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About the Journal

The Primary Teacher is a quarterly journal brought out by the National Council of Educational Research and Training (NCERT), New Delhi. It carries articles and research papers 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 received 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.

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EDITORIAL

As the well-known author Oliver Wendell Holmes once said, "The human mind, once stretched by a new idea, never regains its original shape", ideas such as inclusion, equitable quality education and promotion of life-long opportunities have taken root only in the past century, although they are by now quite widespread. The present issue of the journal addresses this notable advance in educational thought through a range of articles that will hopefully 'stretch' the minds of the readers.

This issue of *The Primary Teacher* presents an insight into these aspects of education.

Education being a fundamental right is essential for achieving an equitable society. Each country has its own particular aims and objectives of education according to the needs and aspirations. However, among those, one common objective is to relate the knowledge acquired in the classroom to combat real-life issues and concerns. Estimation is one such skill that is essential for problem-solving and decision-making. It is not simply about memorising facts and figures, but about being able to think critically and creatively to find solutions to problems. The first article titled, 'Estimation in Classroom Settings' by Rinki Tiwari and RC Patel aims to implement the conceptual understanding of classroom knowledge to different circumstances, highlighting the scope of estimation in the curriculum and the role of teachers in enhancing the estimation ability of students.

The second article 'Impact of Narratives on Migrant Students at the Primary Level: An Analysis of NCERT English Text (*Marigold Series*) from Classes I–V' by Rince Raju and Devendra Rankawat focuses on migrant students and the impact of migration narratives contained in NCERT primary school textbooks. Today, it is not uncommon for individuals, and even families and large groups to relocate to places away from their hometowns to find work. Therefore, migration and the challenges concomitant to it, are also inevitable. In this scenario, it becomes important to handle the education of children, especially in multi-ethnic and multi-cultural classrooms. With this in mind, the paper attempts to examine the English language textbooks from the perspective of migrant students. It analyses how study material can also have learning implications for children from different communities.

Emergent literacy skills are the foundational skills that children develop in the early years of their lives, which prepare them for reading and writing.

These skills include oral vocabulary, comprehension, and phonemic awareness. There is a growing interest in the use of multi-modal interventions to advance these skills using multiple modalities, such as text, images, audio, and video, to engage children's learning among which the use of digital storytelling is the process of creating and sharing stories using digital media. The third article titled, 'Exploring Digital Storytelling as a Pedagogical Tool for Emergent Literacy Skills' by Noyonika Gupta and Arushi Sharma investigates the effectiveness of a multi-modal intervention using digital storytelling and art to advance emergent literacy skills and foster parental engagement in the learning processes amongst children aged 3–6 years. The study has important implications for the use of digital storytelling and art-based pedagogies in elementary schools, particularly in low socio-economic contexts.

Gifted children have exceptional intellectual, creative, or artistic abilities. They can thrive in any classroom setting, but they may need additional support to reach their full potential. They often face a number of challenges, including underachievement, boredom, and social isolation, and it is therefore essential that primary school teachers are equipped with the knowledge and skills to meet their needs. The fourth article, 'Strategies for Gifted Students: Exploring Primary School Teacher's Approaches' by Soniya Antony and R. Ramnath explores the perspectives of elementary school teachers on how they meet the needs of gifted children in the classroom from different angles in order to develop and implement effective gifted education programmes and practices in schools across India.

Teachers well-being is a complex concept that encompasses a range of factors, including physical health, mental health, emotional well-being, and job satisfaction. Teachers face a number of challenges in their work, such as high workloads, demanding students and parents, and limited resources. These challenges can lead to stress, burnout, and other mental health problems. Teacher effectiveness is also a complex concept that encompasses a range of factors, such as teaching skills, classroom management skills, and student achievement. Effective teachers are able to create a positive and supportive classroom environment, engage students in learning, and provide students with the necessary support to succeed. The fifth article, 'Well-Being and Teaching Effectiveness of Primary School Teachers' by Smitha Mathew and Vasuki N aims to investigate the relationship between teacher well-being and teacher effectiveness among primary school teachers. The findings of this study have important implications for schools and policymakers.

Games have been used in education for centuries, but their role in the classroom has changed significantly in recent years. Games can make learning

experiences more realistic for learners, and they can help students learn about teamwork, values, and the blending of a variety of skills. With the rapid shift towards digital or online games, teachers have new and innovative ways to engage their students and promote learning. The sixth article, 'Games in Education: Exploring the Perception of School Teachers' by Faiza Altaf and Ali Haider investigates how teachers use games in the classroom and how they see the role of games in the educational process. The findings of this study may be useful to teachers, teacher educators, curriculum designers, and other stakeholders who are interested in using games to enhance learning.

The conceptual understanding over rote learning and learning-for-exams is of utmost importance, and to develop conceptual understanding in learners, teachers need to use a variety of strategies and techniques in the classroom. These techniques should be chosen according to the learner's mental level, needs, and interests, in order to make the learning process interesting and engaging. One such technique is mind mapping. It is a visual thinking tool that can be used to brainstorm, organise ideas, and solve problems. It is an effective way to help learners to see the relationships between different concepts and to develop a deeper understanding of the material. The seventh article titled, 'Mind Mapping: An Effective Learning Technique' by Bindu Saxena discusses the benefits of using mind mapping in the classroom and how teachers can use this technique to develop conceptual understanding in their learners.

Improving the quality of elementary education is one of the most important goals of any educational system. Assessment that supports student, learning is essential for achieving this goal. Assessment can be used to identify students' strengths and weaknesses, track their progress over time, and inform instructional decisions. Technology has the potential to revolutionise assessment in elementary education. It can be used to make assessment more useful, effective, and relevant. By using technology to create more engaging and interactive assessments, provide immediate feedback to students, and collect and analyse data on student progress over time, teachers can better identify and support student learning. The eighth article, 'Using Assessment for Effective Learning' by Sandhya Sangai, discusses assessment and its types and how to use technology to make assessment more useful, effective, and relevant in elementary schools.

The core element in all academic discourse is pedagogical practice. Pedagogical practice refers to the methods and techniques that teachers use to teach and promote learning. One of the most important aspects of pedagogical practice is teacher-student interaction. In order to engage

learners actively, to interest them in the content, to guide them to correct their mistakes and to make them independent learners, teachers need to regularly interact with students. The ninth article, 'Teacher-Student Interaction: Direct Instruction versus Suggestive Instruction' by Kapila Parashar provides a clear and concise overview of the importance of teacher-student interaction in academic discourse. It also highlights the key benefits of teacher-student interaction for learners, such as creating a positive learning environment, providing opportunities for learning from the teacher's expertise, and helping to develop communication and social skills.

Mathematics is the study of patterns and relationships. It is a universal language that can be used to describe and understand the world around us. Mathematics being the foundation of all knowledge, allows us to solve problems, make predictions, and make informed decisions. Mathematics is often thought of as a difficult subject, but it is actually very creative and rewarding. When we learn mathematics, we are learning to think critically and creatively. The last article, 'Mathematisation: Channelising Children's Enthusiasm for Developing Concepts in Mathematics' by Roohi Fatima discusses how it can be used as a powerful tool to solve problems, make decisions, and understand the world around us. It is also a fun and engaging subject that can be enjoyed by people of all ages. Making mathematics relevant and accessible to children will help them to develop a lifelong love of learning mathematics.

The journal also includes its regular features. One of the four features is the 'Book Review' of Sudha Murthy's book, *Grandma's Bag of Stories*, which is a collection of 22 short stories, that celebrates the power of storytelling and the importance of family and tradition. The stories are told through the eyes of a grandmother, who shares the stories that her own grandmother had told her when she was a child. The author wanted to preserve her own childhood memories and to share the rich culture and traditions of India with her readers along with wanting to teach children important lessons about life through the stories. The book is beautifully illustrated by Priya Kuriyan, bringing the stories to life.

Another feature, 'My Page' highlights the author's story of an encounter with slum children and their way of life, as well as insights on how they make sense of the education that is given to them. It elaborates on how her personal interaction with them has altered her perception of education once and for all.

Flowers are a source of joy and beauty for people of all ages. However, in our busy lives, we often take them for granted and do not bother to learn

their names. In the feature, 'Did You Know', the author provides descriptions of some common flowers along with their pictures. It is intended to be a resource for teachers, parents, and other adults who want to help children learn about and appreciate flowers.

The last feature, 'From the States', is about the *Nagaland Heritage Series* textbooks for Classes I to VIII by the government of Nagaland as an initiative towards preserving and introducing mother tongue in schools, in line with the guidelines of the National Curriculum Framework (NCF) 2002. It is a commendable effort and can benefit future generations of Nagas to learn and appreciate their mother tongue. It will contribute to promote Naga culture and identity.

— Academic Editors

1

Estimation in Classroom Setting

Rinki Tiwari*
R. C. Patel**

Abstract

Each country has its particular aims and objectives of education. Those objectives are contextual as per the country. But one common objective of most of the countries is to relate the knowledge acquired in classroom to combat the real-life issues and concerns. One important topic which comes to the scene is estimation. It involves clear understanding and application of knowledge for problem solving. This paper is an attempt to implement the conceptual understanding of classroom knowledge to different circumstances, scope of Estimation in the curriculum and teachers' role in enhancing the estimation ability of students are the points highlighted in this paper. Estimation focuses on the process rather than product. It assumes that if process can be given a right direction, product itself will shift toward perfection.

Introduction

Since time immemorial India has focused on education. In earlier times, this was provided in the setting of *Gurukul*. This setting has no boundry walls, it is all to be learnt in ground facing the real-life situations. Moreover, the Vedic period writing materials were rarely used. All was done in head and then verified through discussion among the peers and with the teachers. The modern education system follows a completely different approach. In the theoretical knowledge delivered in the classroom, the topic of estimation is an attempt to view knowledge as converted to understanding, which then goes a step further in implementation for solving a problem.

Ability to estimate an attribute of physical quantity may have its link with other aspects like knowledge, understanding, application of

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different concepts and attitudes, etc. Study of these aspects, from different perspectives, requires due attention for detailed investigation (Ramacharya, 2006). Estimation requires that several ideas be firmly in mind:

- the unit of measure;
- the size of that unit relative to familiar objects or to other units of measure for the same attribute;
- other measurements in that unit; and
- a commitment to perform the estimating so that the product is as close to the actual measurement as possible.

Thus, although estimating is guessing, it is educated guessing. Bright (1976) is of view that among the advantages to giving children experience with estimation is a growth in their ability to understand and use of concepts. Hence, estimation is divergent in nature with various components in its process to deal a problem effectively.

Conceptualisation of Estimation

Estimation is an educated guess, where estimator tries to get as near as possible to the actual answer. To be a good estimator, prior experience proves to be a major contributing factor. "The skill of making an educated guess as to the value of a distance, cost, size, etc., or arithmetic calculation" (Clayton, 1996).

The output or product in estimation comes with a value and unit. It is of immense significance, as both value and unit should be adequate in approximation. It involves no tool, as estimators' senses, perception and processing of the stimulus complete the picture for output. "A process to reach a measurement or measure without the help of measuring tools. It corresponds to a mental process that includes visual or manipulative aspects" (Bright, 1976). This definition gives clarity of the concept of estimation. It is a skill which involves a stimulus as perceived by the estimator, processed in the brain and product comes as an estimate value along with the unit. This stimulus is perceived by different sense organs as visual (eye-sight), audio (ear-hearing), olfactory (nose-smell), tactile (skin-touch) and gustatory (tongue-taste).

The first requirement of the act of perception, in fact, is the experience of stimuli which may be environmental conditions, guidance or instruction offered by some external agent, or any phenomena such as size, weight, shape, colour, texture and smell which the individual experiences. The experiencing of these stimuli "direct and immediate contact" (Piaget, 1950). These stimuli are organised, interpreted, related to one another, compared with previously experienced sensations and given meaning. When a sensory experience occurs, all past sensory experiences are called into play to resolve the present experience.

What result is an organised, unified whole, some-times called a percept, which is stored to be used in the interpretation of later stimuli. Perception operates simultaneously with sensation and is the source of all concepts and mental activity.

Problem Solving through Estimation

Estimation is an essential thinking skill which enables observer towards problem solving. There is a significant correlation between estimation competency and problem-solving ability. To confront a problem, the ability to estimate the feasibility is greatly helpful in the process of finding a practical solution. The NCTM (2000) state "the essence of problem-solving is knowing what to do when confronted with unfamiliar problems."

Gagne (1980) emphasises the criticality of problem-solving to scientists and practitioners in many disciplines, while stating that problem-solving is a primary factor in and consequence of learning. An individual gains new knowledge through the articulation of and expansion of their cognitive structure. This enhanced cognitive structure, then serves as the foundation for information search and processing as well as in problem-solving (Gagne, 1977); Gagne and White, 1978). Polya (1973) created the four-step approach to problem-solving in order for students to be able to learn 'how to think,' not 'what to think' or be told 'what to do'. Polya (1981) described the scientific method as "Guess and Test" and suggested that teachers should encourage pupils to guess with the exhortation.

Estimation too is an educated guess with instructions as imperative in estimation. Estimation starts with a perception of what is to be estimated. What is the dimension of the problem which is to be estimated? Processing of the stimuli takes place in the mind where they eventually begin to internalise that some attributes of objects are measurable, while others are not. What are the known features of the problem based on prior knowledge? Is the existing problem exactly the same as that of confronted in the past? Students try to find a suitable referent benchmark depending on the prior experiences. If the student can find some benchmark exactly same, then it can be applied readily. How was the previous problem solved? Once the student is able to recall the approach, a progress can be made. Or, what if it is slightly different? Then the benchmarks that would suit the problem through some modifications. Other strategies can be worked upon, such as re-composition or decomposition of the problem, where atleast a part of the problem should be tried to solve by regularising a problem by assuming regularity and then averaging.

The result of estimation must seem to fit and be reasonable to serve the purpose. Unless and until one finds a reasonable estimate, one should work

with some better modifications to be more accurate in their estimation (Siegel, Goldsmith & Madson,1982). Students with good estimation skill have multiple strategies available to them. Thus, they are not only more likely to have a repertoire of strategies available to them, but they are also more likely to choose the strategy most appropriate to the situation. Selection of best strategy assures estimation towards perfection. The problem itself should help the estimator in forming mental image and hence in processing of best suited strategies in the mind. Simple previous problem is used as a base to solve complex ones. An individual widens the horizon of their existing cognitive structure through accommodation and assimilation of new ideas to the existing ones. This enhanced cognitive structure then serves as the foundation for problem-solving. A complex cognitive structure provides the opportunity to apply previous learning to existent problems and to integrate new learning that are relevant to future problems.

