacher: Come on students! Repeat after me.

Teacher: Head, shoulders...

Students: Head, shoulders...

Teacher: Head, shoulders, knees and toes

Students: Head, shoulders, knees and toes

Teacher: Head, shoulders, knees and toes

Eyes, ears, mouth and nose

Students: Head, shoulders, knees and toes

Eyes, ears, mouth and nose

Teacher: Head, shoulders, knees and toes

Head, shoulders, knees and toes

Students: Head, shoulders, knees and toes

Head, shoulders, knees and toes

Teacher: Eyes, ears, mouth and nose

Eyes, ears, mouth and nose

Students: Eyes, ears, mouth and nose

Eyes, ears, mouth and nose

The teacher must take care and make the children sing or recite as one wants. It takes some time to make the children come to an understanding. The teacher may go around the class as they sing. Snowballing is an effective technique.

Echo principle

Echo principle is asking the children to imagine hearing echoes from a mountain (the teacher pretends to be a mountain). When we speak aloud near a hill or in a closed room, we can hear the echo of our own voice. This technique of echo is used to make the learners appreciate the rhyme, and internalise words and phrases. They hear the words and the echo, and repeat after the teacher. Let us do the following rhyme applying this principle.

One little, two little, three little fingers,
Four little, five little, six little fingers,
Seven little, eight little, nine little fingers,
Ten little fingers here
Ten little, nine little, eight little fingers,
Seven little, six little, five little fingers,
Four little, three little, two little fingers,
One little finger here

Now, let us do the following rhyme with echo principle.

Teacher: One little, two little...
Students: One little, two little...
(Students echo)
Teacher: One little, two little, three little fingers...
Students: One little, two little, three little fingers...
(Students echo)
Teacher: Four little, five little, six little fingers...
Students: Four little, five little, six little fingers...
(Students echo)

Teacher: Seven little, eight little, nine little fingers...
Students: Seven little, eight little, nine little fingers...
(Students echo)
Teacher: Ten little fingers here...
Students: Ten little fingers here...
(Students echo)
Teacher: Ten little, nine little, eight little fingers...
Students: Ten little, nine little, eight little fingers...
(Students echo)
Teacher: Seven little, six little, five little fingers...
Students: Seven little, six little, five little fingers...
(Students echo)
Teacher: Four little, three little, two little fingers...
Students: Four little, three little, two little fingers...
(Students echo)
Teacher: One little finger here
Students: One little finger here
(Students echo)
Teacher: Do you still hear the echo? Keep echoing.

Cumulative choral speaking

Children are divided into groups and sing or recite the rhymes in parts.

'*One, two, buckle my shoe*'
Group 1: One, two,
Buckle my shoe.
Group 2: Three, four,
Knock at the door.

Group 3: Five, six,
Pick up the sticks.
Group 4: Seven, eight
Lay them straight.
Group 5: Nine, ten,
A big fat hen.
All: One, two,
Buckle my shoe.
Three, four,
Knock at the door.
Five, six,
Pick up the sticks.
Seven, eight,
Lay them straight.
Nine, ten,
A big fat hen.

Repeat after me!

Hello, children! How often do you travel in a bus? Do you to go to school by a bus? Do you like to travel long distance in a bus? Come on, let us go round-and-round in a bus. Repeat, after me.

'Bus! Bus! Bus!'

Teacher: The wheels on the bus go
        round and round,
        round and round,
        round and round.
Students: The wheels on the bus go
        round and round,
        round and round,
        round and round.
Teacher: The wheels on the bus go
        round and round,
        All the way to town.

Students: The wheels on the bus go
        round and round,
        All the way to town.
Teacher: The wipers on the bus go
        swish, swish, swish,
        swish, swish, swish,
        swish, swish, swish.
Students: The wipers on the bus go
        swish, swish, swish,
        swish, swish, swish,
        swish, swish, swish.
Teacher: The wipers on the bus go
        swish, swish, swish,
        All the way to town.
Students: The wipers on the bus go
        swish, swish, swish,
        All the way to town.
Teacher: The people on the bus go
        up and down,
        up and down,
        up and down.
Students: The people on the bus go
        up and down,
        up and down,
        up and down.
Teacher: The people on the bus go
        up and down,
        All the way to town.
Students: The people on the bus go
        up and down,
        All the way to town.
Teacher: The horn on the bus goes
        beep, beep, beep,
        beep, beep, beep.

Students: The horn on the bus goes
*   beep, beep, beep,*
*   beep, beep, beep.*
Teacher: beep, beep, beep.
*   beep, beep, beep,*
*   beep, beep, beep.*
Students: beep, beep, beep.
*   beep, beep, beep,*
*   beep, beep, beep.*
Teacher: The horn on the bus goes
*   beep, beep, beep,*
*   All the way to town.*
Students: The horn on the bus goes
*   beep, beep, beep,*
*   All the way to town.*
Teacher: The horn on the bus goes
*   beep, beep, beep,*
*   All the way to town.*
Students: The horn on the bus goes
*   beep, beep, beep,*
*   All the way to town.*

This is an interesting poem, in which the learners can sing well when divided into small groups. Use these type of songs and rhymes for 'repeat after me' technique. 'Repeat after me' is a common and popular teaching technique one can find in classrooms. This can be done by asking the children to listen to the teacher or a child and watch the person sing the rhyme while the other children repeat the lines in a similar manner. Singing with actions will also help.

Enabling the children to memorise a poem with understanding becomes easier through snowballing and echo techniques. Rote memory is not going to help much as the children will not know the meaning of the poem. The above techniques make the children memorise without stress.

The National Repository of Open Educational Resources (NROER) has a number of rhymes, songs and stories in audio form using the techniques and strategies discussed in this paper. They are also available with NCERT (2016) in DVD form. Use rhymes and songs as language inputs through which the children can receive, process and acquire a language as they engage with the language.

References

Kenney, S. 2005. Nursery rhymes: Foundations for learning. *General Music Today*. Vol. 19. No. 1.

Monro, F. (Year not mentioned). *Nursery Rhymes, Songs and Early Language Development*. Interior Health Authority.

Kbyu. 2010. Rhymers are Readers: The Importance of Nursery Rhymes. *KBYU ELEVEN TV Channel*.

Available at https://familydaycare.com/wp-content/uploads/pop_pt4_Rhymers-are-Readers.pdf. Accessed on October 2015.

National Council of Educational Research and Training. 2016. DVD — Audio Rhyming the Rhyme! Rhymes and Songs for Very Young Learners of English. NCERT, New Delhi. Accessible at www.ncert.nic.in and https://nroer.gov.in/home/repository

6

Remedial Programme in Fractions for Primary School Students

Rekha Rani*

Abstract

An area in arithmetic that is, particularly, difficult for students is understanding the concept of fractions. They may feel embarrassed when problems related to fractions persist later in their lives. For teachers, it becomes difficult to remediate the misconceptions of the students in regular classrooms, particularly, when the concept is as challenging as the concept of fractions. The teachers must have at hand effective instructional procedures, material and other resources to teach mathematics to the students having conceptual problems in fractions based on the assumption that all can learn. The objective of this paper is to provide the teachers with best practices for teaching fractions to primary school students.

INTRODUCTION

In the twenty-first century, numeracy and literacy skills are basic for individuals to realise their potential. Mathematical knowledge and reasoning skills are no less important than reading ability. Math failure during the years of schooling, as well as, math illiteracy in adult life can seriously handicap both daily living and vocational prospects. So, the importance of learning mathematics in the beginning stages is tremendous. But for some children, it is noticed that this important skill is not mastered at an expected rate (the average rate at which most children learn).

Fractions are a consistent and recurring area of concern for teachers. Memorising rules and lack of knowledge of the basic concepts lead to difficulties in the application of fractions in day-to-day life. Research on fractions has shown that the students have difficulty recognising when two fractions are equal, putting fractions in order by size and understanding that the symbol for fraction represents

* *Assistant Professor,* Institute of Educational Technology and Vocational Education, Punjab University, Chandigarh

a single number. The areas of skill deficits most consistently reported are related to fractions, decimals and percentage (McLeod and Armstrong, 1982). These deficits include both terminology related to fractions and operations with fractions.

Studies have also indicated that students face some difficulty in understanding the concept of fractions at every level of schooling. The main cause of this difficulty is the structure of fractions. In present day schools, representation of fractions is taught by rote memorisation method without taking into notice whether the child has conceptual knowledge of fractions or not (Aksu, 1997). The uniqueness on the visualisation of natural numbers cannot be seen in fractions. We can visualise natural numbers in terms of the value attached to these, e.g., eight means eight objects that we can count but in case of fractions we are not able to do so. These properties make it hard to understand the order and comparison of natural numbers (Zhou, 2005). Although no specific study has been found that throws light on the reasons for low performance in word problems and terminology related to fractions, deficit in language component is considered as the main reason for poor performance of students in questions involving words and sentences.

Naiser, Wright and Capraro (2004) found that teachers used several strategies to engage students, such as review of problems, real world applications, use of manipulatives and building on prior knowledge. The teachers used techniques, such as direct instruction technique, class discussion and cooperative learning. Researchers have developed some effective strategies for teaching the understanding of fractions, e.g., use of mnemonic devices for teaching addition and subtraction of fractions (Joseph and Hunter, 2001), manipulatives with pictures to solve word problems involving fractions (Bulter, Miller, Crehan, Babbitt and Pierce, 2003) and direct instruction model (Flores and Kaylor, 2007; Scarlato and Burr, 2002).

Although these strategies are effective in enhancing the students' mastery of fraction algorithms, they are not directly focused on their conceptual understanding. It is being reported that the area of student engagement was weak because a significant portion of student time was spent using pencil–paper technique and rote learning. Proponents of current efforts to reform mathematics education believe that if the quality of instruction is to be improved, many educators will have to dramatically change their perspectives on how mathematics should be taught. An attempt was made in this paper to develop remedial programme in fractions for students studying in Class III.