Estimation as a Skill

Calculators can give you every possible answer to the question at hand, yet it is up to the user to distinguish a correct answer from an erroneous. However, many engineers and experts from spatial field have hardly learned the skill of estimation. Too often, inexperienced problem solvers will take an answer or group of answers as correct, without checking to see if the answer even makes sense.

Another significant use of estimation lies in the area of answer cross checking. Then the problem solver recognises how absurdly low the answer is or degree of accuracy of the estimated value. A third application of estimation lies in the area of making modifications in the approach towards a problem, further arm oneself with improvised strategies. For example, if one happens to have only a single value for a particular problem, and if one puts it in parallel with another similar problem, what effect would be expected? How large the effect is expected to be? The answers to these questions are speedily found by estimation, which is much quicker than exact calculation.

A final, but very important advantage to learning the skill of estimating is that, to estimate well, one must truly understand the entire system. An exact calculation only requires that one choose the correct equation and provide the correct values for all variables: the source of the values does not need to be understood, nor does their relation to the system as a whole. Even the equation does not need to be understood for an exact answer to be found; one need merely “plug and chug” (Lunt & Helps, 2001). A rough estimate often carries more credibility than an answer with many digits of resolution, simply because there is

clarity on the steps of reaching the estimate; there may not be clarity of understanding an equation or complicated calculations.

Inculcation of Estimation Skill through Science Subject

Estimation is the process of making an approximate calculation or judgment of a value, quantity, or result. It is a valuable skill to have in many areas of life, from everyday tasks to complex tasks related to science. The Standards (1989) views that estimation should not be added as a topic but should instead be integrated across many areas of the curriculum. The Third International Mathematics and Science Survey (TIMSS) (Schmidt et al., 1997) criticised curricula that were "a mile wide and an inch deep." It highlights that a superficial coverage of many topics in the domain may be a poor way to help students develop the competencies that will prepare them for future learning and work. Estimation measurement is a concept that has not been investigated in depth, and in which difficulties have been detected in the learning of the students (Jones, Forrester, Gardner, Grant, Taylor and Andre, 2012). Estimation will further develop perceptive ability (Hogan and Brezinski, 2003).

Vernon, 1971 gives in-depth detail of estimation in different aspects of life. Often, we find situation where use of any specific tool is not possible. Some of Vernon's points are highlighted in below the following description. These have extensive pedagogical relevance for the initial years of schooling.

Role of Estimation in the Concept of Movement and Speed of an Object

Piaget found that children perceive movement at an early age, and in a practical age, and also learn to estimate speed of movement in a practical way so that they anticipate and avoid moving objects. But below the age of 8 or 9, the children were apt to be influenced by in their judgements of the extent of movement by the total situation in which the movement occurred and were unable to analyse out its essential features.

For example, when two objects which started at the same point were moved, one along a straight path and the other along a very crooked path, a child asked to make the first one go as far as the second usually stopped the former opposite to the latter, regardless of the different lengths of two paths. Here, he was unable to single out features essential to making the judgement correctly. Relative speed was also little understood. Two objects arriving at the same place at the same moment were judged to move equally fast, no matter when or where they started. If two objects were made to rotate in concentric circles, starting and finishing at points opposite to one another, the children either thought that they moved at the same speed;

or that the object on the inner circle moved faster because it had less to do. These observations show that practical estimates of movement are not necessarily the same as abstract concepts and verbal formulations are related to it (Vernon, 1971).

Role of Estimation in the Development of the Concept of Shape

Vygotsky analysed that children of 5–6 years did not scan figures systematically. Their gaze was often directed irregularly over the field and even wandered outside it; or it was 'centrated' upon a particular part of the field. This might result in overestimation of the magnitude of the part 'centrated'. But at 6 or 7 years, the children explored the figure systematically, comparing one part with another and perceiving more accurately the inter-relationships of the parts of the figure. Hence, it appears that below a certain age children are not able to analyse shapes correctly, giving due weight to the general structure and relating detail to it. The tendency to ignore spatial orientation may indicate the child's inability to analyse what he/she perceives, to separate out certain aspects and to give them due weight.

Role of Estimation in the Concept of Velocity and Distance

If two objects at different distances move to and fro with equal velocities across the field of view in a direction at right angles to the line of sight, the angular velocity of the nearer object will be greater than that of the farther because the distance moved by the nearer subtends a greater angle at the eye than does the distance move by the farther. An observer usually perceive that such objects are at different distances, by virtue of these different velocities and after some consideration observer may be able to estimate which is the nearer and even estimate their distances apart. The same effect may be obtained if the objects are stationary and the observer moves his head from side to side (Vernon, 1971).

Role of Estimation in the Concept of Movement in Relation to the Surrounding and the Body

If a person is sitting in a stationary train and another train to one side is moving past, the person would tent to perceive the latter train as stationary and the train in which he is seated as moving. This is particularly likely to happen if the moving train cuts out most of our view of the surrounding; it then forms the background which we assume to be stationary. This is a complex instance of the process of estimating the relative distances of objects by perceiving their relative speeds of movements across the field (Vernon, 1971). Superficial coverage of all topics in a subject area must be replaced with in-depth coverage of fewer topics that allows key concepts in that discipline to be understood.

Teacher's Role in the Development of Estimation Skill Among Students

Estimation was treated as a predictive hypothesis, in a vague and superfluous way, as a process failing to produce satisfactory answers to solve situations that only a measuring tool would be able to answer. Forrester and Piké (1998) observed that in the teachers' speech in the classroom there was a significant separation between measurement and estimation. Teachers confused estimation of measurement with measurement itself, using non-standard units of measurement. Teachers consider that the estimate of measurement is a superfluous task, like a guess. At the same time, there are studies that claim that teachers' work in estimating measurement is superficial and that they do not feel confident about working with students (Lang, 2001).

Their exist shortcomings as identified by international mathematics studies regarding the teaching skills of teachers on the estimation of measurement (Chamorro 1996, 1998; Joram, et al., 2005; Forrester & Pike, 1998). Providing opportunity to students in classroom is a prior responsibility of teachers. It can not be denied that the curriculum has scope to certain degree for estimation, then it is of immense importance to nurture the skill of estimation among students and widen its scope. Certain duration of time must be assigned for activities on estimation in classroom, with aim of development of various approaches to solve a problem and refine those approaches through different and relevant strategies. McAleer (2017)proposes eight steps to implement an effective estimation plan, as mentioned below:

(i) Establish a Routine— It is important to establish a routine, so that students can rely on regularity and learn to expect this type of practice everyday. Pick a time daily or weekly to devote to estimation.

(ii) Provide Students with a Way to Show Their Thinking and Keep Track of Their Estimations Over Time— If students finish quickly, "How did you get that answer? Is there a different way you could think about it? How did you know to do that?" Students should be given a chance to make high and low estimates. These estimates can be discussed in a class. After discussion, the students should be given chance to settle on their choice to see where their numbers fall between the high and low estimates. It is important to ask students to justify their choice. This is not a quick process. Some students will take more time than others. On first-hand, time duration taken for estimation should be considered secondary while priority should be to see students' thinking.

(iii) Give Students Ample Time to Reason on Their Own—Never rush the process. Depending on the richness of the task, the students should be given time to think on their own

for at least five minutes. This time gives them the opportunity to—(i) make sense of the information they have, (ii) develop an approach or strategy to find a solution, and (iii) develop a justification for their estimation.

(iv) *Display the Estimations in a Meaningful Manner, So That All Students can See all Estimates*—Provide an area in the classroom for students to display their estimated value. Students write their estimates anonymously on a sticky note and place it on a number line, which can either contain or not contain a scale. Hence to reason, students should be made to place their estimates relative to those already on the wall, thus offering a chance to develop their estimate sense.

(v) *Throw Out or Disregard any Estimate that is Unreasonable and Explain Why*—Whenever a student proposes an estimate that is believed to be unreasonable, they must also state why: "I think _____ is unreasonable because _____." Then it should be debated and discussed.

(vi) *Discuss Students' Strategies and how they Evolved*— Students should be made to share their estimation strategies, and also the class should be allowed to ask clarifying questions and agree or disagree with any of the reasoning.

(vii) *Allow Time for Students to Adjust their Estimations as the Discussion Progresses*—After the class discussion, the students should be allowed and encouraged to update their choices. It is important to encourage students to rethink their process along the way.

(viii) *Reveal Answers, Discuss Why the Answer was or was not Surprising, and How Students Could Adjust or be more Effective with their Estimations*—The answer is not as important as the process. Where did our process lead us? What did we learn from our approach? What could we change in the future to be more accurate?

Use of proper instructions is effective in estimation. In a study by Ibe (1973), estimation before measuring serve to be one of the instructional treatments for one group, while the other treatment involved measuring without estimation first. The estimation treatment proved to be superior to the measurement only treatment on transfer, estimation and achievement. As estimation involves use of strategy, teaching of estimation strategies reinforces and elaborates the fundamental structural concepts of measurement (Osborne, 1980). The strategies applied in estimation help to clarify concepts of different subjects such as mathematics and science. This strategy can be a result of prior experiences.

Language plays an important role in the articulation of estimation. Usually, a good estimator applies numerous strategies to come to a

conclusion. They also frequently and easily switch from one to other type of strategy in-order to come with best answer. While in case of poor estimator, it is usually found that they limit themselves in the use of strategies. In both the cases sometimes it is difficult for the estimator to explain their used strategy. So, it becomes the teachers' responsibility to encourage students to use language in every step of their inquiries. Their perception and thought process must be articulated together. The exploration of their strategies towards estimation motivates the students and enhances their confidence in their own ideas. Teacher should take care to go for activities dividing some for each student, some for small group of four or five students and some for the whole class. Indeed, teacher should provide opportunity to each student to express their strategy towards a problem. Everyone for sure would come up with their unique approach, and hence it can stimulate someone else's strategy.

Further, estimation is a reflexive methodology through which teachers themselves might wish to examine the processes and procedures that might constrain or facilitate learning in conversational contexts (Forrester, 1991). Each student should discuss their strategy towards a problem, they must also pay attention to the discussion by other students. during the discussion some questions to focus are how did they reach to the response? Why did they use the particular strategy: how do they know about such referents? Teacher can also manipulate the problem and ask the student to respond using the same strategy. These will further help students to deal with divergent situations in real life. They must learn to generate a process for estimation. They can enrich their process by altering or switching to other better forms by incorporation of the best parts. They can learn from trial and error, and hence march towards perfection. So, these practices help teachers to gain insights into the processes of learning by the students, the understanding level as well as the maturation level of the students. It also reveals the manner in which teaching procedures might facilitate or constrain learning.

Mode of Assessment in Estimation

Assessment related issues are in some sense unique. It is different from other assessment issues. Estimation is considered to be best on the basis of its nearness to the perfection. It is quite a difficult approach. In estimation, no answer is considered to be incorrect as each involves estimation. Undoubtedly, the degree of correctness varies in each response from Good Estimator to Poor Estimator.

The question format is significant. Assessment tools are usually either multiple choices which have options with varied degree of proximity to the actual answer, i.e., from far to near to

nearest. For example, a rectangle with a length of 15 cm and a breadth of 10 cm has an area of 150 cm^2. Hence the options can be (a) 145 cm^2 (b) 180 cm^2 (c) 100 cm^2 (d) 120 cm^2. The best answer would be option (a) while others are correct to varying degree. Next assessment format involves the questions with multiple based options which are to be compared with the original object mentioned in the question. For example, one-inch object in a pencil box: (a) blade of a sharpener (b) ruler (c) pen (d) un-sharpened pencil. In such case, it becomes quite convenient for the estimator to estimate as materials mentioned in the options are of day-to-day use. One more question format is the open ended type. For example, what is the mass of a tennis ball? Write the value along with its unit. In this format, estimator is free to respond as per their understanding, but they get no idea or some sort of limiting boundaries to confine their response as no options are provided. It sometimes results in vague answers, that indicates poor level of implication of the conceptual knowledge.

Further, at the initial level students can be provided with easiest form of assessment format where the nature is known to them beforehand. The format of open-ended type might prove to be quite abstract in nature with no hint towards answer. It is also possible that an open-ended format might be a better choice in terms of allowing maximum freedom for responses (Reys & Bestgen, 1981). This is not always the case as open ended test might fail to measure students' ability with respect to any strategy but rounding (Schoen, et al., 1986). Thus, it shows that assessment tool specifically with its format is major contributor in classifying estimator to be good or poor.

Conclusion

Classroom environment must be enriched with opportunities of application of knowledge. Estimation should be inculcated to an extent where one tries to approach to a problem first without use of any tool or later assure their answer through estimation. The more estimation is valued, in our daily life, the more development one feels for it and hence better try to make strategy involved in estimation.

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2

Impact of Narratives on Migrant Students at the Primary Level: An Analysis of NCERT English Texts (Marigold Series) from Classes I–V

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Abstract

This paper focuses on migrant students and the impact of narratives contained in NCERT primary school textbooks on these children. Today, it is not uncommon for individuals, and even families and large groups to relocate to places away from their hometowns to find work. Therefore, migration and the challenges concomitant to it, are also inevitable. In this scenario, the education of children, especially in multi-ethnic and multi-cultural classrooms, calls for delicate handling. As the NCERT follows a uniform syllabus, it is important to look at the text from the angle of migrant students as well. Such an analysis will bring out how study material can also have learning implications for children from different communities. For this purpose, this study investigates the narratives in primary school textbooks Marigold Series, NCERT and talks about the impact on migrant students.

Introduction

The human race began its journey as nomads and has criss-crossed the entire face of the earth in search of better lives. The most recent form of this movement is fuelled by a politico-economic phenomenon hailed as globalisation. In the wake of the unimpeded movement of people, goods, and services across borders, there has emerged a complex pattern of migrating individuals and consequently formation of migrant communities at both inter-national and inter-state levels. In the case of India, inter-state migration is increasing every year, and so, gaining significance in cultural-economic terms. The number of internal migrants in India was 450 million as

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per 2011 census. This is an increase of 45 per cent over the 309 million recorded in 2001. Internal migrants as a per centage of the population increased from 30 per cent in 2001 to 37 per cent in 2011. Therefore, the challenges posed by such an inter-mixture of cultures, ethnicities, religions, languages, value-systems, etc., call for especially accommodative inter-cultural frameworks so that the migrants and the host may live symbiotically and peacefully.

One challenge concomitant to such migratory patterns is the education of migrant children. The National Council of Educational Research and Training (NCERT) play a vital role in school education in the country. It develops the National Curriculum Framework, and syllabi for various subjects. The NCERT also develops textbooks which states/ UTs may use as they are, or adapt to contextualise the history and heritage of the States/UTs. These, however, should be designed as not to put migrant students at a disadvantage.

This paper attempts to highlight the impact on migrant students of the narratives in NCERT textbooks for primary classes. As already highlighted, the movement of people within and outside the country has drastically increased in the last two decades. Over this period the intake of migrant students in schools has also increased. This has naturally resulted in the formation of diversified classrooms—students of diverse ethnic groups with diverse mother tongues, diverse cultures, religions, etc. This paper investigates how the narratives in the NCERT primary school textbooks affect migrant students.

Impact of Narratives on Childhood

"Narrative imagining – story – is the fundamental instrument of thought. Rational capacities depend upon it. It is our chief means of looking into the future, or predicting, of planning, and of explaining." - Mark Turner

Stories are what monlds a child's mind. They frighten them, they make them wonder, they tell them of good and bad, right and wrong, what to love, what to hate, what to look up to, and what to look down upon. In a way, the kind of stories children hear largely form their character and their outlook on life. In the context of India, the tradition of narratives goes far back into the past; for instance, Somadeva's *Kathasaritsagara* and Vishnu Sharma's *Panchatantra*—among others—make up a long history of narration. One underlying principle of this long tradition is the belief that children learn best through illustration. Therefore, the kind of illustration given to them is of key importance. Even Plato, despite his distrust of poets, had allowed the use of panegyrics and hymns. This was a strong acknowledgement of the appeal of narratives and their impact on young, impressionable minds.

Migrant Students in India

India, as we all know, is a country of diversity. It is multi-religious, multi-lingual, multi-cultural. Even the states within India are so distinct that the different regional cultures are worlds in themselves. Migration is an important phenomenon within our country. People migrate in search of jobs and greener pastures. The pattern is usually marked by rural-to-urban and town-to-city migration. Increasing urbanisation of city centres has forced migrants to go there in search of better opportunities. Along with the migrants their children also get dislocated from their place of origin and face various challenges in the host society.

Challenges Faced by Primary School Migrant Students in Learning NCERT Texts

Adjusting to a new society is always a challenge. It involves finding one's bearings in a new world altogether. The difference may range from food habits and clothes to value systems and the very outlook on life. Therefore migrant children become especially vulnerable as far as educational practices are concerned, and teaching material acquires an added importance. Migrant children are disadvantaged in terms of enrolling and attending school and are at a lower grade for their age with the disparity deepening with age progression. Hence, the selection of prescribed material needs to be done carefully.

Impact of Narratives on Migrant Students

Migration brings with it a host of challenges, even more so for children in migrant families. As a result, they stand exposed to all the external stimuli in a more obvious way. Therefore they need a very meticulously designed teaching material so that their outlook on life may be forged in a difference-friendly manner. In this process, the narratives served to them should necessarily be of the type that hail diversity, and promote love and respect for all, regardless of their differences.

An analysis of some of the stories from the Marigold series will make this point clear. A casual selection of narratives might unwittingly impact some children negatively. For instance, the narrative titled *Wonderful Waste* relates the story behind the curry dish *avial*. According to the story, the king of Travancore arranged a grand dinner, and so earlier in the day, the king visited the kitchen to survey the preparation. Noticing some vegetable scraps in the waste-basket, he ordered the cook not to waste anything. Complying with the orders, the cook then washed all the vegetable scraps and prepared a curry using all of them. And the story ends by saying that this newly invented dish became the favourite of the guests who arrived that night. The narrative goes:

Everyone was eager to know the name of the new dish. The cook thought and thought. Then a name came to his mind. He named it 'avial' (pronounced uh-vi-ul). Avial became famous all over Kerala and is now one of the dishes in a traditional Kerala feast. Just imagine, it all came from a basket of waste! (p. 11, Marigold, Class V)

Interestingly, *avial* is an Indian dish with origins in Kerala, although it is equally popular in Tamil Nadu and Karnataka. It is a mixture (in a thick gravy) of 13 vegetables commonly found in the Western ghats. *Avial* is considered an essential part of the main meal (*Oonu* in Malayalam) and is also served as a delicacy in South India. *Avial* is also a mandatory dish served on Onam. And vegetable scraps are never used in the preparation of *avial*. The word *avial* is also used to denote 'boiled' or 'cooked in water'—this sense is derived from the way the dish is made.

This dish, a*vial*—has mythological connections also. One among such stories is that:

Avial was invented by Bheem during the Pandavas' exile. According to the legend, when Ballava (Bheem's name during this time) assumed his duties as a cook in the kitchen of King Viraata, he did not know how to cook. One of the first things he did was to chop up many different vegetables, boil them together, and top the dish with grated coconut. There are mythological variations too. Bheem is said to have prepared *avial* when there were unexpected guests for king Viraata and he was asked to serve a meal to them. There weren't sufficient vegetables for a side dish, so Bheem used whatever was available in the kitchen to make a new dish, which came to be known as *avial*.

When this story (as in the textbook) is narrated to the students in general, the culture of Kerala gets misrepresented and it will create a misconception about Onam and also about Kerala. And to the migrant students from Kerala and other southern states, this narration will adversely affect their emotional well-being. It attributes to them a derogatory name of 'scrap eaters'. When students hear an entirely new story that too in an intriguing manner from their textbook, this will make them feel othered and they will get alienated from the classroom environment.

Either the story should avoid mentioning the names of the state and the curry, or it should be interpreted positively, emphasising the optimum use of resources. This story, other than its cultural aspect, is in itself a reminder of the fact that we humans face some challenges as a species—for instance, the scarcity of resources. The idea creates a sense of solidarity among children from different backgrounds. This

way it can be in sync with the idea of peaceful co-existence of different groups.

'Home consciousness' is the other factor that affects the existence of the migrant in the host society. For migrant students the feeling of homelessness can be traumatic; and so, stories that trigger such nostalgia and distress should be avoided. The introductory chapter of the Class I *Marigold* textbook introduces the idea of 'home' into the minds of students. Since the initial phase of school going is already fraught with discomfort, any trigger to their emotions might as well be avoided at this stage. For the migrant students, the intensity of this feeling and home-sickness might be much higher as they are experiencing a life amidst a group of new people (students and teachers) from another ethnicity, and cultures and with a different language for communication for the first time.

As an introduction to the world of narration, the story of the *Three Little Pigs* in Unit 1 of the Class 1 textbook is meant to be narrated to the students. This story is about three little pigs named *Sonu*, *Monu*, and *Gonu*, who live in houses made of straw, sticks, and bricks respectively. One day a big wolf comes to Sonu's straw house and says, "I will huff and puff and will blow your house down." And so he does. Sonu runs to Monu's house but the same thing happens with Monu's house as well. Thus uprooted from their houses, both Sonu and Monu run to Gonu's brick house where they take refuge because the wolf was unable to blow down the strong brick house of Gonu's.

The story can be interpreted in different ways. The diasporic consciousness of homelessness, uprooting, asylum seeking, past trauma, etc., can be traced from the experience faced by Sonu and Monu. For every migration, there are 'push' and 'pull' factors associated with it. A push factor is the reason that relates to the region the person comes from—something that is pushing them out of their home state. Examples of push factors include lack of economic opportunity and jobs, escape from religious or cultural persecution, natural disasters, war, prevalence of diseases, and political insecurity. And the pull factor is a reason that is related to the destination—something that is attracting them to another state or region. Job opportunities, economic security, freedom, and education, are examples of pull factors. The wolf in the story can be seen as a symbolic representation of the push factor, in the migrant child's point of view the factor that forced them to migrate or to leave their home is represented as the wolf. The narration of the story will remind them of the insecurity they faced in their homes and it will act as a catalyst that triggers their traumatic past. *Sonu* and *Monu*, by the same logic, become the representations of migrant people,

and *Gonu* and his brick house turn out to be the host society where the migrants eventually land. And again the difference between being a guest and being a refugee will be felt towards the end of the story.

The Marxist perspective of this story will create a negative image in the young minds of the young students. Through this story, the class difference is unwittingly brought to the fore. Those who live in straw and stick houses seem to be depicted as the weaker classes and those living in the brick house as belonging to the upper classes —and both may be seen as part of a hierarchy. Hence, it also gives the message that poor people are the vulnerable section and so, forced to live under the wings of the bourgeoisie. They don't have a voice until and unless they build a stronger house than the upper class. Into the pure minds of primary class students, particularly in Class I, this story creates class consciousness and feelings of inferiority based on wealth and the strength of their houses. So the inclusion of this story in the syllabus may be reconsidered in the light of the above argument.

There are other stories that can disturb the minds of migrant students and affect the attitude of the host students toward them. One such story is *Mittu and the Yellow Mango*. *Mittu* is a parrot and he loves to eat mangoes. One day he sees a mango on a mango tree and wants to eat that. He flies down towards the tree, but a crow living in that tree stops him by saying, "This is my tree." *Mittu* is deterred and flies away. On the way back, he sees a red balloon lying under a tree. He picks up the balloon and again flies to the mango tree. *Mittu* approaches the tree and pecks the balloon with his beak. "Pop!" on hearing the loud noise the crow gets scared and flies away from the tree. Thinking that someone with a big gun is after him, he never comes back to the tree. In this way, *Mittu* can eat the yellow mango.

The attitude of a 'host' considering migrants as a threat to their existence can be read into this narrative. The crow in the mango tree is the host and their society, the yellow mango is the pull factor that attracts the 'migrant', represented through *Mittu* the parrot. *Mittu's* urge to get the yellow mango creates competition for better opportunities. And with the tricks of *Mittu* (migrant), the crow (host) gets outwitted and loses the yellow mango for ever. The parasitic approach of migrants is exposed through the story. This will create tension among the host and migrant students. One will start considering the other as a threat. We have witnessed in India the fight between hosts and migrants on sharing the resources. Again, stories with such hermeneutic potential had better be avoided.

Mother, your baby is silly! She is so very childish!

She does not know the difference between the lights in the streets and the bright stars (pp. 81, Marigold, Class III).

Yet another issue is the perception of naivety among children. The story *My Silly Sister* belittles naivety and ignorance. Many studies on diasporic lives point out that, for a migrant in the new society the initial stage of their life will be filled with ignorance and naïveté. This type of narration may result in negative labelling of the migrant students for their lack of comprehension of the host language and cultural beliefs.

Birbal answered, "In times of difficulty, a person speaks only in his mother tongue."

(pp.103, Marigold, Class VI)

Another issue is that of the mother tongue. In the 'note for the teacher' of Class I, Unit 1 it is mentioned that the emphasis in this book is on developing language skills by using the mother tongue in the initial stages. Under this condition, the learning process of migrant students becomes more complex. They don't even have a common tongue to connect with their teacher and fellow students. This will force them into silence and mere nodding of their heads even when comprehension might not have happened. The language barrier of the migrant students calls for the special attention of syllabus designers, for in a country like India it is hard to find a common mother tongue.

Conclusion

The main objective of the researcher is to analyse the impact of narratives based on NCERT primary class texts from the point of view of a migrant student. In this endeavour, it is observed that many narratives in the selected texts carry elements that could disturb the mind of a migrant student. While the story *Wonderful Waste* may present as a cultural misrepresentation, the story *Three Little Pigs* can put ideas of high and low, class differences, etc., into children's minds. In the same way the questioning of ignorance and naivety in *My Silly Sister,* and finally the problem related to choosing the mother tongue as the medium of communication in the initial stage of learning. All these narratives require a review as to their impact on children.

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3

Exploring Digital Storytelling as a Pedagogical Tool for Emergent Literacy Skills

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Abstract

The present study aims to investigate whether a multi-modal intervention using digital storytelling and art can be used to advance emergent literacy skills (specifically Oral Vocabulary and Comprehension), and foster parental engagement in the learning processes amongst children aged 3–6 years. Towards this end, significant positive changes were noted concerning all three objectives. Certain identified features that have possibly contributed to the attainment of objectives include the use of music and jingles in digital stories, frequency of occurrence of certain words in the story, the familiarity of the context of the story, reinforcing words learned through stories by engaging in art activities, child-centric nature of the intervention and adult-child engagement. Despite the positive results, the study suffers from limitations in terms of sample size, composition, and the nature of tools being used. The study has far-reaching implications concerning using digital story-telling and artbased pedagogies in elementary schools for building emergent literacy skills, particularly in low socio-economic contexts.

Introduction

The pre-school years are a phase of life when children emerge from toddlerhood into a world of exploration. These foundational years are of utmost importance in the physical, social, emotional, and cognitive development of an individual. As far as cognitive development is concerned, Piaget describes these years as the pre-operational stage in his theory (Piaget, 1971). While logical reasoning abilities are still not developed, this stage is marked by significant advancements in

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representational activity, as reflected in language, make-believe play, drawing, understanding of symbols–real-world relations, and categorisation (Berk, 2013).

It is during this developmental phase, when advancements in linguistic and representational abilities are at the forefront, that another very important developmental task requires attention,' i.e., 'emergent literacy skills'. Emergent literacy is defined as "the reading and writing behaviours of young children before they become readers and writers in the conventional sense" (Justice, 2006, p. 3). This involves exposure to literacy-rich elements like listening to stories, exposure to printed material, scribbling, or engaging in oral wordplay such as rhyming words (Connor, Morrison, & Slominski, 2006). Exposure to such experiences during early years lays the foundation for literacy and academic development in later life (Bennett, Daniel & Martin, 2002)

Within emergent literacy skills, researchers have emphasised the importance of developing oral literacy skills during these years (Dickinson & Tabors, 2001). Given that the child develops cognitive representational abilities during this stage, it is the ideal time for working on vocabulary skills, language acquisition, and comprehension skills, as the child is developing the ability to identify meaningful relations between the words spoken and the objects in real life, thus acquiring new connections (Kleeck, 2008).

Studies have shown that several factors influence the development of emergent literacy among children (Carroll, Holliman, Weir, and Baroody, 2019; Gunn, Simmons, and Kameenui, 1995). For instance, Guo et al., (2012) in their study suggest that physical literacy environment (book materials, literacy area, and writing materials) and psychological literacy environment (instructional support) results in advancements in emergent literacy skills amongst children over a year. Similarly, parental involvement is an important variable impacting the emergent literacy skills of the child (Sénéchal, Lefevre, Thomas, & Daley, 1998). Researchers have suggested that emergent literacy skills are influenced positively by parental involvement in the child's learning trajectory through engaging in activities like storybook reading, sharing vocabulary words, providing print awareness, and discussing the components of print (Mullis, Mullis, Cornille, Ritchson, & Sullender, 2004).