Deficit Areas in Fractions

Every teacher needs to know the nature, extent and causes of pupils' errors in a particular area of mathematics. It is only then that a teacher can diagnose and remediate

specific difficulties in a particular subject. The deficit areas in fractions are shown in Table 1.

When the bases of pupils' difficulties in fractions are understood, the stage of applying remedial measures comes. There was, however, no set pattern and no cut-and-dried formulae for remediation. Remedial programme is concerned with the pupils, who for some reason have formed ineffective methods of handling the concepts of mathematics. A remedial programme in fractions was developed by the researcher for the remediation of deficit areas in fractions.

The description of remedial programme in fractions is given as follows.

```
                    Fractions
    ┌───────────────┬──────────┬──────────┐
Concept of      Representation  Comparison  Terminology
fractions
```
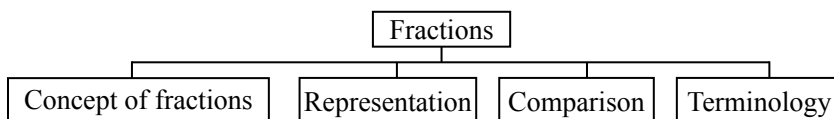
Table 1: Deficit areas in fractions

Area	Learning points	Deficits in fractions	Deficit areas
Fractions	(a) Concept of Fractions	Concepts of: (i) symmetry (ii) two halves (iii) three thirds (iv) four fourths	• Conceptual deficits
	(b) Representation	(i) Choosing the right fraction (ii) Matching the fractions (iii) Shading the given fractions (iv) Writing the fractions	• Visual discrimination • Figure ground perception
	(c) Comparison	(i) Comparing fractions when denominators are same (ii) Comparing the fractions when denominators are not same	• Perceptual motor integration • Procedural deficits
	(d) Terminology	(i) Numerator and denominator of fractions	• Language deficits

LEARNING ASPECT: CONCEPT OF FRACTIONS

Activity 1

Purpose

To provide conceptual understanding of fractions to the students

Procedure

- The students are divided into groups with four members each. Each group is given a chapatti. How will the groups divide the chapatti so that each member receives an equal portion?
- With this activity, it is shown how to divide a thing into equal parts.
- Next, each student is given a paper and is asked to fold it into half. The students divide a piece of paper into two equal parts. Hence, fraction is a part of the whole.
- The concept of fraction is further developed by the use of manipulatives, chocolate bars, measuring cups and fruits.

Activity 2

Purpose

To explain the meaning of the terms symmetry, halves, thirds, fourths, etc.

Procedure

- The students are asked to practise folding paper strips into equal parts.
- The paper is marked with a vertical line about 2 cm from the left margin.

- Then, the unfolded strip of paper (one whole) is pasted length-wise on the sheet by placing it against the line. This is the first street (one whole = first street).
- The students are shown how to fold a strip into two equal parts. The crease is darkened with a pencil.
- This strip is placed below the first strip, leaving a 2–cm gap between the strips.
- Next, the students are told to fold another strip of paper into half, and then, again into half. The folds are darkened and this strip is also placed 2 cm below the second strip. This process is continued up to eighths.
- The children are helped in folding another strip into thirds. This strip is prepared as before and is placed on the large sheet leaving 2 cm space below the fourth strip.
- Then, the next strip is folded into thirds, and then, into half to get sixths. The strip is prepared and positioned in the same manner as previously described. The process is continued for ninths and twelfths.
- Throughout the process, the students are asked to look for the patterns. How many folds does a strip have? This discussion is used to rearrange the strips so that the strip with two parts is followed by the strips having three parts, four parts, etc.
- Each strip of paper is treated as a street and all strips are of the same length.

- Each part of the street is a block and all blocks on one street are of the same length. Therefore, the first street has one block, second has two blocks, and so on.

- The children are asked to drive their cars on a street. It is discussed on which street they are located and how many blocks they have driven.

- They are led by the teacher to identify their location by street signs, in which the bottom number describes how many blocks a street has, and the top number tells the number of blocks on that street their car has been driven, e.g.,

$$\frac{1}{2} = \frac{\text{No. of blocks driven by car}}{\text{Total No. of blocks on the street}}$$

- The concept of equivalent fractions is also explained with the help of fractional chart, e.g., drive one block on the second street and drive two blocks on the fourth street.

- The students are provided with a fractional chart and a ruler. They are, then, directed to find a fraction equivalent to 3/5. They place the ruler vertically at $\frac{3}{5}$. Whatever fraction it covers, e.g., $\frac{6}{10}$ then $\frac{3}{5}$ is the equivalent fraction.

LEARNING ASPECT: REPRESENTATION OF FRACTIONS

Activity 3

Purpose

To enable the students to read and write fractions in longhand and numerical form

Procedure

- One student is asked to cut an apple into two equal parts and write with a marker 'one-half' on one part and $\frac{1}{2}$ on the other.

- Then, a pizza base is divided into three parts and each part is labelled as 'one–third' and $\frac{1}{3}$.

- Similar experiences are provided to the students by using chocolate bars and fractional charts.

- Flash cards are used as fractional game, in which the students had to match fractional numbers with their longhand forms.

Activity 4

Purpose

To give conceptual knowledge of numerator and denominator of fractions

Procedure

- The teacher has a box full of coloured balls. The students are provided with empty boxes.

- They are called out one-by-one and their boxes are filled with balls.

- The students are asked to count the total number of balls in their respective boxes and write that number on a sheet of paper.

- Then, they are asked to count the total number of red balls in their respective boxes and write in longhand and numerically the fraction of red balls.

- Now, the teacher explains the concept of numerator and denominator to the students. Numerator is the number of balls that are red and denominator is the total number of balls, e.g., three balls are red (numerator), and in total, there are 16 balls (denominator). Therefore, the fraction can be shown as $\frac{3}{16}$.

$$\frac{3}{16} \quad \begin{matrix} \rightarrow \\ \rightarrow \end{matrix} \quad \frac{\text{Numerator}}{\text{Denominator}} = \text{Fraction}$$

- The students remember the association better when it is explained that 'down' and 'denominator' both starts with 'D'.

- To represent fractions, it is explained to the students that the number above the bar is called the 'numerator' and the one below the bar is called the 'denominator'.

LEARNING ASPECT: COMPARISON OF FRACTIONS

Activity 5

Purpose

To teach the students to compare fractions having the same denominator

Procedure

- Activity 2 is repeated and the students are asked to use two–three toy cars to drive in the streets. They are asked to drive till two blocks on the third street and drive another car till three blocks on the third street.

- They are encouraged to discuss how far the two cars are from the initial point of each street.

- Then, the fact is explored. Even though each car travelled on one street, the cars do not travel the same distance. Which car has covered more distance?

  e.g., Car A travelled = $\frac{1}{3}$

  Car B travelled = $\frac{2}{3}$

  So, $\frac{1}{3} > \frac{2}{3}$

- It is concluded that the fraction having the same denominator but greater numerator is greater.

- This concept is further developed with the help of rectangular pieces of a paper cut into strips of equal length.

Activity 6

Purpose

To enable the students to compare the fractions when denominators are not same

Procedure

- Again the students are asked to drive one car till two blocks on the third street and drive another car till two blocks on the fourth street.
- It is explored with discussion that each car travels two blocks but the cars do not travel the same distance.

    e.g.,   Car A travelled = $\dfrac{2}{3}$

Car B travelled = $\dfrac{2}{4}$

So, $\dfrac{2}{3} > \dfrac{2}{4}$ (by visualisation)

- This concept is further developed with the help of cutout circles.

CONCLUSION

There are a number of researchers, who have concluded that given the specific instructional sequences and strategies, students having difficulties in mathematics and fractions can improve in learning the concept of fractions. Effective instructional strategies, such as concrete representation to abstract sequence, systematic explicit instruction, use of visuals and strategic feedback provide scaffolding needed by the students to link the concept of fractions with their daily lives.

REFERENCES

AKSU, M. 1997. Students' performance in dealing with fractions. *Journal of Educational Research.* Vol. 90. No. 6, pp. 375–380.

BEZUK, N. AND K. CRAMER. 1989. Teaching about fractions: What, when and how? In P. Trafton (Ed). *National Council of Teachers of Mathematics 1989 Year Book: New Directions for Elementary School Mathematics.* NCTM, Reston, Virginia.

BUTLER, F.M., S.P. MILLER, K. CREHAN, B. BABBITT AND T. PIERCE. 2003. 'Fraction Instruction for Students with Mathematics Disabilities: Comparing Two Teaching Sequences'. *Learning Disabilities: Research and Practice.* Vol. 18. No. 2, pp. 99–111.

CHARALAMBOS, Y.C. AND P. DEMETRA. 2007. Drawing on a theoretical model to study students' understanding of fractions. *Educational Studies in Mathematics.* Vol. 64, pp. 293–326.

FLORES, M.M. AND M. KAYLOR. 2007. 'The effects of a direct instruction program on the fraction performance of middle school students at risk for failure in mathematics'. *Journal of Instructional Psychology.* Vol. 34. No. 2, pp. 84–95.

Gould, P., L.N. Outhred and M.C. Mitchelmore. 2006. Conference proceedings of the 2006 meeting of the Mathematics Education Research Group of Australia. Australia.

Hiebert, J. 1988. A theory of developing competence with written mathematical symbols. *Educational Studies in Mathematics*. Vol. 19, pp. 333–355.

Joseph, L.M. and A.D. Hunter. 2001. Differential application of a cue card strategy for solving fraction problems: Exploring instructional utility of the Cognitive Assessment System. *Child Study Journal*. Vol. 31, pp. 123–137.

McLeod, T.M. and S.W. Armstrong. 1982. Learning disabilities in mathematics: Skill deficits and remedial approaches at the intermediate and secondary level. *Learning Disability Quarterly*. Vol. 5, pp. 305–310.

Naiser, E.A., E. Wright and R.M. Capraro. 2004. Teaching fractions: Strategies used for teaching fractions to middle grade students. *Journal of Research in Childhood Education*. Vol. 18. No. 3, pp. 193.