Furthermore, it is well established that socio-economic factors like family income and parental education level greatly influence the kind of learning environment available to a child (Hammer & Miccio, 2006). This is particularly true in the Indian context, where there is a huge economic disparity between the different income groups. Socio-economic factors can play an important role in determining

a child's access to learning resources like quality of schooling, books, or experiences at home (like availability of private tutors). These factors influence the development of emergent literacy skills among children (Kalia & Reese, 2009).

The most commonly used approach to develop emergent literacy skills is through direct, didactic, academic, and skill-based instructions. This sort of an approach generates pressure to achieve good scores, and oftentimes leads to memorisation of content, without actual learning. Such pressures are observed more among pre-schoolers and kindergarteners hailing from low-income backgrounds (Miller & Almon, 2009). It thus becomes important to explore and experiment with more child-centric, constructivist, and play-oriented teaching pedagogies for emergent literacy skills. Such an approach allows the child to immerse in the process of learning in a manner through which they learn through experiencing rather than memorising. The use of storytelling and art to work on developing emergent literacy skills amongst children is an attempt towards achieving the same.

While story-telling is usually regarded as a relaxing and entertaining activity for children, it also can communicate narrative structures such as the context, plot structure, and characters to the child. For instance, in a meta study conducted by Mello (2001) to understand the effectiveness of storytelling as a pedagogical tool, it was found that participating in storytelling had a positive impact on the student's fluency, vocabulary acquisition, writing, and recall. She also found that story-telling served to improve self-awareness, visual imagery, and cultural knowledge.

Given the rapid advancements in technology, digital story-telling, i.e. storytelling through the medium of different media or software applications, is being widely used in educational contexts. Digital storytelling has been seen as a useful tool that encourages students to engage in discussion, participate in instruction, and support comprehension of content (Kosara & Mackinlay, 2013). It is regarded as a method through which a new theme can be introduced to the learner, building their curiosity to delve deeper into exploring the theme (Simmons, 2006). The use of multimedia elements like background music, jingles, and visual representations in digital storytelling makes it interesting and engaging for children (Robin, 2006). Additionally, the advantage of digital stories is that the instructor can play them as many times as the child wants to listen to them, reinforcing the content being taught, as repetition is an important technique as far as oral literacy is concerned (Kırkgöz, 2018).

Apart from story-telling, engaging in visual arts is another important

activity that has a positive impact on children's development of emergent literacy skills. Engaging in art-based activities like drawing and painting provides children an opportunity to make meaning of what they experience, which might be real or imagined. This ability of meaning-making through representation, symbols, and drawing inferences is an important precursor to literacy (Kress, 1997). Furthermore, multi-modal representation of learning through art, stories, and direct instructions leads to a deeper understanding of the content being taught, as there are multiple opportunities to engage with the content through different mediums (Barton & Baguley, 2014).

Methodology

Aim

The study aims to investigate whether a multi-modal intervention using digital storytelling and art can be used to advance emergent literacy skills and foster parental engagement in the learning processes amongst children aged 3-6 years enrolled at the Anganwadi centre in Mayur Vihar, New Delhi.

Research Question

The following are the research questions for the study:

Does participating in a multi-modal intervention based on digital storytelling and art improve—

(a) the level of oral literacy among children in the age-group of 3–6 years?

(b) the comprehension skills among children in the age-group of 3–6 years?

(c) foster parent-child engagement in the learning processes of the child amongst parents of children in the age-group of 3–6 years?

Research Design

This study followed a quasi-experimental, one group pretest-posttest with a mid-term evaluation research design. The dependent variables in the study are the levels of oral vocabulary, comprehension skills, and parent-child engagement in the learning processes. The independent variable in the study is the exposure to two months long multi-modal intervention based on digital story-telling and art.

Sample

Participants (n=17) belonging to age-group 3–6 years (Mean age= 4.5 years) with nine females and eight males residing in Delhi NCR were selected using the non-probability technique of convenience sampling.

Tools

The following are the tools used for data collection in this study.

Content Based Questionnaire

A questionnaire containing both open-ended and closed-ended questions was administered to assess oral vocabulary and comprehension.

This questionnaire had questions based on an audio story that the field coordinators were required to play, just before administering the tool.

Monthly Checklist

The monthly checklist is a simple six-items checklist administered on the parents, to collect data to the level of parent-child engagement in the learning processes.

Semi-Structured Interview

A semi-structured interview was conducted with the parents to collect data on the level of parental engagement, their observation of the child's engagement and learning, and exposure to art.

Field Observation Notes

The field coordinators who were implementing the intervention on the field were given certain prompts that encouraged naturalistic observation for certain behaviours amongst children and parents. This includes behaviours like the child's level of interest in the intervention, child's clarity of diction, parental involvement, and co-operation. These observations from the field were documented in the form of extensive notes, which then provided insights that were used to supplement the analysis.

Study Procedure

After an extensive review of the literature, the aim of the study, the specific objective, and the nature of the intervention was designed. Thereafter, with the help of the Anganwadi workers, 17 participants enrolled at the Anganwadi centre in Mayur Vihar, New Delhi were selected for this intervention. A baseline assessment of their oral literacy skills, comprehension, and parent-child engagement in the learning processes was conducted. Following this, the participants were provided with a speaker and a secure digital memory card with 30 pre-recorded stories on various topics like our body, hygiene, common animals, plants, five senses, and emotions. A session of the intervention comprised the following steps:

(a) the theme of the story was introduced to the child;

(b) one audio story was played on the USB speaker;

(c) after the story, a conversation was initiated with the child around the theme of the story and the key takeaways; and

(d) the session was concluded with a supplementary age-appropriate activity in the workbook.

Each session was designed to last for 30 minutes. A midline assessment of the intervention was conducted after 30 days of the intervention. Lastly, an endline assessment was conducted at the end of the implementation of the intervention.

Results

The following section elaborates on the results of baseline, midline, and endline assessment obtained through the study.

Oral Vocabulary

Oral vocabulary refers to words that children can understand or use while speaking and listening. For this study, oral vocabulary has been divided into three sub categories— (i) unique words used by the child, which the child picks up from the story, (ii) own words used by the child, i.e., the child's ability to use their language to explain their perspective, and (iii) clarity in speech.

Table 1

Percentage of the Children's Performance in the Oral Vocabulary Domain During Baseline, Midline, and Endline Evaluations

Oral Vocabulary	Baseline	Midline	Endline
Unique words used (from the story)	17.6 %	29 %	88 %
Own words used	29.4 %	100 %	100 %
Diction/Clarity in Speech	35 %	100 %	100 %

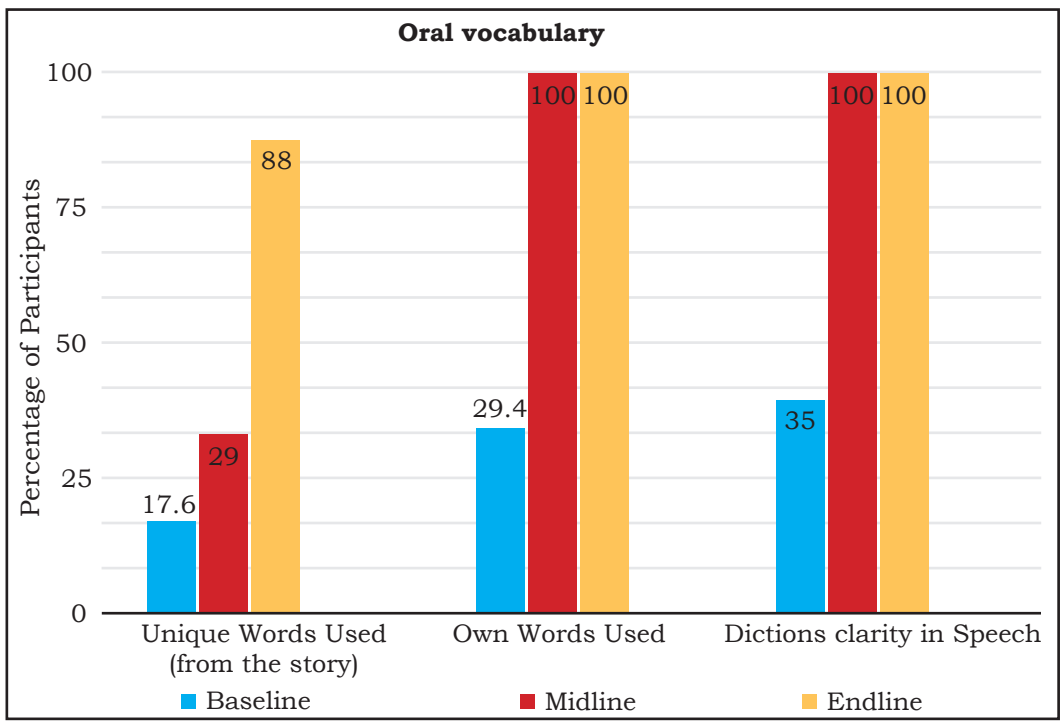

Figure1: Graph representing the percentage of the children's performance in the oral vocabulary domain during baseline, midline, and endline evaluations

Comprehension

Comprehension involves engaging in meaningful experiences that stimulate the development and use of meaning-making strategies (McMunn and Matthews, 2009). For this study, comprehension has been divided into two sub-categories: (i) recall, i.e., ability to recall basic information from the story heard like plot, name of the protagonist, series of events, etc. (ii) forming connections, assimilation, and application, i.e., the ability to connect information learned with everyday experiences, evaluate how one would respond in place of the protagonist of the story and define the moral of the story.

Table 2
Performance on Comprehension (Level 1: Recall) During Baseline, Midline, and Endline Evalutions

Domain	Baseline	Midline	Endline
Correct recall	8.8 %	70.5 %	88.23 %
Incorrect recall	64.7 %	29.4 %	11.7 %
Participant did not Answer	26.4 %	0 %	0 %

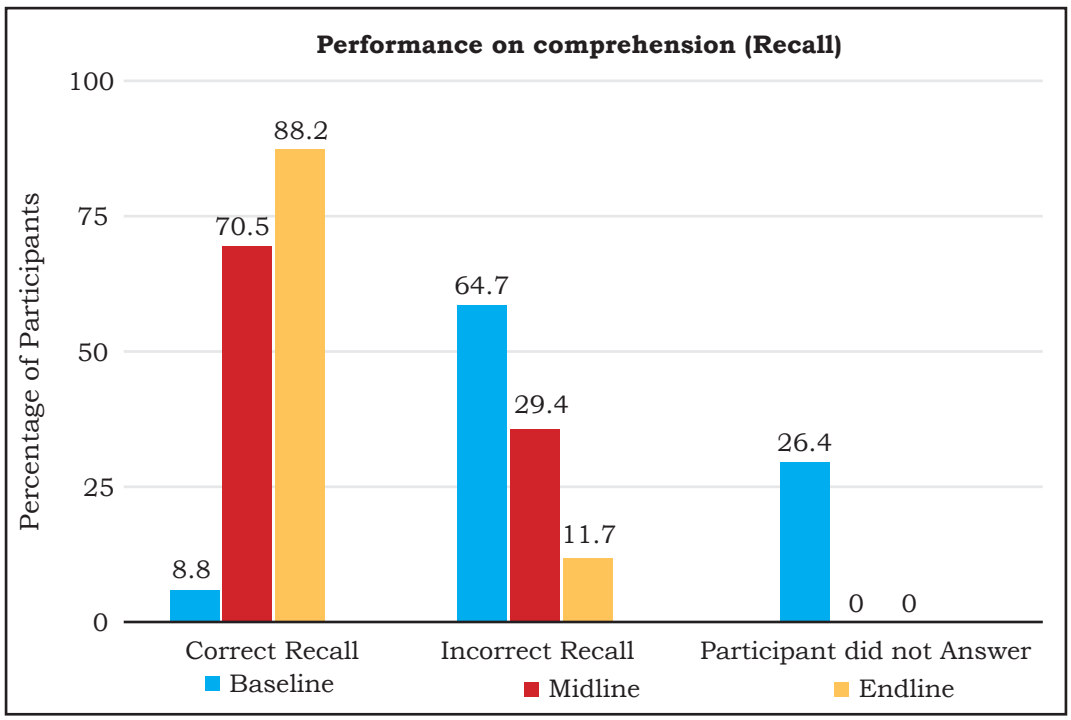

Figure 2: Graph representing children's performance on comprehension (recall) during baseline, midline, and endline evaluations.

Table 3
Children's Performance on Comprehension (Level 2: Forming a Connection, Assimilation and Application) During Baseline, Midline, and Endline Evaluations.

Domain	Baseline	Midline	Endline
Correct response	11.7 %	55.2 %	57.6 %
Incorrect response	49.4 %	29.4 %	30.5 %
Participant did not Answer	38.8 %	14.1 %	11.7 %

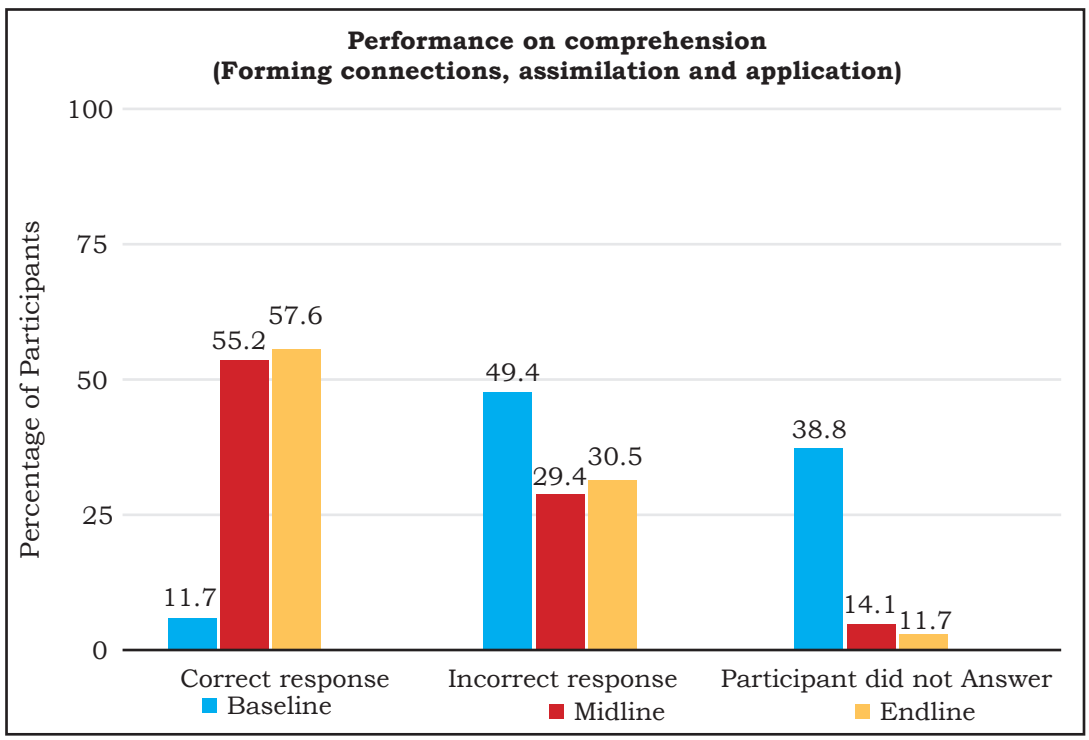

Figure 3: Graph representing children's performance on comprehension (Forming connection, assimilation, and application) during baseline, midline, and endline.

Proxy indicators—Sustained Attention, Level of Interest and Taking Initiative

Integral to comprehension are associated indicators including attention, level of interest amongst the participants and how forthcoming they were during the process of data collection. These proxy indicators were measured in this study to further provide insight into the emergent literacy skills of the participating children.

Table 4
Indicates Percentage of Children Showing Sustained Attention, Interest and Initiative During Baseline, Midline, and Endline

Domain	Baseline	Midline	Endline
Sustained attention	64.7 %	94.1 %	94.1 %
Interest	76.5 %	94.1 %	94.1 %
Taking initiative	5.9 %	17.6 %	47 %

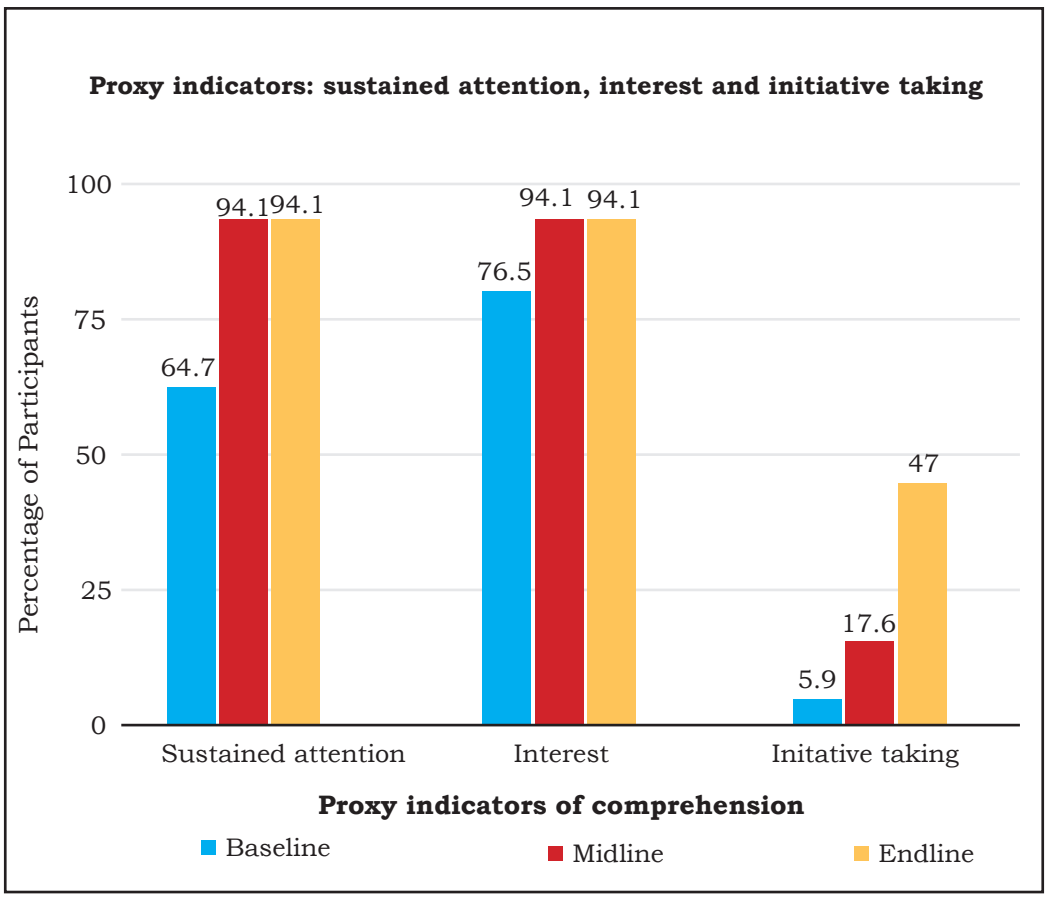

Figure 4: Graph representing percentage of children showing sustained attention, interest and initiative taking during baseline, midline and endline evaluations.

Parent-Child Engagement

Table 5
Shows Percentage of Parents Engaging in Different Activities with their Children

Activities that parents engage in with their child	Baseline	Midline	Endline
Studying	58.8 %	88.2 %	100 %
Watching television/using mobile phone	94.1 %	76.4 %	82 %
Playing	58.8 %	52.9 %	53 %
Drawing	5.8 %	17.6 %	17.6 %
Listening to music	5.8 %	0 %	0 %
Listening to intervention stories	0 %	29.4 %	71 %

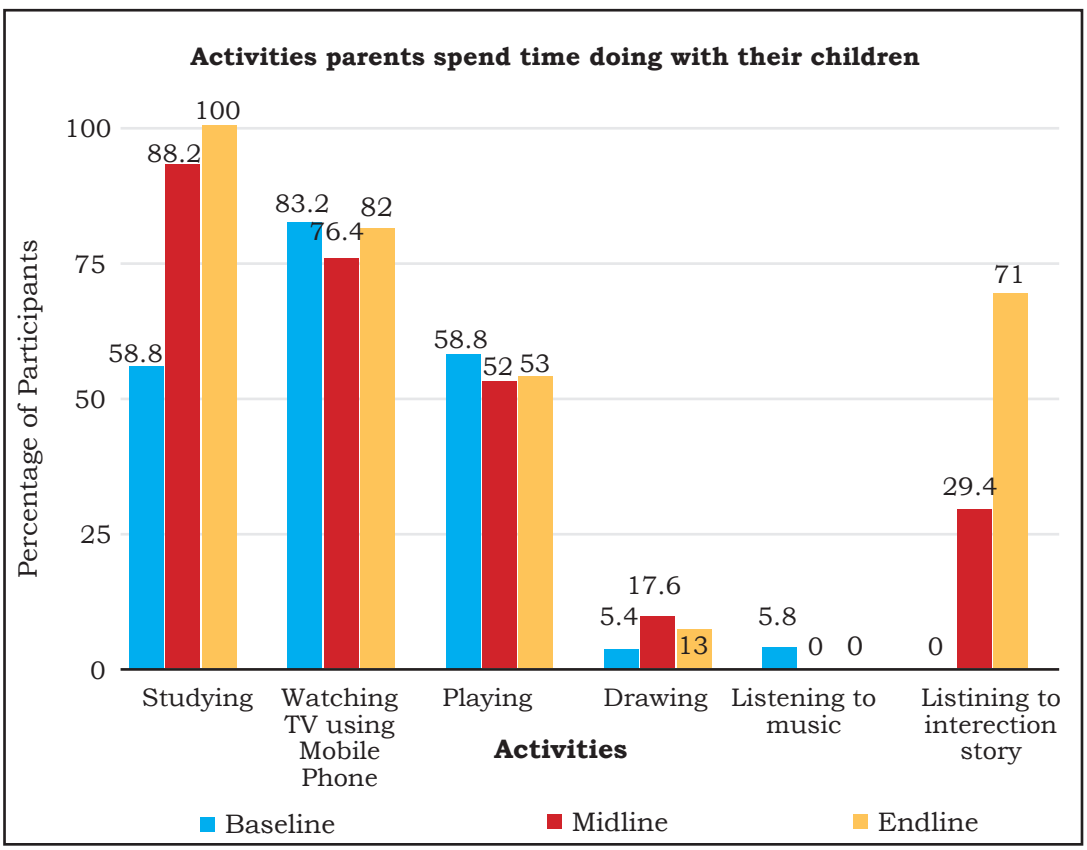

Figure 5: Parent-child engagement during baseline, midline and endline evaluations.

Discussion

The study aims to investigate whether a multi-modal intervention using digital story-telling and art can be used to advance emergent literacy skills and foster parental engagement in the learning processes amongst children aged 3–6 years enrolled at the Anganwadi centre in Mayur Vihar, New Delhi. For this purpose, an intervention was designed and implemented with a selected sample of 17 participants. Impact evaluation data in terms of baseline, midline, and endline was collected and analysed.

The intervention in terms of its modality (digital storytelling and art) and nature (child-centric) was a novel exposure for the participants in many ways. Data collected at the baseline level reveals that while a majority of the participants (70.6%) had been exposed to arts in terms of storytelling, dancing, music and drawing, the source of the exposure was mostly from television and mobile videos (58.3%). Other sources reported by the children included activities in Anganwadi centres or their homes. Thus, while the participants were exposed to art previously, the intervention was the first exposure for many of them to art in a structured manner, in the context of learning and development. Presented below are the findings of the study, concerning the identified objectives—oral vocabulary, comprehension, and parent-child engagement.

Oral Vocabulary

The results obtained suggest that there has been an overall upward trajectory as far as the oral vocabulary skills of the participants are concerned. This involved increased use of words that the children heard in the stories, improvement in using their own words while answering questions, and more clarity in a speech in the endline assessment, as compared to the baseline.

The increased use of words that the participants heard in the stories could be attributed to three specific features of the story. Firstly, the stories were designed in a manner that involved repetition of certain keywords. Repeatedly listening to these words being used in sentences in the context of a story helped the participant not only to understand how the word is pronounced, but also the meaning and usage of the word. Secondly, the stories were designed keeping in mind the cultural context and surroundings of the participants. Thus, the words learned by the participants were associated with their everyday environment, making it easy for them to understand the meaning of the same. Thirdly, the workbook used for art activities after the story-telling session involved activities related to the concepts introduced in the story. The exposure to the newly learned words, through visual representation after listening to the stories, acts as a reinforcement of the words learnt in the session.

Figure 6: An example of an activity included in the workbook, reinforcing concepts learnt through digital story-telling

These findings are in line with the identifiable features of stories that lead to enhancements in vocabulary suggested by Elley (1989) in his research. Elley suggests that children are more likely to learn new words through story-telling depending on the frequency of occurrence of the word in the story, the familiarity of the context of the story, and the frequency of occurrence of the word in pictorial representation.

Further, researchers have found that oral literacy skills are best developed through a combination of social interaction and direct instruction (Dugan, 1997; Craig, Hull, Haggart and Crowder, 2001). Discussions with the participants on the main theme of the story, after listening to the story, encouraged them to practise using the linguistic skills that they picked up from listening to the stories. This might have led to improvement in using their own words while answering questions, and also more clarity in speech.

Comprehension

Based on the results obtained, it can be concluded that there has been a general increase in the comprehension abilities of the participants, throughout the intervention. The data collected and analysed concerning comprehension has been understood keeping in mind the five-stage model of effective listening and comprehension given by DeVito (2000). It is important to note that all the stages of the model are interdependent, and the effective completion of one stage positively impacts the next.

In the context of the intervention, receiving of information is related to the intentional focus on listening to the story being played, and activities

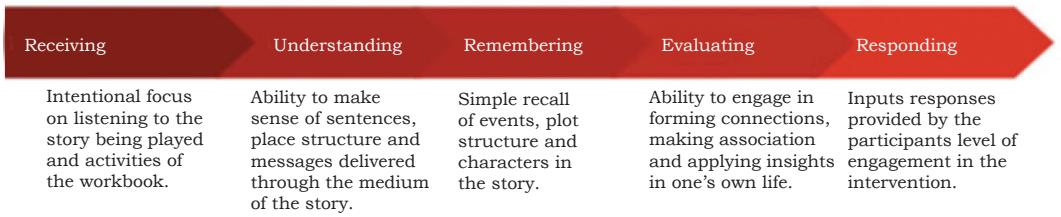

Figure 7: Diagram representing DeVito's model (2000) about the intervention

of the workbook. Indicators for this include the percentage of participants showing sustained attention, i.e., the ability to maintain focus on relevant stimuli with repeated presentation over extended periods (Sarter, Givens & Bruno, 2001), and interest, i.e., favourable attitude and desire to attend to the story and activities. Based on the observational data collected, it is observed that there has been an increase of 45.4 per cent increase in participants showing sustained attention from baseline to midline, with the same figures being maintained at the endline (Fig. 4).

Similarly, the percentage of participants showing interest in the stories and the activities of the intervention increased by 23 per cent from baseline to midline, with the positive change being sustained till the endline (Fig.4). This advancement could be attributed to several factors such as the audio jingles and music in the digital stories (Requejo, 2016), the child-centric and engaging nature of the intervention (Van Gils, 2005), or familiarity with the context of the story, making it more relatable and thus more interesting for the child.

The second stage of effective listening and comprehension is understanding. In the context of the intervention, it refers to the ability to make sense of sentences, plot structure, and messages delivered through the medium of the story. Enhancements in oral vocabulary, as discussed above, play a major role in this step.

The third stage of the model, i.e., remembering, refers to the simple recall of events, plot structure and characters in the story. The results obtained suggest that there has

been an increase of 79.4 per cent of participants can give correct answers to questions that required recalling simple information from the story (Fig.2). This increase could be attributed to the successful completion of the above mentioned steps of receiving and understanding, as indicated by increases in sustained attention, interest and oral vocabulary.

The next stage of the model is evaluating. This can be conceived as a deeper level of comprehension as indicated by forming connections, making associations and applying insights in one's own life. Results suggest that there has been a 45.9 per cent increase in the number of participants can provide relevant responses to questions that involve them, to form connections, make associations, or apply learnings to their own lives (Fig.3). This is in line with the findings of Kosara and Mackinlay (2013), who suggest that digital story-telling is an effective mechanism for teachers to engage with their students, to promote the comprehension of the story's messages, involve them in discussions that help children make sense of their experiences and perceptions, besides fostering imagination and creativity.

The last stage of the model corresponds to responding. Two indicators, i.e., percentage of participants who do not answer during the impact evaluation and percentage of participants who show initiative, provide interesting insights about this stage. It is noteworthy that there is a drop in the percentage of participants from baseline to endline who do not respond to the facilitator's questions for both recall-related questions (26.4% decrease) and deeper level comprehension questions (27.1% decrease). This decrease in percentage could be attributed to several direct intervention-related factors (like better comprehension, enhanced oral vocabulary, greater interest) and indirect factors (rapport with the facilitator, enhanced confidence due to familiarity with the process, etc.). Lastly, the proxy indicator of level of initiative also supplements the understanding of this stage. There is a 41.1 per cent increase in the percentage of participants who are observed to be forthcoming, and willing to take initiative in the sessions. This increase directly corresponds to higher levels of engagement in the intervention, and thus reinforces comprehension skills.