Scarlato, M.C. and W.A. Burr. 2002. 'Teaching fractions to middle school students'. *Journal of Direct Instruction*. Vol. 2, pp. 23–38.

Stafylidou, S. and S. Vosniadou. 2004. The development of students' understanding of the numerical value of fractions. *Learning and Instruction*. Vol. 14, pp. 503–518.

Zhou, Y.D. 2005. Teaching and learning fractions and rational numbers: The origins and implications of whole numbers. *Educational Psychologist*. Vol. 40. No. 1, pp. 27–52.

7

Competency Development of Pre-service Teachers in Odisha in preparing English Vocabulary Games

Manoranjan Pradhan*

Abstract

The importance of English language is increasing by the day. It is accepted as a global language, link language, language of opportunity, trade and commerce, science and technology, information and news, etc. In our country, too, the importance of English language is widely felt everywhere — educational institutions, government formalities and documentation, judicial activities, etc. Realising its importance, the number of English-medium schools is also increasing across the country. But students' performance in English language in government elementary schools, especially, in rural areas is not satisfactory. This is evident from several education surveys and reports (ASER, U-DISE, etc). It is seen that even students of Class VIII government schools in rural pockets fail to read textbooks of Class II or III. For this, besides other interventions and initiatives, the empowerment of teachers is needed. The present study is an attempt to develop the competency of pre-service teachers (enrolled in two–year diploma course in elementary education). It focuses on preparing English vocabulary games for enriching the vocabulary stock in elementary school students in a joyful environment. This paper consists of few vocabulary games with its playing principles and rules. The games were developed by teacher–trainees of Pre-service Teacher Training Programme — Diploma in Elementary Education (D.El.Ed). It is believed the games can be played in classroom situation to enhance the students' word power, develop a positive attitude towards learning English language, do away with fear of the students, as well as, teachers for learning and teaching the language.

Keywords: English language, vocabulary games, competency and pre-service teachers

---

* *Lecturer* in Education, Government Women's College, Jeypore, Koraput, Odisha

Backdrop

All of us know the need and importance of English. English is considered as a library language, international language, link language, language of science and technology, information and news, language of trade and commerce, language of opportunity, etc. It is a widely used language in the fields of science and technology, recording and documents, office communication, diplomacy, media, trade and commerce, and education.

Surveys reveal that every fourth person on the Earth can be reached with English. It is a widely used language in international conferences and organisations. Even in many States of our country like Odisha, English is used in most official and non-official communications.

With the increasing need and importance of English language, the number of private schools (mainly English-medium schools) has been increasing in our country. The enrolment rate of children in private schools is also increasing [Annual Status Education Reports (ASER)]. On the other hand, the performance of students in English, especially, in government elementary schools in rural India, is not satisfactory.

According to ASER 2014, only 59 per cent Class V students in government schools could read Class II textbooks in 2006. But in 2014, it slipped to 39 per cent. It means most students in Class V are unable to acquire basic reading skills both in English and their mother tongue. The report adds that 25 per cent students enrolled in Class VIII were found incapable of reading textbooks meant for Class II. It reveals that 25 per cent children in Class V could not read a simple sentence in English. In the year 2010, only 76.05 per cent children in Class V could read English textbooks meant for Classes I and II in Odisha. In 2014, only 59.85 per cent children of Class III to V could read Class I textbook. The figure was 61.39 per cent in 2010.

The report says, except Tamil Nadu, there has been no significant improvement in the reading skills of learners at the elementary stage in the last five years in all States. Keeping this in view, a workshop was organised to enrich the stock of vocabulary of the students in elementary schools in tribal pockets of Odisha. The present paper is based on the findings of the workshop. Besides, an attempt was made to answer the following research questions through this study.

- Do pre-service teachers have an idea regarding vocabulary games that would help enrich the vocabulary stock of the learners?
- Can they prepare vocabulary games for students of elementary schools to enrich their word power?

Objectives of the Study

- To identify the previous ideas of pre-service teachers regarding vocabulary games

- To develop competency among pre-service teachers and prepare need-based vocabulary games to enrich the vocabulary stock of children at the elementary stage
- To assess the performance of pre-service teachers in preparing vocabulary games after work-based activity

DESIGN OF THE STUDY

The District Institute of Education and Training (DIET) is considered as a research and resource centre for ensuring quality elementary education in the district. It empowers both pre-service and in-service teachers through training programmes, workshops, orientations, seminars, etc. Like other DIETs of the State, DIET−Koraput in Jeypore is a popular educational institution in Odisha, which organises programmes and activities for the capacity building of pupil−teachers throughout the year.

The present study was conducted on a Work Based Activity (WBA) organised under the guidance of the researcher. The sample of the study consisted of second–year pre-service teachers of Diploma in Elementary Education (D.El.Ed) programme of DIET−Koraput. The duration of the WBA was three hours.

A pupil–teacher raised a question regarding reading skills and vocabulary deficiency among pupils in elementary schools of Koraput, a tribal dominated district in Odisha. Quoting the statistics of ASER−2014 and Unified District Information System for Education (U-DISE) data, the pupil–teachers presented the achievement levels of students in English in elementary schools of Koraput. There was a discussion regarding the low performance of the pupils at the elementary stage, especially in English. During the discussion, the pupil–teachers said students of Class VIII (in most of their practising schools) were not able to read Class III textbooks. Their vocabulary was also poor. There was a discussion on the importance of vocabulary games and enriching the vocabulary stock of the students at the elementary stage of schooling itself. The pupil−teachers suggested techniques and activities from their experiences to enrich the vocabulary stock of the children. To encourage them, two games were played under the guidance of the researcher. All pupil–teachers participated in the games and opined that vocabulary games could enhance the word power of the children. The researcher advised them to prepare more vocabulary games suitable for students at the elementary stage. The pre-service teachers were also encouraged to collect more games by consulting their teachers, seniors, referring to study material, websites, etc.

DISCUSSION AND FINDINGS

To ascertain the knowledge of pre-service teachers regarding vocabulary games, the researcher

discussed it individually with them. Initially, almost all pupil–teachers could not understand the concept of vocabulary games. For better understanding, the researcher presented several games, focusing on the basic rules to be followed by the participants. The groups were instructed to prepare new games, which would be useful for elementary school students. One week was given to the pupil–teachers to prepare the same. Then, a presentation was made in the presence of all pupil–teachers, the researcher and faculty members of DIET−Koraput. The leader of each group presented the games developed and collected by the respective groups. Around 50 vocabulary games were developed. Some games were rejected by the faculty members. At last, 35 games were selected. Some of the selected games are as follows.

Associated words

Words related to a situation:

Garden_____gardener _____
Plants _____seedlings _____, etc.

Semantic mapping

This game is simple and can be adopted to meet a variety of objectives. You can use the following procedures.

1. Chose a word or a topic.
2. Write it on a chart paper.
3. Ask the students the information they would like to include.

4. Encourage them to think and write as many related words as possible.
5. Write the words under appropriate headings.
6. Have a class discussion, using the map as a guide.

The following semantic map for telephones have been taken from *Effective Strategies for Teaching Reading* by Hayes (1991).

Parts	Things it does
Cord	Rings
Wires	Give busy signal
Dial	Records messages
Mouthpiece telephones	Dials automatically
Receiver	Re-dials last number
Push buttons	
Answering machine	

| Kids	Uses	Workers
Pay phone	Talk to others	Telephone operator
Cordless	Listen to others	Secretary
Car phone	Get phone numbers	Installer
Dial (rotary)	Long distance calls	Repair man
Push bottom	Pole man	Cellular

Simple and compound game

- Choose a base word
- Ask the students to produce as many words as they can, which contain in the base word, e.g., if the word chosen is 'self', then the

words can be formed like 'selfless', 'yourself', 'self-made', 'self-pity', etc.

Word formation through Sun diagram

This simple game can be played as a warm-up activity. It not only enriches the word power of the learners but also ensures clarity on a concept, object or idea (e.g., fruits, flowers, animals, parts of the body, school, family, village, etc). According to the level of the students, the teacher will write a word in the circle of a 'Sun diagram'. Relating the word, concept, idea or object, the students will write the word in their notebooks. At last, the teacher will count the number of students and groups, and declare the name of the student or group, who has written the maximum number of words. This game can be given as homework or can be used in multi-grade class.
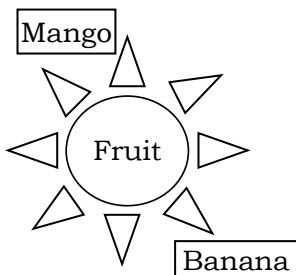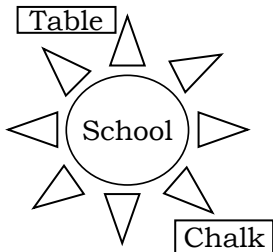
Recall, recognise and reward

This game involves arranging jumbled letters into words, and recognising their antonyms and synonyms. While playing this game, the students of the class will be divided into three groups (say A, B and C). Then, the teacher will write a jumbled word on the blackboard (the word should be preferably from the prescribed textbook, if the learners are from primary classes). According to the teacher's instruction, one group will arrange the letters to form a word. The second group will say or write the opposite of the word and the third its synonym. Look at the table for examples.

Jumbled words	Arranged words	Opposite words	Similar words
LLASM	Small	Big	Tiny
GNORTS	Strong	Weak	Firm
BTIEAULUF	Beautiful	Ugly	Elegant
AOCSRE	Coarse	Smooth	Rough

Dictionary game

This game is played to develop the skill and habit of using a dictionary in students at the primary level. After teaching or discussing a particular prose, poem or story, the teacher will give individual sheets having several words in the box from the text taught. The learners are instructed to arrange the words alphabetically and write down their meanings (with the help of friends and also refer to the dictionary).

Read the words in the box and arrange them as per the dictionary.

Read the words	Arrange as per dictionary
Carry	
Back	
Said	
Donkey	
Earned	
Loads	
Living	
Sell	
Seashore	
Collected	
Salt	
Bridge	
Became	
Stand	
Cross	
Use	
Upset	
Lighter	
City	
Slip	
Sack	
Me	
Built	
Money	
Up	
Onto	

CONCLUSION

In most cases, neither the teachers nor students — mainly in rural and tribal pockets — are interested to teach or learn English. Most of them are scared to learn the language as they feel that English is a foreign language, and hence, difficult. Even parents think that it is not easy to score well in English. This is the reality regarding the perception of teachers, learners and parents towards the language. This fear psychosis needs to be changed. It is possible for English teachers to encourage the learners, who like the mother tongue or regional language. To remove this fear, a joyful learning environment must be created in English classes. Playing vocabulary games will not only develop confidence in the learners but also foster a close relationship between the teachers teaching English and the learners (generally, students fear the English teacher in rural areas). Besides, the students will enjoy the class and be motivated to learn English like any other language.

REFERENCES

Annual Survey of Education Report (ASER) 2014

IGNOU Study Material for B.ED Programme

www.eslkitstuff.com

8

Special Training Centre — An Initiative towards achieving the Goal of UEE in India

Ankit Kumar Singh*

Abstract

The 86th Constitutional Amendment has made elementary education a Fundamental Right for all children in the age group of 6–14 years in India. Therefore, they are entitled to free and compulsory education. The Right to Education (RTE) Act 2009 was implemented across the country on 1 April 2010, which is a part of the 86th Constitutional Amendment. The Sarva Shiksha Abhiyan (SSA) is a flagship programme of the Government of India in partnership with the States and Union Territories (UTs) to achieve the goal of Universalisation of Elementary Education (UEE). To achieve the target, i.e., to enrol all children in schools, special efforts must be made. As per the RTE Act 2009, Special Training Centres (STCs) were established in every school to provide out-of-school children with additional help to ensure that they are at par with other students. STCs become all the more important because as per the Act the children are to be admitted to classes according to their age. Just like a teacher is recruited in a school, a specialised teacher must be recruited in an STC to teach children with learning gaps. The enrolment of children in an STC becomes more effective with the community's contribution. In order to establish these centres, rigorous work has been done by the SSA in Delhi. Moreover, nodal agencies have contributed to achieve UEE in all municipal schools in Delhi, Rajkiya Sarvodaya Bal Vidyalaya (RSBV), Rajkiya Sarvodaya Kanya Vidyalaya (RSKV), NGOs and madrasas.

Keywords: Right to Education, Special Training Centres, out-of-school children

---

* *Ph.D. Scholar,* Jamia Millia Islamia, New Delhi

INTRODUCTION

Free and compulsory education to all children up to 14 years of age is a Constitutional commitment in India. At the time of adoption of the Constitution in 1950, the aim was to achieve the goal of Universalisation of Elementary Education (UEE) in the next 10 years, i.e., by 1960. Keeping in view the educational facilities available in the country at that time, the goal was far too ambitious to be achieved within a short span of 10 years. Hence, the target date was shifted a number of times. Until 1960, all efforts were focused on the provision of making schooling facilities available. It was only after schools were built, the other components of UEE, such as universal enrolment and retention, started receiving the attention of planners and policy makers. At present, quality of education is the focus of all programmes related to elementary education, in general, and primary education, in particular. The Government of India has initiated many programmes and projects to attain the status of universal enrolment. However, challenges persist.

THE STORY SO FAR

India, a country with over a billion population and per capita income of less than $1,000, has managed to reduce poverty from 46 per cent in the mid–1980s to around 34 per cent in 2004–05. The numbers are still high and the trend poses a huge challenge for the economy (World Bank).

Similarly, illiteracy has come down from 35 to 26 per cent between 2001 and 2011. The ability for many to find work or gain education has been hampered by physical, social and economic barriers, marked by regional variations and sociocultural biases. Policies on various aspects of education (for example, teacher recruitment and qualification) vary across States, as does the availability, quality and efficiency of investment in education. In 2002, India accounted for more than 25 per cent of all out-of-school children worldwide. They belonged to disadvantaged or minority communities, migrant families, urban poor, children with special needs and children in difficult circumstances. A disproportionate number of them were girls. Given the diversity of such groups across India, each group faced challenges that needed to be addressed with special initiatives.

Census–2011 shows that about 32 million children aged between 6 and 14 years have never attended any educational institution, even though government estimates of out-of-school children show substantially lower numbers. There are problems of definition and identification of such children across States and UTs, which in turn, point questions over the numbers in periodic National Surveys on the estimates for 'out-of-school children'.

In its Millennium Development Goals assessment in 2015, the United Nations Development Programme

(UNDP) has stated that India has made significant progress in universalising primary education and is moderately on track to achieve this goal.

Among girls in primary schools, the rate of enrolment and completion of studies till Class V has improved and is catching up with boys too. The trend is observed at the elementary level as well. At the national level, the male and female youth literacy rate is likely to be at 94.8 and 92.4 per cent, respectively.

However, the UNDP cautions that a large number of children are still out of school and have not completed their primary education, particularly, girls, children living in rural areas and those from marginalised or minority communities. Often, we talk about children in school premises but we need to understand that there is a substantial number of children outside the school premises, waiting for an opportunity to join school. It is here that the RTE Act 2009 comes into picture.

The Right of Children to Free and Compulsory Education Act denotes that every child has the right to get full-time elementary education of satisfactory and equitable quality in a formal school, which meets certain essential norms and standards. The RTE Act 2009 has become a reality and guarantees every child the basic Fundamental Right — the Right to Education. The RTE Act, along with Article 21A, a part of the Fundamental Rights, became operational on 1 April 2010. If one is to study the Act carefully, there are certain important elements that may be noted. These are as follows.

- 25 per cent seat reservation in private schools for children of economically weaker sections
- No-detention policy
- No form of test or interview at the time of admission
- Maintaining the pupil–teacher ratio
- Recruitment of trained and qualified teachers
- Establishment of School Management Committees (SMCs)

From the time of Independence, elementary education has crossed many milestones. Significant efforts have been made to universalise elementary education, yet there are children who are still devoid of this basic right. Many programmes for ensuring free and compulsory education to children aged between 6 and 14 years have been launched by the Government of India but they have only been partially implemented. Some important programmes are as follows.

- Non-formal Education (1979)
- *Lok Jumbish and Shiksha Karmi* Project (1992)
- District Primary Education Programme (1994)
- Education for All or *Sarva Shiksha Abhiyan* (2000)
- Right to Education Act (2009)

Special Training Centres

Our concern is primarily on the condition and problems of children, who are in school. But we often neglect those children, who are out-of-school and not getting a chance to live a life they deserve. As per the RTE Act 2009, each school needs to establish a Special Training Centre (STC), where out-of-school children are provided with additional help to overcome their learning gaps.

In 1979, Non-formal Education was introduced in India. Educationists of that era had framed this structure for children, who had never been to school, were out-of-school, worked as labourers or lived in the streets. This programme was made functional with the help of NGOs and was financed by the Government of India. But the monitoring committees were weak because of which the progress of the programmes stagnated. However, there were few NGOs, which continued doing this work and even attained international laurels. Digantar School, Rajasthan, is at the top of this list.

In the current scenario, the work that was done by the Non-formal Education is being fulfilled by STCs. The need of STCs becomes all the more important because as per the RTE Act 2009, all children in the age group of 6–14 years are to be admitted to classes as per their age. In order to ensure that age appropriate admissions do not leave learning gaps in children, STCs have been established.

This implies that in case of learning gaps, the children are simultaneously enrolled in the nearest STC, where necessary support is provided to them for a minimum of three months and a maximum of two years to attain the minimum level of learning as per the class they are enrolled in. These centres have all facilities available for children as in a regular school.

According to the RTE Act 2009, the State Council of Educational Research and Training (SCERT) has been declared as the authorising body to fulfill the educational needs of students. Its responsibilities pertain to all schools in a State. Some of the responsibilities of an SCERT are as follows.

- Developing textbooks for children
- Development of teaching–learning material
- Training of the teaching staff
- Development of the curriculum
- Evaluating the students' learning progress
- Monitoring the progress of the STCs and its beneficiaries, etc.

The SCERT has divided the education of Classes I–VIII into four levels. These are as follows.

Level 1:   Classes II–III
Level 2:   Classes IV–V
Level 3:   Classes VI–VII
Level 4:   Class VIII

The *Sarva Shiksha Abhiyan,* Delhi, started STCs for out-of-school children in the age group of 6–14 years in 98 government schools and NGOs from

April 2010. At present, 152 STCs are operating in Delhi under various agencies like government schools, madrasas and NGOs, who are catering to the educational needs of 4,560 out-of-school children.

CURRENT SITUATION AND FIRST-HAND EXPERIENCE

As a part of the M.Ed. course, I did a dissertation in the partial fulfilment of the course on the topic 'A Study on the Implementation of Provision of Age-appropriate Admissions under RTE Act 2009 by Special Training Centres in Government Schools of Delhi'. The objective of the research was to study the facilities available in STCs as per the provision of Section 19 of the RTE Act 2009, its composition as per the provision, the criteria and procedure teachers use to identify the level of children at the time of admission, evaluate students at the entry level and after the completion of the special training, the procedure adopted by teachers for the mainstreaming of students in formal schools and the problems faced by the teachers in STCs. The research study reflected many findings, which are as follows.

- There were a total of nine teachers and 318 students at the primary level, and 10 teachers and 294 students at the upper primary level.
- All 10 schools had sufficient furniture for teachers and students. All, except one, had furniture for students as per their age.