Parental Engagement in the Learning Process of the Child

Based on the results, it is observed that there is a shift in the kind of activities in which parents engage with their children. During the baseline, the maximum percentage of parents engaged in watching television and playing games on mobile phones (94.1%) with their children. However, in the midline, it was observed that a greater percentage of parents engaged in studying (88.2%), drawing (17.6%)

and listening to the intervention stories (29.4%) with their children. By the end of the intervention, 100 per cent of the parents got involved with the child's studies, and 71 per cent listened to the intervention stories (Fig. 7). Thus, it is observed that the engagement of parents throughout the intervention, changed from activities like watching television, to activities that required more involvement of the parents like studying with the child, drawing, and listening to the intervention stories.

Parental involvement has been regarded as an important variable impacting language development and emergent literacy among children (Bus, Van Ijzendoorn & Pellegrini, 1995). Regular participation of parents in activities like reading, listening to stories or other literacy related tasks have been found to have significant positive influences not only on reading achievement, language comprehension and expressive language skills (Gest, Freeman, Domitrovich & Welsh, 2004), but also on the interest levels, attentiveness and attitudes towards reading and literacy development in the classroom (Rowe, 1991).

Furthermore, research literature has indicated that parental involvement in the child's literacy development is a more powerful predictor of success, when compared to other family background variables, such as social class, family size and level of parental education (Flouri and Buchanan, 2004). Lastly, researchers have also suggested that the earlier parents become involved in the child's literacy practices, the more profound and long-lasting effects are observed (Mullis, Mullis, Cornille, Ritchson and Sullender, 2004).

Limitations of the Study and Future Direction

Notwithstanding the positive results, the present study suffers from certain limitations. The first limitation is related to the small sample size (n=17) which makes generalisability and replication of the study difficult. The second limitation is related to the nature of the tools used for data collection. The tools used were self-constructed, thus lacking validity and reliability. However, this decision was taken to make the tools simple, easy to administer and relevant to the context of the participants, thereby eliciting quality data. Additionally, the researchers had no control over the extraneous variables such as the motivation, mood or attitude of the participants that might potentially affect the results obtained.

Recommendations for future research include replicating the study with a large sample size, such that the results are generalisable. The intervention can be conducted with different populations (belonging to rural backgrounds or different socio-economic status) to evaluate the effectiveness of the intervention. Lastly, the impact of the intervention on other variables like perspective taking, social-emotional development or interpersonal skills can be explored.

Conclusion

Overall, it was concluded that the participation in a multi-modal intervention using digital story-telling and art led to significant positive changes concerning oral vocabulary, comprehension and parental engagement amongst the sample of children, aged 3–6 years. Despite the positive results, the study suffers from certain limitations in terms of sample size, composition and the nature of tools that were used. The study has far-reaching implications concerning using digital story-telling and art-based pedagogies in elementary schools for building emergent literacy skills, particularly in the context of lower socio-economic backgrounds where a rich literacy environment may not be available.

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4

Strategies for Gifted Students: Exploring Primary School Teachers' Approaches

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R. Ramnath**

Abstract

This qualitative study explores how primary school teachers meet the needs of gifted children in regular classrooms. Six elementary school teachers were interviewed using a semi-structured approach, in Malappuram district, Kerala, India. The analysis of the study uncovered six themes that provide insightful perspectives on how primary school teachers perceive and comprehend giftedness. These themes shed light on teachers' beliefs, attitudes, and practices related to gifted children, contributing to a deeper understanding of their perspectives. The themes highlight the multifaceted excellence of gifted students, the amplification of their exceptional qualities, the importance of empowering and nurturing their brilliance, and the need to create enriched learning environments that cater to their unique needs. The findings of this study provide valuable insights into how primary school teachers meet the needs of gifted students, thereby enhancing gifted students' education in regular classrooms.

Introduction

Education for gifted children is a topic of extensive research and discussion. Typically, repetitive curricula present unique challenges for gifted students in formal education contexts. This can cause these students to experience feelings of discouragement and frustration. Unfortunately, the classroom environment does not always encourage students to reach their maximum potential, resulting in insecurity for both students and instructors (Rocha et al., 2017).

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It is essential to recognise and acknowledge gifted children's distinct cognitive, creative, affective, and behavioural characteristics. They have high levels of intellect, cognitive self-awareness, and leadership skills; but they may also be afraid of failure due to the pressure to perform well (Narimani & Mousazadeh, 2010). These children are frequently persistent and ardent learners, but they can also be perfectionists and emotionally sensitive (Clark, 2008). While they may reach early milestones in language, reading, and writing, they may experience frustration when they struggle to meet performance standards and value independence in learning (Altintas & Ilgun, 2016). The field of education acknowledges the need for specialised support to nurture the abilities of exceptional children. These children require assistance from institutions, families, and society to continue to develop (Little, 2012). Well-educated, talented individuals are essential for addressing global challenges and advancing societal progress.

Consistently, the research emphasises the distinctive learning requirements of exceptional students and the need for appropriately challenging instruction (Gallagher, 2013). Without such instruction, gifted students may become disenchanted with formal education and disengaged (Preckel et al., 2015). Many educators lack the knowledge and training necessary to accurately identify gifted students and implement effective differentiation strategies. Significant concerns exist regarding the underrepresentation and under-education of exceptional students from disadvantaged backgrounds, with disabilities, or who face cultural biases (Assouline et al., 2014). These students are frequently overlooked, resulting in a loss of human capital and potential. Identifying and supporting exceptional students from diverse backgrounds is crucial for promoting social justice and prospering economies. Assouline et al, argue that universal teacher preparation in exceptional education is crucial to ensuring that every child has the opportunity to learn and flourish.

Understanding teachers' perspectives and approaches to giftedness is crucial in the Indian context. Exploring the perceptions of primary teachers in India regarding gifted education, including their understanding of giftedness, identification practices, instructional strategies, available resources, and areas requiring additional support, can shed light on the strengths and weaknesses of the Indian educational system. This exhaustive investigation seeks to provide insights for targetted interventions and policies that improve the provision of quality education to exceptional students in India. Educators, policymakers, and researchers can work together to ensure that gifted children in India receive the education they need to

realise their maximum potential and contribute to the advancement of society as a whole.

Literature Review

Gifted Education in India

In India, the primary challenge in gifted education revolves around the absence of suitable policies and identification criteria. Unfortunately, gifted education in the country tends to be accessible primarily to students from affluent backgrounds. Consequently, children from underprivileged and economically disadvantaged families face significant obstacles in accessing gifted education opportunities. This disparity results in a substantial gap in gifted education provision within India. In the context of India's vast and diverse population of 1.21 billion people, which encompasses various cultural and linguistic backgrounds, the inclusion of gifted education in the formal educational policy is yet to be realised. Although research on giftedness in India has been conducted for the past 50 years, it lacks a systematic and empirical foundation. Until recently, the term 'gifted' was not commonly used in the Indian context, with most studies focusing on creativity instead (Roy, P., Güçyeter, S and Zhang, S. Z., 2017). While talented children in India may be recognised by their families and schools, formal identification and support for giftedness are sporadic and often depend on the child's selection for limited gifted programmes. The scarcity of comprehensive information and a database regarding programmes, policies, practices, and outcomes in gifted education in India hinders accurate evaluation and review (ibid, 2017).

Teachers' Perception of Gifted Education

Teachers play a crucial role in the development of gifted children, both academically and holistically. Gifted students need well-informed, trained, and supportive teachers. Positive views of giftedness and gifted education affect teaching. To meet teachers' requirements and recognise their best practises, it is important to evaluate their comments (Kettler, et al., 2017). Different giftedness theories emphasise general intellectual ability, domain-specific talents, creativity, and talent development (Sternberg and Kaufman, 2018). Teachers' perception of giftedness is shaped by their education, training, philosophy, and experiences with regular and gifted students (Kettler et al., 2017b; Margrain and Farquhar, 2012). Teachers generally see talented children as having superior cognitive, social, and physical skills (Moon and Brighton, 2008; Yazici et al., 2017). Gifted students are known for their thinking, knowledge, reading, problem-solving, creativity, friendliness, and leadership (ibid). Preschool gifted education programmes face a shortage

of policies, skilled professionals, resources, and time (Kettler et al., 2017). Due to worries regarding children's growth and emotional maturity, several pre-schools are hesitant to start gifted programmes (Margrain and Farquhar, 2012).

Despite these hurdles, instructors know talented children's specific needs and behaviours must be addressed (Cosar et al., 2015). Teachers feel gifted education should be considered special education and that professional development training improves attitudes and skills (Margrain & Farquhar, 2012; Vreys et al., 2018). Some teachers use observation and evaluation to identify talented students, whereas others feel unprepared and offer extra help (Senicar & Senicar, 2018; Konrad & Gabrijelcic, 2015). Conflicting views and concerns about differentiation and curricular alignment make enriched learning environments for talented children difficult (Grant, 2013; Kettler et al., 2017). Teachers value emotional security and strong social interactions and believe in encouraging talk and peer engagement (Grant, 2013; Margrain & Farquhar, 2012). Early childhood gifted education programmes are understudied (Kettler et al., 2017). Most researches examine talented preschoolers' identification, features, and educational programmes. Teachers help talented toddlers develop, and their training, attitudes, and views are crucial to effective educational interventions. Addressing obstacles and creating meaningful learning settings for brilliant youngsters is crucial.

Research Questions

1. How do primary school teachers perceive giftedness and gifted students in the context of regular classrooms?
2. What strategies do primary school teachers employ to meet the advanced learning needs of gifted students who are integrated into their regular classrooms?

Methods and Methodology

In the present study, the researchers utilised a phenomenological methodology to generate insightful results. Phenomenological research is a qualitative research method that seeks to describe individuals' lived experiences. This method emphasises on comprehending the specific phenomena that have influenced an individual, as well as how that individual perceives and interprets those phenomena in a given context. It enables researchers to investigate the similarities and shared behaviours of a group of individuals. By employing the phenomenological method, the researchers were able to investigate the unique perspectives and experiences associated with the investigated topic.

Interview Process and Participants' Selection

In the study, the researcher utilised a semi-structured interview approach

and employed the purposive sampling method for participant selection. The interviews were conducted in a duration ranging from 30 to 45 minutes. During the interviews, the interviewer utilised probing questions to elicit detailed and insightful experiences from the participating teachers. A total of six primary school teachers from Malappuram district of Kerala state took part in the study, all of whom had more than five years of teaching experience. Two teachers had seven years of teaching experience and were currently teaching Class II students. Three teachers had 13 years of teaching experience, and the classes they taught varied from year to year. One teacher had 23 years of teaching experience, with the past 18 years dedicated to teaching Class I students. These teachers were selected as participants based on their extensive experience in the field, which provided valuable insights into the topic under investigation.

Data Analysis and Deriving Themes

In the data analysis process, the researcher employed five steps: meaning unit, condensed meaning unit, code, sub-theme, and theme. By following these steps, the researcher was able to analyse the data, identify codes, and arrive at the main themes that captured the primary findings of the study.

Table 1
A Model of Analysis Deriving Codes and Themes

Meaning Unit	Condensed Meaning Unit	Code	Sub Theme	Theme
How would you define giftedness in the context of primary school education? R1: "Giftedness in primary school education refers to students with exceptional	"Students who display exceptional abilities and talents in various domains, including intellectual, creative, artistic, leadership and social skills."	"Emphasising that giftedness means recognising and encouraging each child's unique gifts and strengths."	Multidimensional talent	

abilities or talents in specific areas. These students frequently have outstanding problem-solving and creative talents. Identifying and cultivating these skills is vital to provide suitable educational opportunities and challenges."				
R2: "As a primary school teacher, giftedness extends beyond academic success. It comprises kids with remarkable intelligence, creativity, leadership, and social skills."			Beyond academics	
R3: "Giftedness in primary school education is not only defined by high IQ scores or academic performance."	"Giftedness goes beyond academic excellence and includes recognising and supporting the diverse talents and strengths of each child".			

R4: "As a primary school teacher, I feel giftedness embraces many abilities and strengths. It comprises students with strong problem-solving, literary, creative, musical, or leadership talents."		"Considering students' advanced intellectual talents, enthusiasm, and willingness to learn."	Passion and curiosity	**Multifaceted Excellence**
R5: "In my experience, recognising giftedness in elementary school students involves a holistic approach. Gifted children are motivated, smart, and eager to learn."	"Giftedness involves identifying students with a deep passion and intense curiosity for specific subjects or areas, and nurturing their enthusiasm for growth and development."	"Gifted children display varied academic, creative, artistic, leadership and social traits."	Holistic approach	
R6: "As a primary school teacher, giftedness is a continuum, not a set group. Student skills and talents vary."	"Giftedness requires a holistic approach, inclusive of students' advanced intellectual capabilities and motivation."			