- Facilities for differently abled children were sufficient in the schools as the STCs provided classrooms on the ground floor for a large number of students. Though there was a provision of ramps in most schools, a lot needs to be done to make education convenient for children with special needs.
- There is a provision of ₹500 for all teachers of government schools to buy teaching–learning equipment. However, they feel more money needs to sanctioned and invested for buying teaching–learning material as the sanctioned amount at present is not sufficient.
- It was observed that game facilities were not available in the STCs. The students played in the playground during lunch hours. But there was no sport equipment for them, and they hardly got to play with other children of the school (those not in the STCs but studying in the same school). The teachers had purchased few indoor games for the students in the STCs but the students seldom played with them.
- The teachers said they used assessment tools developed by the SCERT, Delhi. The Council has developed assessment tools (pre–and post–test) for age appropriate admission under the RTE Act 2009. They said each school used the tools to identify the level of the children at the time of admission, during their stay in an STC and after

the completion of studies at the STC. After this process, the head of the school, such as those run by the Municipal Corporations of Delhi, Directorate of Education (DoE), New Delhi Municipal Council (NDMC) and Delhi Cantonment Board, would send the children to STCs to receive special training in order to achieve a level at par with students of the formal education system.

- Independent tests, as per the questionnaire prepared by the teachers, were also conducted to ascertain the level of the children at the time of admission. The teachers conduct oral or written examinations for promoting the students to the next class. They also evaluate the students' assignments and activities done in the class. After the completion of their training at the STCs, the teachers forward the documents on each child's progress to the school the child is inducted to. All teachers do a follow-up on their students' progress after their mainstreaming.

- At the time of admission or mainstreaming, the school administration asks for the rent agreement, birth certificate of the child, etc., which are, generally, not available with out-of-school children. Besides, many schools are, generally, not interested in admitting such children. Parents of such children are also reluctant to admit their wards in school. They prefer that the children either work or take care of their younger siblings. Moreover, students who work or take care of younger siblings also do not want to attend an STC.

- The teachers stated that lack of books caused problems in teaching.

- The teachers added the age of students becomes a problem because they had to be admitted to lower classes.

Conclusion

Despite those gaps, STCs are doing a commendable job with their existing limitations and curbed resources. It needs to be understood that policies are only effective if individuals are prepared to execute them. There is a significant gap between intention and implementation.

REFERENCES

Acharya, P. 1994. 'Problems of UEE'. *Economic and Political Weekly*. Vol. 29. No. 40, pp. 329–338.

Department of School Education and Literacy, Ministry of Human Resource Development, Government of India. 2011. *Sarva Shiksha Abhiyan Framework for Implementation*. New Delhi.

GOVINDA, R. AND M. BANDYOPADHYAY. 2007. Access to Elementary Education in India: Country Analytical Review. Consortium for Research on Educational Access, Transitions and Equity. Brighton.

JHA, J. AND D. JHINGRAN. 2005. *Elementary Education for the Poorest and Other Deprived Groups: The Real Challenge of Universalisation.* Manohar Publishers, New Delhi.

KURRIEN, J. 1983. *Elementary Education in India: Myth, Reality, Alternative.* Vikas Publishing House Private Limited, New Delhi.

MEHTA, A.C. 2011. Elementary Education in India: Progress towards UEE. *Analytical Report 2008–09.* National University of Educational Planning and Administration, New Delhi.

NAIK, J.P. 1966. *Elementary Education in India.* Asia Publishing House, Bombay.

NATIONAL COUNCIL OF EDUCATIONAL RESEARCH AND TRAINING. 2007. Seventh All-India School Education Survey (7th AISES): Pre–primary Education and Alternative Schooling. NCERT, New Delhi.

PAL, S.P. AND D.K. PANT. 1995. Strategies to Improve School Enrolment Rate in India. *Journal of Educational Planning and Administration.* Vol. 9, pp. 169–171.

RUHELA, S.P. 1996. *India's Struggle to Universalise Elementary Education.* M.D. Publications, New Delhi.

SONI, R.B., et al. 2013. Status of Implementation of RTE Act 2009. In Context of Disadvantaged Children at Elementary Stage. http://www.ncert.nic.in/. Retrieved 15 February 2017 from http://www.ncert.nic.in/departments/nie/dee/publication/pdf/StatusreportRTE2013.pdf

TAJ, H. 2008. *Current Challenges in Education.* Neelkamal Publications Pvt. Ltd, New Delhi.

VAIDYANATHAN, A. AND P.R. NAIR. 2001. *Elementary Education in Rural India: A Grassroots View.* Sage Publications, Thousand Oaks, California.

WEBSITES

Curriculum for Out-of-School Children. (n.d.). http://delhi.gov.in/. Retrieved 20 February 2017 from http://delhi.gov.in/wps/wcm/connect/f559d680427a61b6a924a9776410e1fb/Curriculum+OSC2013.pdf?MOD=AJPERES&lmod=1868555500&CACHEID=f559d680427a61b6a924a9776410e1fb&lmod=1868555500&CACHEID=f559d680427a61b6a924a9776410e1fb

List of Non-residential Special Training Centres Run By HOS. (n.d.). http://www.edudel.nic.in/. Retrieved February 20, 2017, from

http://www.edudel.nic.in/ssa/4nrctc_dt_07062012.htm

Model Rules under RTE Act 2009. (n.d.). http://ssa.nic.in/. Retrieved 20 February 2017 from http://ssa.nic.in/rte/4Model.Rules.pdf/view

Progress Overview of Research — *Sarva Shiksha Abhiyan.* (n.d.). http://ssa.nic.in/. Retrieved 20 February 2017 from http://ssa.nic.in/research-studies/Research%20Studies%20under%20SSA.pdf/at download/file

RTE Gazette Notification. (8 April 2010). http://mhrd.gov.in/. Retrieved 20 February 2017 from http://mhrd.gov.in/sites/upload_files/mhrd/files/RTI1.pdf

Reg. Delhi Right of Children to Free and Compulsory Education Rules 2011 under Right of Children to Free and Compulsory Education Act 2009. (n.d.)

www.edudel.nic.in. Retrieved 20 February 2017 from http://www.edudel.nic.in/upload_2011_12/gz_dt_11012012/gz_15.pdf

World Bank. India: Extending Education to The Millions of Out-of-School Children. Retrieved 20 February2017 http://web.worldbank.org/WBSITE/EXTERNAL/

9

Study of the Pre-primary Stage at Mrinalini Ananda Pathsala, Gurudev's Ashram Vidyalaya, Santiniketan — A Holistic Approach

Sarmila Banerjee*

Abstract

This article presents the opinion of pre-school and assistant teachers on the importance of curriculum followed at the pre-primary stage of education in Mrinalini Ananda Pathsala, Gurudev's Ashram Vidyalaya, Santiniketan. It highlights the importance of activities followed for children so as to enable them to express their artistic creativity within modern curriculums. It also presents an empirical study that examines the opinions of pre-school and assistant teachers on the importance of educational fields, art genres and extra-curricular activities followed in the school. The pre-school teachers find each educational field, art genre and visual art activity to be of importance. Therefore, education in kindergarten has to achieve requisite holism. The paper presented is a case study. It has been found that importance is attributed to play, nature observation, learning of healthy habits, art, numeracy, movement and language, followed by rhymes, songs, dance, play and storytelling. Importance is also attributed to visual arts, i.e., drawing, craft and clay modeling. Audio-visual activities are also organised like children movies are shown to the students. Besides, the children are made to participate in jugglery, picture and other activities. Within visual arts, drawing and colouring are considered to be the most important, followed by craftwork and clay modeling. These findings can support future studies and deliberation on the possible effects on practice in terms of requisitely holistically planned pre-school education, which is the requirement for future studies.

Keywords: Curriculum, pre-school education, pre-school teachers, requisite holism, extra-curricular activities

---

* *Principal,* Shukla Devi Academy for B.Ed, Salkhana, Siuri, Birbhum – 731 102, West Bengal

INTRODUCTION

The pre-primary stage at Mrinalini Ananda Pathsala, Santiniketan, is an important phase of education. Patha Bhavana (secondary and higher secondary section), an Ashram Vidyalaya, was established by Gurudev Rabindranath Tagore in the year 1905. The pre-primary section, Mrinalini Ananda Pathsala, established in 1954 in the name of Tagore's wife Mrinalini Devi, is the nursery unit of Patha Bhavana. Here, children are admitted at 4+ years and stay for two years. They participate in cultural programmes organised by Patha Bhavana and Visva Bharati. An integrated approach to study is followed here. The children move to Patha Bhavana after the completion of two years of learning at the pre-primary section. Our aim is to find out about the curriculum followed in Mrinalini Ananda Pathsala. The pre-primary curriculum followed here ensures the holistic development of children — physically and mentally. Attention is also paid to the children's emotional development with love and security by teachers, thereby, making the Pathsala or pre-primary section a comfortable place for them after home. Play, nature study and different activities make them learn various things and equip them to face the challenges of life.

As upon the 86th Constitutional amendment, Article 45 of the Directive Principles of State Policy now covers 'Early Childhood Care and Education' instead of elementary education, which has become a Fundamental Right. The Article states, "Substitution of new Article for Article 45 of the Constitution, the following Article shall be substituted, namely: provision for early childhood care and education to children below the age of six years. The State shall endeavour to provide early childhood care and education for all children until they complete the age of six years."

This study was conducted to verify the activities followed in the curriculum at the pre-primary stage in Mrinalini Ananda Pathsala. It also aimed to verify whether the objectives of integrated curriculum, which is a requirement for the holistic development of children for early childhood development, is followed or not.

RESEARCH OBJECTIVES

The objectives of the study are as follows.

- To know about the curriculum followed in this heritage institute
- To know about the method of teaching followed here
- To know about the different activities followed here in order to ensure the holistic development of the children and their future
- To know about the views of the teachers regarding the importance of education and development of children aged 4+ to 5+ years

RESEARCH DESIGN AND METHOD

Research method is a qualitative study or inductive research. Case study method is used here, which involves observation of what is happening, or reconstructing the case history of a participant or group of individuals (such as a school, class or specific social group), i.e., 'idiographic approach'.

Integrated and holistic approach method of teaching is followed at the pre-primary stage in Mrinalini Ananda Pathsala. According to this approach, the development of children in the early years of learning through music, dance, art and craft, nature study, play and learning of healthy habits is, particularly, important, given the ways in which they understand and make meaning of the world around them. This is achieved through different subjects.