Table 2
Item Wise Codes and Themes

Items	Codes	Subthemes	Themes
"What indicators or characteristics do you look for when identifying gifted students in your regular classroom?"	"Exceptional critical thinking skills, quick grasp of new concepts, advanced problem-solving abilities, and abstract thinking" "High levels of motivation, curiosity, enthusiasm for learning, and perseverance in pursuing challenging tasks." "Ability to make connections between ideas, thinking from different perspectives, and displaying innovative approaches to problem-solving" "Exceptional talent in specific domains, such as art, music, mathematics, or leadership qualities."	Cognitive abilities and critical thinking Intrinsic motivation and curiosity Creativity and innovation	**Giftedness Amplified**
"Could you describe your experiences in teaching and supporting gifted students who are integrated into your regular classroom?"	"Use of differentiated instruction, advanced materials, and opportunities for independent research to meet the unique needs of gifted students in the regular classroom." "The innate drive and enthusiasm for acquiring knowledge and engaging in deep learning exhibited by gifted students." "Creating a classroom environment	Personalised learning and growth Academic excellence and social integration.	**Empowered Brilliance**

	that encourages collaboration, interaction, and the sharing of perspectives among gifted students and their peers."		
What instructional strategies do you employ to meet the advanced learning needs of gifted students in your regular classroom?	"Tailoring instruction and assignments to meet the specific learning needs of gifted students in the regular classroom." "Providing additional learning opportunities, resources, and activities that go beyond the standard curriculum to challenge and engage gifted students." "Fostering collaboration, discussions, and group projects among gifted students to enhance their learning experience and to promote social interaction." "Creating individualised learning plans and pathways that cater to the unique abilities, interests, and goals of gifted students."	Customised instruction and enrichment Collaboration and social integration	**Empowering Excellence**
"Have you encountered any challenges in meeting the specific needs of gifted students? If so, how have you addressed or overcome these challenges?"	"Providing guidance and creating a supportive environment to address the social and emotional needs of gifted students."	Social and emotional well-being and engagement Academic challenge	**Nurturing Giftedness**

	"Finding and utilising appropriate resources and materials to meet the advanced abilities and interests of gifted students." "The implementation of differentiated instruction and providing advanced learning opportunities to challenge and engage gifted students academically."		
"Are there any specific resources or support systems that you find helpful in catering to the advanced learning needs of gifted students in your regular classroom?"	"Utilisation of a variety of resources, including online platforms, community organisations, and digital libraries, to meet the advanced learning needs of gifted students." "Working closely with parents, other teachers, specialists, and gifted education associations to establish a network of support systems for addressing the needs of gifted students." "Incorporating educational technology, online platforms, and digital tools to provide personalised and differentiated instruction for gifted students." "The importance of attending conferences, workshops, and	Enrichment and depth Resourcefulness and adaptability.	**Empowering Excellence**

	engaging with online communities to enhance knowledge and skills in supporting gifted learners."		
"In your opinion, what additional support or professional development opportunities would be beneficial for teachers to effectively meet the needs of gifted students in regular classrooms?"	"Implementation of instructional strategies and techniques that cater to the unique needs of gifted students in regular classrooms." "Providing guidance and creating a supportive environment to address the social and emotional needs of gifted students" "Recognising and nurturing the diverse talents and strengths of gifted students in various domains."	Pedagogical expertise Holistic support.	**Empowering Gifted Education**

Findings and Discussion

The rigorous qualitative analysis uncovered six themes that provide insightful perspectives on the perceptions of giftedness among primary school teachers. These themes provide valuable insights into how teachers in primary schools perceive and comprehend the concept of giftedness. The identified themes cast light on the beliefs, attitudes, and practices of teachers regarding gifted education, contributing to a greater understanding of their perspectives.

The six themes uncovered by the research provide a comprehensive picture of how primary school teachers perceive giftedness. These themes are significant indicators of teacher comprehension of giftedness and inform their approaches to educating gifted students. By examining these themes, the study provides a complex and nuanced depiction of the perspectives of primary teachers on giftedness and provides valuable insights into the challenges and opportunities associated with supporting and nurturing gifted students in primary classrooms. The main themes are:

1. **Multifaceted Excellence:** Gifted students exhibit a range of exceptional abilities across multiple domains, including intellectual, creative, social, and physical skills (Moon & Brighton, 2008; Yazici et al., 2017). Their excellence goes beyond academic achievements and encompasses various dimensions of talent and potential.
2. **Giftedness Amplified:** Different theories of giftedness emphasise various aspects, such as general intellectual ability, domain-specific talents, creativity, and talent development (Sternberg & Kaufman, 2018). Giftedness is not limited to a single definition but rather encompasses a broad spectrum of exceptional abilities.
3. **Empowered Brilliance:** Teachers play a crucial role in empowering gifted students to realise their full potential and brilliance (Kettler et al., 2017). Well-informed and supported teachers who hold positive views of giftedness can positively influence the educational experiences and outcomes of gifted students.
4. **Empowering Excellence:** Gifted education should be considered a form of special education, and teachers' professional development training is essential for improving their attitudes and skills in catering to the needs of gifted students (Margrain & Farquhar, 2012; Vreys et al., 2018). By empowering teachers with the necessary knowledge and resources, excellence in gifted education can be fostered.
5. **Nurturing Giftedness:** Teachers recognise the specific needs and behaviours of gifted children and acknowledge the importance of addressing these needs in their educational journey (Cosar et al., 2015). Providing nurturing environments and appropriate educational interventions are crucial in supporting the development of gifted students.
6. **Enriching Gifted Education:** Creating enriched learning environments for talented children can be challenging due to conflicting views and concerns about differentiation and curricular alignment (Grant, 2013; Kettler, et al., 2017). However, teachers value emotional security, strong social interactions, and peer engagement as key factors in fostering meaningful learning settings for gifted students (Grant, 2013; Margrain & Farquhar, 2012).

These six themes emphasise the significance of recognising and nurturing the multifaceted excellence of gifted students. Empowering teachers through professional development and support is essential for creating enriched educational experiences that cater to the unique needs of gifted learners. By addressing obstacles and promoting meaningful learning settings, the brilliance of gifted youngsters can be fully realised.

Conclusion

The study investigated the perceptions and strategies utilised by regular teachers in primary schools to meet the needs and demands of gifted students. The findings emphasised the significance of teacher awareness and comprehension of giftedness, as well as the need for professional development and training. The advanced cognitive, social, and problem-solving skills of gifted pupils were acknowledged by

their teachers. The study revealed that teachers use a variety of methods, including observation, evaluation, and differentiated instruction, to recognise and assist gifted students. The creation of enriched learning environments for these students was hindered however by contradictory views and concerns regarding curriculum alignment. The findings highlight the importance of emotional security, robust social interactions, and peer involvement in nurturing the development of gifted students. The study contributes to a deeper understanding of the perceptions and strategies of primary school teachers for meeting the requirements of gifted students, providing insights for improving educational interventions and creating more inclusive classrooms.

Limitations of Study and Suggestions for Future Research

The qualitative phenomenological approach of the study limits generalisability to a wider population. The study was done in Malappuram district, Kerala, which may restrict its applicability to other regions or cultures. Purposive sampling increases selection bias since participants are picked based on particular criteria. A future study should include comparable studies in other regions of India to capture primary school teachers' varying viewpoints and experiences in serving talented children's needs. Expanding the sample size and using a comparison technique with control groups or various schools might improve knowledge. Longitudinal studies can also assess strategy and intervention efficacy. Viewpoints of parents, administrators, and gifted kids' may also shed light on gifted education's obstacles and prospects in the education of gifted children. Finally, studying how cultural and socioeconomic variables affect views and tactics for exceptional kids might deepen our knowledge.

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5

Well-Being and Teaching Effectiveness of Primary School Teachers

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Vasuki N**

Abstract

Teachers who are in good mental health can create an upbeat and friendly atmosphere at school to stop students from having mental health issues and make sure they feel like they belong. How teachers feel psychologically and how happy they are with their job impact how they act. The study attempts to determine the relationship between well-being and teacher effectiveness among primary school teachers in Kerala. For this study, a sample of 200 primary school teachers was selected using simple random sampling. The psychological well-being scale (PWBS) constructed by Dr. Devendera Singh Sisodia and Ms. Pooja Chaudhary (2012) and the Teacher Effectiveness scale by Kumar and Mutha (2017) adopted by the investigator were used for the study. Data analysis revealed a significant positive relationship between the components of psychological well-being and teacher effectiveness among primary school teachers in Kerala.

Introduction

Learning is a never-ending journey. As we grow and our surroundings evolve, it is hard to put a cap on how much information we can take in. Education is all about growing with The times and adapting to societal changes. Teachers are important for communities everywhere. The teacher is the cornerstone of an educational

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system, and the effectiveness of instruction relies heavily on their quality. Teachers do a great job of trying to give kids the best educational experience they can.

An effective and successful teacher can help students comprehend fresh ideas. Effective teachers require many talents and know how to use them in different circumstances. Teachers must be aware of what they need to teach, the different personalities of their students, and how important it is to make smart decisions to keep students focused. Well-being is all about feeling good, both mentally and physically. It is about having a positive outlook, harmony with yourself, and connecting with others. To achieve this, it is essential to take care of oneself and one's relationships. Psychological well-being is associated with a sense of joy, fulfillment, and satisfaction with life experiences, an understanding of one's role in the world of employment, a feeling of accomplishment, usefulness, social acceptance, and a lack of distress, dissatisfaction and anxiety.

Teaching Effectiveness

An effective teacher occupies the most crucial position in the educational system, and teaching efficiency relies on the caliber of traits they embody. The success of teaching effectiveness is determined by how well they established objectives or goals are met. Teaching effectiveness is they teacher's ability to teach effectively which results in the desired behavioural change in the student. Dash and Barman (2016) reported that effective teaching makes learning more meaningful, practical and reasonable. A teacher's effectiveness consists of the effective presentation of what is being taught and the entire classroom environment conducive to learning, thereby ensuring the child's total development (Toor, 2014).

Psychological Well-Being

The term psychological well-being (PWB) refers to favourable mental states like happiness or contentment. It is all about feeling good about oneself and one's relationships with other people. Whether a person is at work, at home, or going through a personal crisis, their psychological well-being is crucial. Working to become healthier, happier, and more fulfilled is an ongoing effort that involves physical, psychological, and emotional well-being. Teachers should do their best to lessen any bad impacts on mental health and foster an overall upbeat and healthy lifestyle. According to Huppert (2009), "Psychological well-being refers to the quality of one's life. It's the combination of feeling well and being able to function well."

Background of the Study

Teachers are currently encountering new difficulties that necessitate increased dedication on their part. Teachers can have different personalities, meaning they will respond to the same situation in different ways, which can influence their ability to teach effectively. The effectiveness of the teachers significantly impacts the teaching-learning process. Only an effective teacher can assist students in forming their perceptions by recognising their problems and managing the classroom environment fairly and equitably. Good (1979) noted that teaching effectiveness could be measured by a teacher's success in fulfilling the duties outlined in their contract and other expected tasks. Teachers must be in good mental health to help their students reach their learning goals. Effective teachers can uncover the potential of their students and guide them towards desirable habits. So, it sounds good to know if any relationship exists between psychological well-being and teacher effectiveness.

Review of Literature

Singh (1993) conducted a study to analyse the correlation between the effectiveness scores of male and female teachers who resided in rural and urban areas. The sample size comprised 330 higher secondary school teachers from rural and urban areas. The results showed that there was no significant correlation between the effectiveness and adjustment of rural teachers.

A study by Gupta (1995) examined the connection between job satisfaction and teacher effectiveness among secondary school teachers. Five hundred sixty teachers from 50 randomly selected schools in the Ghaziabad District of Uttar Pradesh were surveyed for this. The results showed a significant correlation between job satisfaction and teacher effectiveness.

In 2005, Amandeep and Gurpreet researched the correlation between teacher effectiveness and teaching competency. Their results showed no significant difference between male and female teachers regarding teaching competency, but female teachers were more effective than male teachers. Additionally, it was determined that teaching competency is a significant factor in determining teacher effectiveness.

A study conducted by Afsana (2016) examined the mental health and psychological well-being of teachers and lecturers. The study's sample size was 120 individuals, with 60 teachers and 60 lecturers. The study did not indicate a significant difference between teachers and lecturers regarding mental health and psychological well-being.

Comparative research on psychological health and work satisfaction among teachers in public and private schools was done by Zahoor (2015). One hundred school instructors aged between 25 and 58 were chosen for this study's data collection. Government and private school teachers were found to have significantly different levels of psychological wellness and work satisfaction.

Objectives of the Study

1. To find whether there is a significant relationship between life satisfaction and teacher effectiveness of primary school teachers in Kerala.
2. To find whether there is a significant relationship between the efficiency and teacher effectiveness of primary school teachers in Kerala.
3. To find if there is a significant relationship between sociability and teacher effectiveness of primary school teachers in Kerala.
4. To find if there is a significant relationship between mental health and teacher effectiveness of primary school teachers in Kerala.
5. To find if there is a significant relationship between interpersonal relations and teacher effectiveness of primary school teachers in Kerala.
6. To find the predictive efficiency of Psychological Well-being to predict the teacher effectiveness of primary school teachers in Kerala.

Hypotheses of the Study

1. There exists no significant relationship between life satisfaction and teacher effectiveness of primary school teachers in Kerala.
2. There exists no significant relationship between efficiency and teachereffectiveness of primary school teachers in Kerala.
3. There exists no significant relationship between sociability and teachereffectiveness of primary school teachers in Kerala.
4. There exists no significant relationship between mental health and teacher effectiveness of primary school teachers in Kerala.
5. There exists no significant relationship between interpersonal relations and teacher effectiveness of primary school teachers in Kerla.
6. Psychological well-being will not be a significant predictor of teacher effectiveness of primary school teachers in Kerala.

Methodology

The investigator used a survey method for this study. The investigator selected a sample of 200 secondary school teachers in Kerala for the present study using a simple random sampling technique.

Variables Used in the Study

Psychological well-being is taken as the independent variable, and teacher effectiveness is taken as the dependent variable.

Population and Sample

The population consisted of all the primary school teachers in Kerala following the Kerala state syllabus. The sample consisted of 200 primary school teachers from various schools in Kerala following the Kerala state syllabus.

Tools Used for the Study

The investigator used the following tools for the collection of data:

1. The Psychological well-being Scale (PWBS) constructed by Dr. Devendera Singh Sisodia and Ms. Pooja Chaudhary (2012) was used.
2. The investigator adopted the Teacher Effectiveness scale by Kumar and Mutha (2017).

Statistical Techniques Used

The collected data were analysed using Karl Pearson's correlation and regression.

Analysis and Interpretation of Data

Hypothesis 1

H0: There exists no significant relationship between life satisfaction and teacher effectiveness of primary school teachers in Kerala.

Table 1
Correlation Between Life Satisfaction and Teacher Effectiveness of Primary School Teachers in Kerala

N	Coefficient of correlation (r)	t	Level of significance	SEr	95% CI Lower	95% CI Upper	Shared variance
200	0.68	13.03	0.05	0.04	0.6	0.75	46.17

The calculated value of r is 0.68 and is significant at 0.05 level. ($r = 0.68$; $p<0.05$). Hence, there is a significant positive relationship between life satisfaction and teacher effectiveness of primary school teachers in Kerala. The value of shared variance is obtained as 46.17. It means that 46.17 per cent of the variance in one variable can be explained by the other variable.

Tenability of Hypothesis

The test of significance of the relationship between life satisfaction and teacher effectiveness revealed a significant relationship between life satisfaction and teacher effectiveness of primary school teachers in Kerala. Hence the null hypothesis formulated in this context is rejected.