PROCEDURES USED

A case study was conducted. Data collection was done through qualitative techniques (semi-structured interviews, participant observation and diaries), personal memorabilia (e.g., letters, photographs, notes, etc.) and official documents. All approaches mentioned here use preconceived categories in the analysis and they are ideographic in approach, i.e., they focus on an individual case without reference to a comparison group. Extraordinary behaviours or situations are highlighted, which can be studied.

RESEARCH SAMPLE

The case study was done on the research sample of pre-school teachers, i.e., senior and assistant teachers, at the Mrinalini Ananda Pathsala, the pre-primary unit or kindergarten. Three senior teachers, including the teacher in-charge, and three assistant teachers constituted the sample (six teaching faculty members, including two attendants and one office staff, who help the teachers). The work experience of senior teachers was more than 10–15 years and that of assistant teachers 4–6 years. There were 160 students as observed on 22 and 23 April 2016. The teacher in-charge and other teachers were interviewed. Further, discussions with all of them were held, taking into consideration the views and opinions of each. All teachers were trained in pre-primary education and also had a Masters' degree in their respective academic subject.

PROCESS OF DATA COLLECTION

A questionnaire regarding the years of service, educational degree and position of the teachers (senior and assistant teachers) was prepared. In the questionnaire, the main part focused on the curriculum followed by the timetable in the first and second stage of the pre-primary stage. Further, views regarding the subjects taught, activities done, experiences of the teachers and importance of the curriculum followed were also asked. Observations were made and interviews were conducted.

Study of the Pre-primary Stage at Mrinalini Ananda Pathsala...

71

Fig. 1: A view of Mrinalini Ananda Pathsala

The pre-primary section, a non-residential nursery school for the children of teachers, other staff members and alumni of Visva Bharati, started functioning in 1954 with 20 students.

In the year of Tagore's birth centenary, Ananda Pathsala was renamed after the poet's wife Mrinalini Devi and christened 'Mrinalini Ananda Pathsala'. It is housed in the two buildings where the Tagores lived — 'Natun Bari' and 'Dehali' in the Ashram, at the end of the famous Sal Bithi.

An admission test is conducted, after which the selected students (aged 4+ and 5+ years) have to spend two years here. On the successful completion of this period, they are eligible for Class I in Patha Bhavana, under whose aegis this school functions. Efforts are made to make learning as stress-free as possible. Learning is aided by opportunities for self-expression through music, dance, drawing and craftwork. The academic year commences in June–end or early July. The admission test is conducted in April.

TEACHING AND CURRICULUM FOLLOWED

An integrated curriculum is followed here, where equal importance is given to all activities of the primary and pre-primary stage.

First stage

- Nature observation or study (identification of trees, flowers in garden, birds, animals like squirrels, cats, dogs, etc.)
- Scribbling
- Rhymes and storytelling from picture books
- Teaching of healthy habits and discipline, and identification of letters of the alphabet

Second stage

- Identification of letters of the alphabet and forming words by seeing picture flash cards; identification of letters of the alphabet is not done sequentially but according to the understanding of the children

- Numerical learning by seeing pictures or counting the given things; plus (+) and minus (–) signs are taught by counting figures, etc.

- Storytelling, sometimes with characterisation, e.g., enacting the story of *Khoka Bagh* (Baby Tiger), etc., and recitation of rhymes developed by teachers to teach students with examples

The importance of the curriculum followed for the first and second stage of the pre-primary section was studied. The curriculum includes subjects like nature study, plays, rhymes, scribbles, numeracy and craftwork (origami). In the first stage, the children are taught letters of the alphabet but not sequentially, though they may do scribbles as they are easy. Storytelling is an important part of the programme. In the second stage, mathematics is taught for concept formation. Equal emphasis is laid on all subjects, i.e., an integrated approach is followed. The children also participate in cultural activities like literary activities, where they recite poems together, music (*Rabindra Sangeet*) and dance. Play is an important part throughout the two stages of growth, i.e., the first and second stage of pre-primary section at the Mrinalini Ananda Pathsala. *Ananda Bazaar*, a mela before Durga Puja, is organised, where the children sell handicrafts, which they make with the help of their teachers, to collect funds for social work. The timetable followed is given below.

Table 1: Timetable for the pre-primary stage (2016)

S.No	Friday	Saturday	Sunday	Monday	Tuesday
1	Conversation Rhymes *Alpona* making	Conversation Rhymes Nature study	Conversation Rhymes *Alpona* making	Conversation Rhymes *Alpona* making	Conversation Rhymes Nature study
2	Singing	Storytelling	Handwork	Singing	Literary discussion
Lunch					
3	Storytelling	Picture drawing	Storytelling	Storytelling	Clay modeling

Fig. 2: Teacher in-charge teaching in a class (teacher-student ratio is 1:27/28)

Teaching in classroom

Different methods are used for teaching different subjects and emphasis is given to extra-curricular activities like play, drawing, colouring, craftwork, clay modeling, singing, dancing, recitation of rhymes and storytelling. Teaching is done here according to the play-way method and as per the timetable.

For teaching children in the first stage, i.e., those aged 4+ years, importance is laid on play, learning of healthy habits, inculcation of discipline and reciting rhymes. Storytelling is an important activity done with the help of pictures. Teaching of the alphabet is done gradually according to the learning of scribbles but not done sequentially.

In the second stage, the students learn the alphabet according to their understanding. The teachers teach self-made rhymes, letters and words to the children. They are also taught about different situations. Numbers are taught to them with the help of picture counting and things like sticks, etc.

Craftwork, i.e., paper cutting and folding, known as 'origami', is also taught here. Before the commencement of Durga Puja in the month of October, the students with the help of teachers make handicrafts like fan with drawings, table calendars, clay models, etc., for a small fair called *Ananda Bazaar*, which is organised by the students of Visva Bharati (pre-primary to university level) on *Mahalaya*. These hand-made items are sold in the fair and the money collected is utilised for social services.

Few pictures, depicting the teaching method as per the integrated method followed in the Mrinalini Ananda Pathsala, such as learning different shapes and colouring them, etc., have been shown in the article. Flash card method is also used for teaching words to the children. They are also shown pictures and encouraged to identify the objects as shown in them. Drawing is an important activity, where the children are given the freedom to draw, and thus, express their creativity. Teaching of numbers with drawing and colouring is shown in Fig. 3.

DISCUSSION

The teachers gave their views regarding individual art activities as determined by the curriculum, such as visual and audio-visual arts, music, dance, drama, literary activities, puppetry, etc. All teachers rated the importance of visual arts. As in the curriculum, all subjects are equally important and an integrated approach is followed

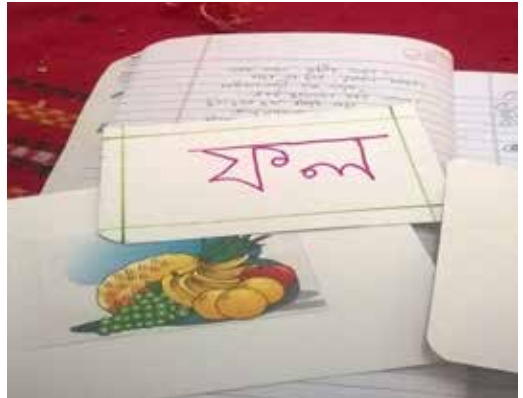*Fig. 3: Teaching numbers with drawing — integrated approach*

Fig 4: Flash card method of teaching — letters and words with pictures

Fig. 5: Drawing made by a first stage student

Fig. 6: Number and drawing exercise for second stage students

Fig. 7 : Assembly of pre-primary section children after classes

while teaching the students. But importance is given to the arts section — drawing, colouring, clay modeling and craftwork (origami). Above all, the most important activities are play, learning healthy habits and discipline regarding how to behave in school, and nature study, which was Gurudev's main idea to let the children learn and grow in the midst of nature. Emphasis is laid on the teaching of all subjects, including extra-curricular activities.

The same fields are specified in different research studies conducted in different schools. Emphasis is laid on teaching different subjects of the syllabi to ensure that better learning and growing of children can take place if the disciplines are taught to them in a pattern like the one followed at the Mrinalini Ananda Pathsala, Santiniketan.

CONCLUSION

This case study, which addresses a small sample of pre-school and assistant teachers of the Mrinalini Ananda Pathsala, reveals their views on the importance of curriculum at the pre-primary stage, including other activities like visual arts, rhymes, song, dance, storytelling, etc. The following results were obtained.

- As regards educational fields at the pre-primary stage, importance is given to play (physical exercise), learning of discipline and healthy habits, nature study (to know about trees, flowers, birds, pet animals like cats, dogs, etc., other small creatures like squirrels, etc.), and rhymes for language and phonetic development. Scribbles are taught with the help of counting fingers, pictures and other material to develop the learning of alphabet and numbers among children.

- As regards arts at the pre-primary stage, visual arts, music and literary activities are important parts of the curriculum. There are other activities too, i.e., dance, song and drama. Audio-visual activities are also important. Among visual art fields, drawing and colouring are given more importance than

others. Paper work or craft and clay modeling are also taught to the children. Further, the students here participate in weekly literary sessions of the primary section.

EDUCATIONAL IMPLICATIONS OR RESEARCH OUTCOMES

- The intertwining of activities about pre-school education should be researched in future theoretical, methodological and empirical studies. The requisite holism of pre-school education might be excessively left to the requisite personal holism of teachers, their heads, assistants and parents.

- The values, which education (pre-primary stage) provides, might be transferred from pre-school to the school phase in order to shape children's personalities. The children are entering an innovative society and economy, where creativity offers a gamut of possibilities. Memory and knowledge are no longer the only source.

- Furthermore, creativity enables both material and psychological prosperity and well-being, which because of modern technologies is becoming a condition for success.

It is clear that the current investigation provides only initial findings regarding the views of teachers on pre-primary education. In-depth studies, requiring more resources, thereby, allowing for direct observation, will yield more accurate information about teachers' views.

Gurudev Rabindranath Tagore, a great educator and child psychologist, was ahead of his times. He with this institution has presented an example before the world for offering pre-service training and professional development workshops to teachers and guide them to be efficient in the physical and cognitive development of children.

REFERENCES

BARTON, GEORGINA. 2015. Arts-based educational research in the early years. *International Research in Early Childhood Education*. Vol. 6. No. 1, pp. 62 Available at www.education.monash.edu.au/irecejournal/Griffith University Australia. Retrieved 10 February 2016.

CHEN, XIUFANG AND SUSAN BROWNE. 2015. 'Pearls of Meaning: Pre-school Children Respond to Multicultural Picture Books'. *New Waves Educational Research and Development*. Vol. 18. No. 2, pp. 16–28. Rowan University, New Jersey.

LUNDQVIST, JOHANNA A., MARA WESTLING AND EVA SILJEHAG. 2015. Support Provisions in Pre-schools, Special Educational Needs and Support Provisions in Swedish Pre-schools: A Multiple Case Study. *International Journal of Early Childhood Special Education*. Vol. 7. No. 2, pp. 273–293.

Mohanty, B. Sunil. 2014. Editorial Early Childhood Care and Education: International Scenario. *Journal of International Forum of Educational Research*. Vol. 1. No. 2. Available at http://ejournal.ifore.in.

Pascal, Lefebvre, Bolduc Jonathan and Pirkenne Christel. 2015. Pilot Study on Kindergarten Teachers' Reaction to Linguistic and Musical Challenges in Nursery Rhymes University of Ottawa. *Journal for Learning through the Arts*. Vol. 11. No. 1.

Zupancic, Tomaz, Cagran Branka and Mulej Matjaž. 2015. Pre-school Teaching Staff's Opinions on the Importance of Preschool Curricular Fields of Activities, Art Genres and Visual Arts Fields. *CEPS Journal* . Vol. 5. No. 4.

To the Contributors

The Primary Teacher invites you to write articles, field notes and reports that impact elementary education. The focus may be on issues and concerns that you are sensitive to, which you feel should be shared with other teachers working at the grassroots levels.

➢ Each article should be about 1500 to 3000 words.

➢ Each article should have a short abstract in about 150 words.

➢ Use simple and non-technical language in keeping the clientele in mind, which is the primary teacher.

➢ The articles should have a friendly and communicative tone.

➢ The articles must be sent in two copies of the piece along with the soft copy (CD/e-mail).

➢ The photographs and illustrations should be sent in JPEG format having a resolution of at least 300 dpi.

The papers may be sent to:

Academic Editor
The Primary Teacher
G. B. Pant Building, NCERT
Sri Aurobindo Marg
New Delhi – 110016
e-mail: primaryteacher.ncert@gmail.com

MY PAGE...

This column would contain your letters and feedback where you can put forward your responses, suggestions and expectations from the articles, papers and columns presented in *The Primary Teacher*. You may have issues, concerns and doubts related to teaching-learning processes, classroom practices, syllabus, textbooks, evaluation patterns, research pursuits, etc. These could also reflect the concerns of many others working in this area. Please feel free to raise these issues in this column. You could also ask specific questions that would have baffled you.

Teaching Environmental Education: Trends and Practices in India

Tannu Malik*

Title: *Teaching Environmental Education: Trends and Practices in India*

Author: Chong Shimray

Publisher: Sage Publications India Pvt. Ltd.

Language: English

Year of Publication: 2016

Price: ₹350

No. of Pages: 300

The relationship between humans and environment is dynamic. Since the beginning, environment has influenced the life of human beings and the latter too have modified their environment. In the last two centuries, the environment has been gravely affected. Thus, in today's times, 'environmental education' has become an important component of education throughout the world.

The book, *Teaching Environmental Education: Trends and Practices in India* authored by Chong Shimray,

provides fundamental understanding in environmental education and suggests a course of action in school curriculum. There are total of 10 chapters and an 'Afterword' in the book, which provide a comprehensive idea about environmental education, particularly, in the context of India. Each chapter begins with 'Worth a Thought', which makes a reader ponder over various misconceptions and queries related to environmental education and the chapter unfolds the answers.

The first chapter of the book titled, 'Introduction to Environmental Education', explains how development in science and technology has benefited human beings and also affected the environment. It gives a detail of the growing concerns about environmental issues across the world and environmental education in the modern age. The paradox, emergence, roots, evolution, goals and guiding principles of environmental education have been dealt with in the chapter. Selected definitions and chronology

* *Associate Professor,* Department of Education in Social Sciences, NCERT, New Delhi – 110 016

of important events in environmental education have also been given. However, the chapter has references of the work done in the West in this field but lacks India's contribution. Though the ideology of Mahatma Gandhi has been reflected, the various references of environmental education in *Veda*, *Upanishada* and *Purana* do not find a mention.

Chapter 2 titled, 'Why Environmental Education', makes readers ponder over the idea of inclusion of environmental education as an integral component in the school curriculum. The nature of environmental education and other disciplinary areas have been discussed, which give an insight into how it is different from other disciplinary subjects. The possibilities and limitations of converging environmental education with science have been covered but not with other disciplines. The relationship that exists between environmental education, environmental science and environmental studies has been given in a tabular form, which makes it easier for the readers to understand and analyse.

Chapter 3 'Environmental Education in the School Curriculum' is an extension of the second chapter. It focuses on various ways through which environmental education is done and can be done through school curriculum. The two common approaches of implementing environmental education, namely separate subject

(interdisciplinary) approach and infusion (multidisciplinary) approach, along with their pros and cons, have been discussed. It gives ample food for thought to the readers on how environmental education can be incorporated in the teaching–learning of different disciplines.

The fourth chapter, 'Tracing Environmental Education in India', gives an account of environmental education since the beginning of 1930s in various education policy documents, such as Education Commission reports, National Policy on Education, curriculum frameworks and other nationally important educational reports. The chapter also presents a detailed account of how environment education has been dealt with in the school curriculum developed by the National Council of Educational Research and Training (NCERT) over the years. The title of the chapter provides scope for adding more about environmental education, which was always taught in India, but was inadequate.

'Global Trends in Environmental Education and Implementation in India' is the title of Chapter 5, where the major initiatives taken at the global level regarding environmental education and their implementation in India have been covered. This chapter highlights how a public interest litigation (PIL) filed in the Supreme Court of India in 1991 had an impact on the course of implementation of environmental education. The chapter

includes information about a pilot study on project-based environmental education with a note to teachers. It will help the teachers to come up with creative ideas. A comparative study of India and the USA regarding the implementation of environmental education in schools explains how in India a uniform curriculum is followed but in the USA every State develops its own curriculum.

The focus of the sixth chapter, 'Responsible Environmental Behaviour — Ultimate Goals of Environmental Education', is about the importance of responsible behaviour towards the environment by 'doing'. Such behaviour is not inherited but learned, and is reflected through actions. The purpose of environmental education will not be meaningful unless humans display some kind of responsible behaviour towards protecting the environment. Several views on behavioural change have been discussed in the chapter and emphasis has been laid on a model of responsible environmental behaviour.

'Multi-perspectives of Environmental Education' is the seventh chapter and explores three different perspectives on environmental education — as all inclusive, moderately eco-centric and purely eco-centric. The perspective in which environmental education is viewed would definitely impact its implementation. The perspectives in the Indian context probe the trends and practices, which can be considered acceptable or practical in India. It is important to define boundaries to give an 'identity' to the discipline or it will remain a misconceived discipline.

In the eighth chapter, 'Teacher Empowerment in Environmental Education — A Concern', the spotlight is on various aspects of teacher empowerment and how the implementation of environmental education depends on teachers. Issues related to both pre-service and in-service courses in the country have been discussed in the chapter. A comparative study of selected Bachelor of Education courses is given in a tabular form, which compares the nature and scope, goals and objectives, theory and pedagogy of courses on environmental education. It further examines their alignment with the National Curriculum Framework (NCF)–2005, and their participation in the actual resolution of environmental issues through these courses. The chapter concludes with suggestions for pre-service and in-service courses, and training of teacher–educators with an aim to improve and empower future teachers in the area of environmental education.

The ninth chapter, 'Education for Sustainable Development — A Departure from Environmental Education', elucidates the concept, its origin, characteristics, thrust areas and dimensions of education for sustainable development along with milestones given in a box. It refers to one of the initiatives of the United Nations, titled 'Decade of Education

for Sustainable Development' and the Global Action Program, a follow-up activity to the Decade of ESD (2005–14), and moves on to discuss different types of sustainable education. The similarities and differences between education for sustainable development and environmental education brought out by the author are an interesting read. The author poses a question, "Don't you think too much emphasis is given to the names, such as environmental education and Education for Sustainable Development, when in reality we have not been able to implement either of the two in our classrooms?"(p.238).

After reading the nine chapters and getting clarity about environmental education via balanced approach adopted by the author, the tenth chapter, 'Way Forward', provides a strategy for the implementation of environmental education in India. The initiatives of government bodies like the Ministry of Human Resource Development and Ministry of Environment, Forests and Climate Change, and some non-governmental organisations have been highlighted. The lack of coordination, collaboration and networking between various stakeholders has been considered as one of the reasons why environmental education in India has not made a headway. A roadmap given in the chapter may help policy makers and implementers to come up with an appropriate plan of action for the implementation of environmental education in India. The chapter also draws attention to lack of research studies in the country, which could have provided a base on which strategic measures could be taken up for the implementation of environmental education. The chapter has identified the different areas where research can be conducted and it will surely stimulate researchers to take up need-based research.

In the concluding 'Afterword', the author emphasises that a change in attitude towards environment is essential to prevent further degradation of the environment. The role of educators in addressing this issue has been highlighted. Ultimately, the readers are left with a heightened sense of awareness about the environment.

Each chapter helps understand environment education and strikes a chord with the readers. The book covers all guidelines needed to prepare school curriculum, research projects, roadmaps, key global and national initiatives, and perspectives of national education policies. Each chapter makes the readers ponder through its section by 'just a moment'. Written in a comprehensive style, this book is a must read for practising teachers, researchers, teacher–educators, student–teachers or those who want to know about environmental education.

National Talent Search Examination

Siddharth Dahaliya*

As teachers, you may be aware of the National Talent Search Examination (NTSE) with student scholarships awarded by the National Council of Educational Research and Training (NCERT). When it first came into existence in 1963, it had a different name — National Science Talent Search Scheme (NSTSS).

Initially, the NTSSS was meant only for Class XI science students of Delhi, with 10 scholarships. Then, in 1964, this scheme was implemented in all States and Union Territories. The number of scholarships increased to 350 for Class XI science students. Scholarships were awarded on the basis of a written examination, a project report and an interview. In 1976, the scheme was renamed National Talent Search Scheme (NTSS) and was also open to students of social sciences, engineering and medicine. Students from Classes X, XI and XII were included in this scheme. The number of scholarships was also increased from 350 to 500. Besides, Mental Ability Test (MAT) and Scholastic Ability Test (SAT) were introduced. In 1981, the number

of scholarships was further increased to 550. In 1983, it became 750. In 2000, the number of scholarships was increased from 750 to 1000.

The NTSE is one such competitive exam in India, which gives students financial support and academic recognition for their career in academics. Only Class X students are eligible to appear in this exam. Class X students, pursuing education from open distance learning, and Indian students studying abroad are also eligible to apply for NTSE. Those who qualify this exam get scholarships right up to PhD.

The students have to take this exam in two stages. The selection procedure is divided into two levels. The students first have to appear for NTSE at the state level, which will be conducted by the State Education Board. After passing NTSE at the state level, the students are eligible to appear at the national level. The NCERT conducts NTSE at the national level.

After the application process, the students need to prepare for

* *Junior Project Fellow,* DEE, NCERT

Mental Ability Test (MAT), language test and Scholastic Ability Test (SAT). They need to prepare logical reasoning, questions related to analogies, classification, series, coding–decoding, etc. MAT has 50 questions carrying one mark each. SAT has 50 questions of language test and 100 of science, social science and mathematics. The students get 180 minutes (three hours) to complete the exam. All are Multiple Choice Questions (MCQs).

These test the reasoning ability, subject knowledge and language comprehension skills of the students. The qualifying mark in each paper for General category students is 40 per cent, while it is 32 per cent for students from SC and ST categories. The NTSE has 15 per cent reservation for SC category students, 7 per cent for STs and 4 per cent for the Physically Challenged.

Those who pass the NTSE receive a scholarship of ₹1,250 per month for Class XI and XII, and ₹2,000 per month up to graduation and post-graduation. PhD students are awarded the scholarship as per the norms of the University Grants Commission (UGC). For students coming from poor families, NTSE is a significant step towards obtaining education, leading to career advancement.

India has introduced a number of laudable initiatives in the field of education, such as the *Sarva Shiksha Abhiyan* (SSA) and the Right to Education (RTE) Act 2009, which have greatly contributed towards the Universalisation of Elementary Education (UEE). Statistics indicate that the dropout rate in India is decreasing every year. The handbook *Educational Statistics at Glance* (2016) prepared by the National University of Educational Planning and Administration (NUEPA) shows the data of all categories of students at the primary level, with the dropout rate coming down from 5.62 per cent (2011–12) to 4.34 per cent (2013–14).

Since the terminal stages of education are Classes V and VIII, with the major cause being poverty or low income, it is important that the students know about NTSE much ahead of reaching Class X. Teachers need to ensure that students of Class V are made aware of NTSE, and more importantly, of its financial benefits. Students from the upper primary stage may also be encouraged to prepare for this exam. The teachers may introduce age-appropriate questions related to classification, logic and analogy through assignments, projects or holiday homework. The students securing NTSE scholarships must be applauded by the Principal in the Morning Assembly and younger students must be encouraged to prepare for the NTSE as well.

Thus, NTSE is an important examination for the students. Not only does it provide financial support to the students but also boosts their confidence, improves their learning abilities and fosters a healthy competition among them. Besides, it can encourage students, particularly, girls, to aim for higher education.

Art in Education

Nupur Rastogi*

Educating the same batch of students for two consecutive years was an opportunity for me to explore education and understand what more it needs. My students of Class IV were doing well in academics. But opening books, discussing chapters and writing was monotonous for many. The students scored well but were unable to express their thoughts and feelings. There were times when I saw them crying but could not make them share what bothered them.

I started visiting communities, meeting parents but the children managed to hide their feelings. I remember Anuj (name changed), who seemed a happy child. But it was impossible for a teacher to make him complete his work. Initially, I thought of him as a notorious child and tried making him understand the importance of education in life. But getting no result, I visited his home, a small rented accommodation with no kitchen on the fifth floor, which housed six members. I could hear noises that would have disturbed him while studying. Two families shared two rooms with no separate doors. Even if one sat down to study, it was impossible to continue in the chaos. I realised that there is more to what we notice at school — family feud, parental fights, poverty and lack of space.

I decided to make my class an open space, where students trust each other, where they are not scared of sharing who they are and what they think. I started with an experiment of using art for educating them and asked them to draw a secret thing of theirs, promising that it will not be disclosed. It took two hours to get the children draw.

What the children drew showed their hidden emotions and feelings. Through this activity, I discovered that one of my students was once molested by a shopkeeper and she thought that it was all her fault, no matter how hard she tried hiding, it was evident in her drawing. I decided to follow-up with the activity and asked them to talk about how they felt after doing it. It was to make them learn the skill of giving constructive feedback.

* Jijivisha Fellow, Moradabad, Uttar Pradesh

The next day, I continued with the same task and asked them to look at their drawings and write whatever they saw. The students were excited as they were working on something that they had made based on their personal experiences. And this is how my first experiment of amalgamating arts into education worked out.

Art strengthens the confidence of students. It lets them outflow their insecurities. However, what is enthralling is the 'purgation of expression' that the education system is missing completely. The students are grasping knowledge tested with formative and summative assessment but education needs a revolution that works towards creating an emotionally safe environment for the students. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), "The encouragement of creativity from an early age is one of the best guarantees of growth in a healthy environment of self-esteem and mutual respect — critical ingredients for building a culture of peace."

Experiential learning not only evolved me as an educator but also enhanced my awareness for the role of arts in education.

Figuring out a problem, consolidating a plan to solve it, spreading awareness about it through drama, writing and storytelling are important for education. Not only the students learnt the value of ownership and goodness but this project also created a bond of unity in the class. The class became more confident and solution oriented, which was evident in the academic push seen in that unit.

Dr Howard Gardner's 1983 Theory of Multiple Intelligences suggests that our school teaches two kinds of intelligences — verbal and logical-mathematical. But there are other intelligences too that need to be focused upon. They are — visual or spatial, bodily or kinesthetic, musical, interpersonal and intrapersonal, and its foundations are set by music, theatre, dance and poetry. These foundations, when integrated with education, result into better analytical and cognitive skills among children and also provide them with a space for exploring themselves. It is the responsibility of the education system to ensure faith among the students that they can forget their insecurities when they enter the classroom and can come out of the closet to meet what they really are.

Creating a happy atmosphere in class is important in winning the trust of the students. And nothing does it better than music and dance. The students of my class had their first dance on 'Dekho-dekho kya ye paed hai' from the film Taare Zameen Par. Every time we danced, we discussed about coordination, new steps that were to be included, lyrics and rhythm. The students learned to listen, meditate, understand, comprehend and connect the lyrics with the real world. They learned to produce it

themselves, figuring out their interests and passion. Music does wonders by creating an imaginative world for the students.

I acknowledge that art reaches those students, who are not otherwise reached by the usual teaching methods. It transforms the learning environment and leads to balanced development in the students. Storytelling, for instance, becomes a form of expression for them, full of colours and learning, which teaches them about leadership, teamwork and spreads smiles too. In general, the students love to draw and I tried experimenting with it, figuring out if it can be used as a medium of education. The class was divided into four groups and each one came up with its own story, teaching a moral lesson, later to be painted on a chart paper in a dialogue form. The students prepared dialogue versions of paintings dealing with issues from child labour to domestic violence. It not only disclosed issues that bothered them but also taught them the skills of ownership, taking initiatives and respecting other's perspectives. Their confidence got a boost as their paintings were exhibited at the community mela organised by the school.

With all these experiments and experiences, I realised that art can be a milestone in creating empathetic humans. The sense of openness that many lose within the four walls of a classroom does not teach the students acceptance and confidence and they are raised within the sheer rigidity of schedules and stereotypes. They are taught to question but not to themselves. They are taught to learn but not about themselves. They experiment in science labs but not with what they like. Hence, they end up losing themselves as they grow, which is evident from the increasing number of frustration, depression and suicide cases among students.

Practices to be Followed for Inculcating Arts into Education

- Every student has one's own way of expressing. Hence, the teacher must not be limited to just one medium and explore activities in music, poetry and theatre too, so that the students can choose to express themselves through rhythm (music), words (poetry) or actions (theatre).

- Start devising your own methods to integrate art into education like theatre is a wonderful way to teach 'Reading comprehension and speech'. The dialogues and the frequency of speech in theatre help improve the reading skill of the students.

- Poetry creates a hidden but secure vent for the students. At times, it permits them to release negative emotions, leading to mental healing.

- Do not treat art as a different subject, otherwise the students will not use it as a form of expression but end up running after grades or marks for this too. Art goes

beyond what already exists. A teacher's role should be to develop young minds through exploration, discovery and creativity.

- The focus must be more on expressing and learning rather than assessment.

- Make dance an exploratory experience for them. Let them experiment with the steps and encourage them to contribute in the dance steps. Dance helps in coordination and inculcation of discipline among students as they memorise the choreography (steps), rehearse and practise in groups.

- Let them decide a social issue and mentor them to create drama to spread awareness about it. Guide them to write their own dialogues, deciding their speech and actions. Ask them to use objects, props and resources, leading to creative impulses. Dorothy Heathcote's innovative approach to education, 'Mantle of the Expert', describes drama as taking on an enterprise with the class functioning as people running a project, which can take few weeks. Their role in a fictional context brings a sense of responsibility to learning.