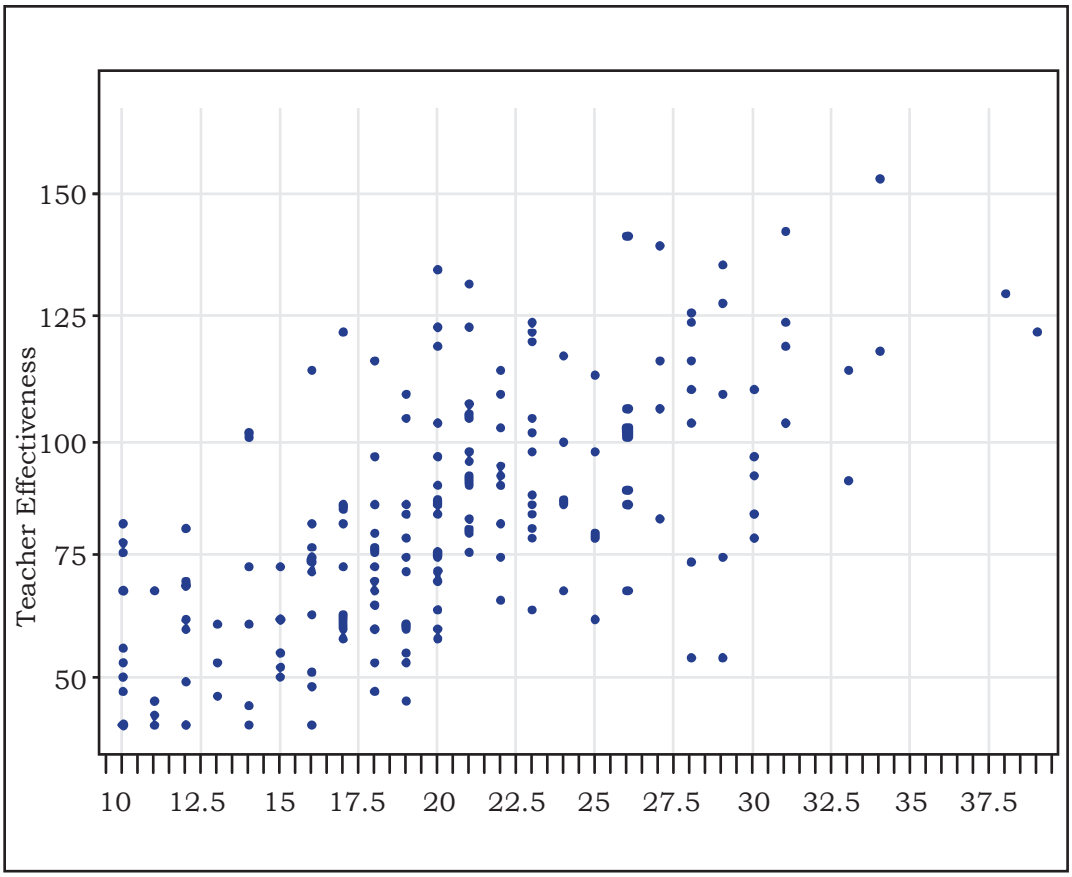

Figure 1: Scatter plot of life satisfaction and teacher effectiveness of primary school teachers in Kerala

Hypothesis 2

H0: There exists no significant relationship between the efficiency and teacher effectiveness of primary school teachers in Kerala.

Table 2
Correlation Between Efficiency and Teacher Effectiveness of Primary School Teachers in Kerala

N	Coefficient of correlation (r)	t	Level of significance	SEr	95% CI Lower	95% CI Upper	Shared variance
200	0.69	13.35	0.05	0.04	0.62	0.76	47.36

The calculated value of r is 0.69 and is significant at 0.05 level. (r = 0.69; p<0.05). Hence it can be concluded that there is a significant positive relationship between the efficiency and teacher effectiveness of primary school teachers in Kerala. The value of shared variance is obtained as 47.36. This means that 47.36 per cent of the variance in one variable can be explained by the other variable.

Tenability of Hypothesis

The test of significance of the relationship between efficiency and teacher effectiveness revealed a significant relationship between efficiency and teacher effectiveness of primary school teachers in Kerala. Hence, the null hypothesis formulated in this context is rejected.

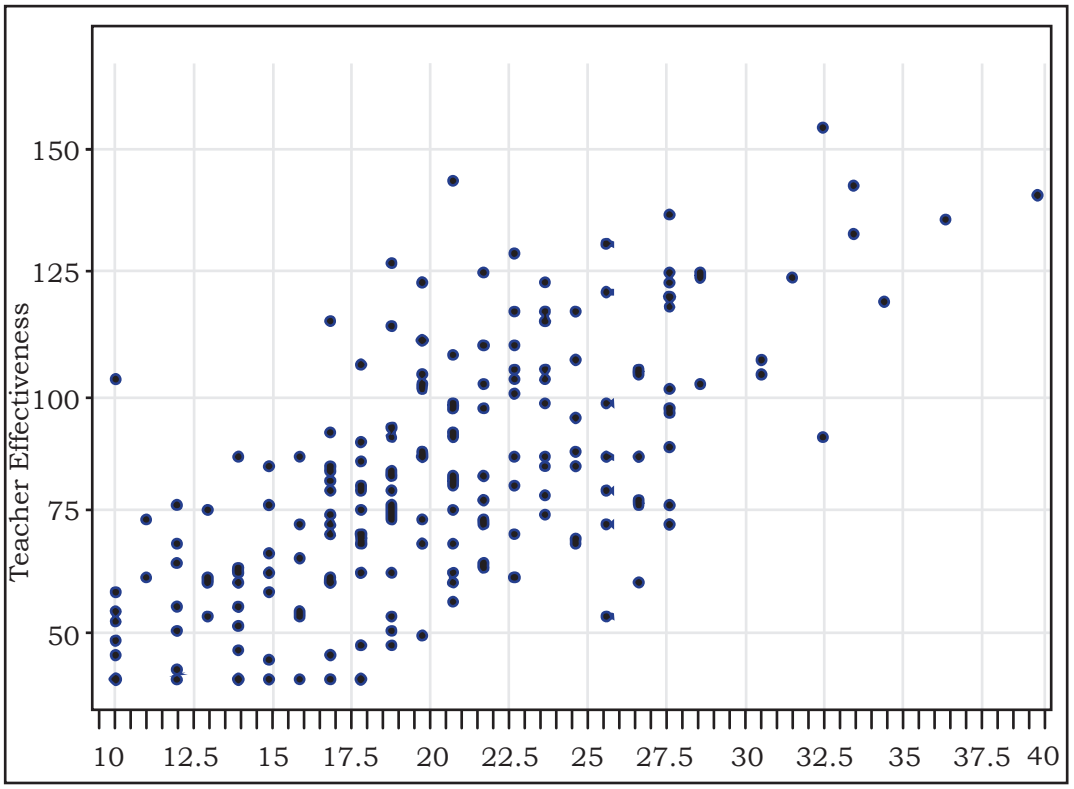

Figure 2 : Scatter plot of efficiency and teacher effectiveness of primary school teachers in Kerala

Hypothesis 3

H0: There exists no significant relationship between Sociability and Teacher Effectiveness of primary school teachers in Kerala.

Table 3
Correlation Between Sociability and Teacher Effectiveness of Primary School Teachers in Kerala

N	Coefficient of correlation (r)	t	Level of significance	SEr	95% CI Lower	95% CI Upper	Shared variance
200	0.69	13.56	0.05	0.04	0.62	0.77	48.13

The calculated value of r is 0.69 and is significant at 0.05 level. (r = 0.69; p<0.05). Hence, it can be concluded that there is a significant positive relationship between sociability and teacher effectiveness of primary school teachers in Kerala. The value of shared variance is obtained as 48.13. This means that 48.13 per cent of the variance in one variable can be explained by the other variable.

Tenability of hypothesis

The test of significance of the relationship between Sociability and teacher effectiveness revealed a significant relationship between Sociability and Teacher Effectiveness of primary school teachers in Kerala. Hence the null hypothesis formulated in this context is rejected.

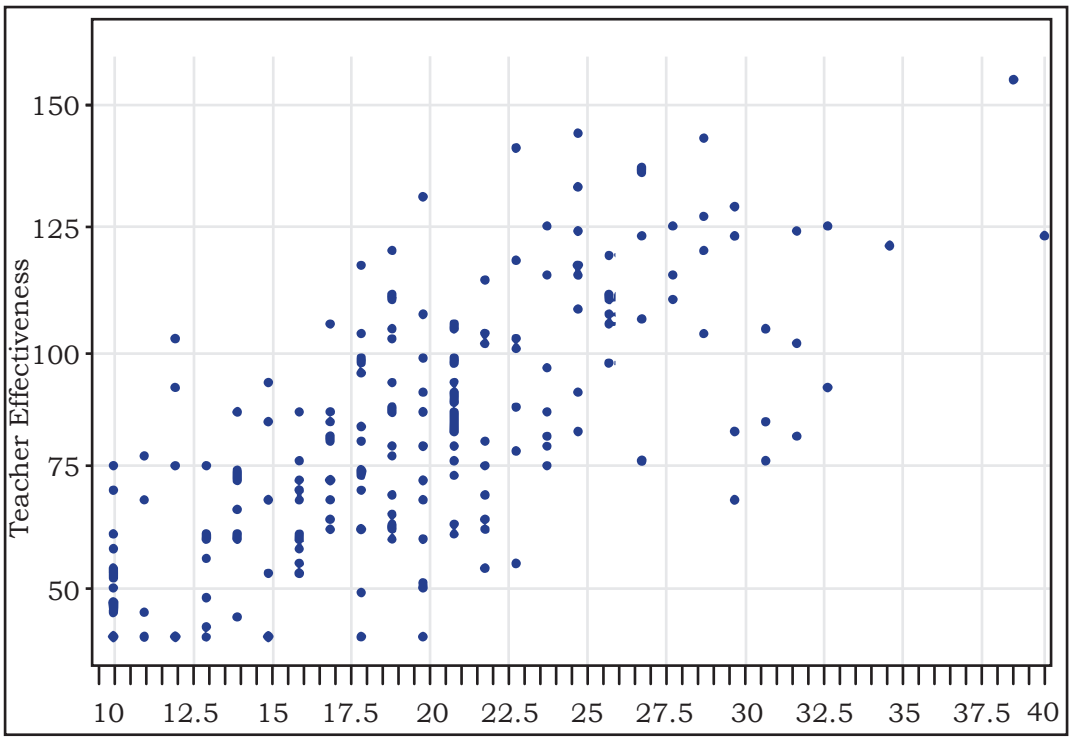

Figure 3: Scatter plot of sociability and teacher effectiveness of primary school teachers in Kerala

Hypothesis 4

H0: There exists no significant relationship between mental health and teacher effectiveness of primary school teachers in Kerala.

Table 4
Correlation Between Mental Health and Teacher Effectiveness of Primary School Teachers in Kerala

N	Coefficient of correlation (r)	t	Level of significance	SEr	95% CI Lower	95% CI Upper	Shared variance
200	0.73	15.14	0.05	0.03	0.67	0.8	53.65

The calculated value of r is 0.73 and is significant at 0.05 level. ($r = 0.73$; $p<0.05$). Hence, it can be concluded that there is a significant positive relationship between mental health and teacher effectiveness of primary school teachers in Kerala. The value of shared variance is obtained as 53.65. This means that 53.65 per cent of the variance in one variable can be explained by the other variable.

Tenability of Hypothesis

The test of significance of the relationship revealed that there is a significant relationship between Mental Health and Teacher Effectiveness of primary school teachers in Kerala. Hence the null hypothesis formulated in this context is rejected.

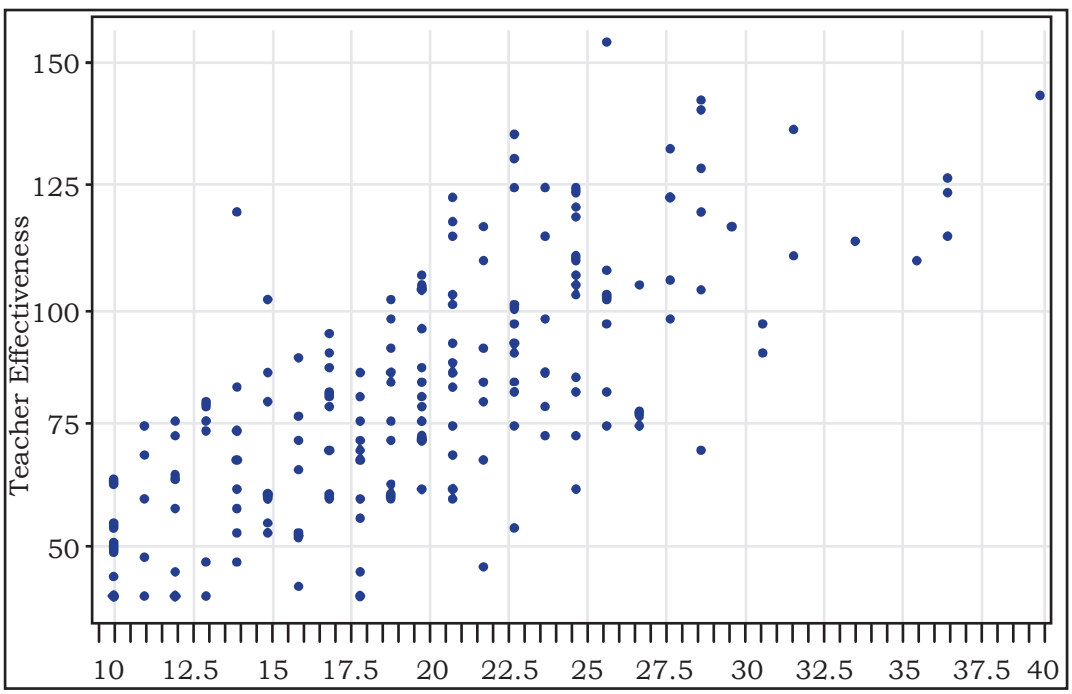

Figure 4: Scatter plot of mental health and teacher effectiveness of primary school teachers in Kerala

Hypothesis 5

H0: There exists no significant relationship between interpersonal relations and teacher effectiveness of primary school teachers in Kerala.

Table 5

Correlation Between Interpersonal Relations and Teacher Effectiveness of Primary School Teachers in Kerala

N	Coefficient of correlation (r)	t	Level of significance	SEr	95% CI Lower	95% CI Upper	Shared variance
200	0.7	13.79	0.05	0.04	0.63	0.77	48.99

The calculated value of r is 0.7 and is significant at 0.05 level. (r = 0.7; $p<0.05$). Hence, it can be concluded that there is significant positive relationship between interpersonal relations and teacher effectiveness of primary school teachers in Kerala. The value of shared variance is obtained as 48.99. This means that 48.99 per cent of the variance in one variable can be explained by the other variable.

Tenability of Hypothesis

The test revealed that there is significant relationship between interpersonal relations and teacher effectiveness of primary school teachers in Kerala. Hence, the null hypothesis formulated in this context is rejected.

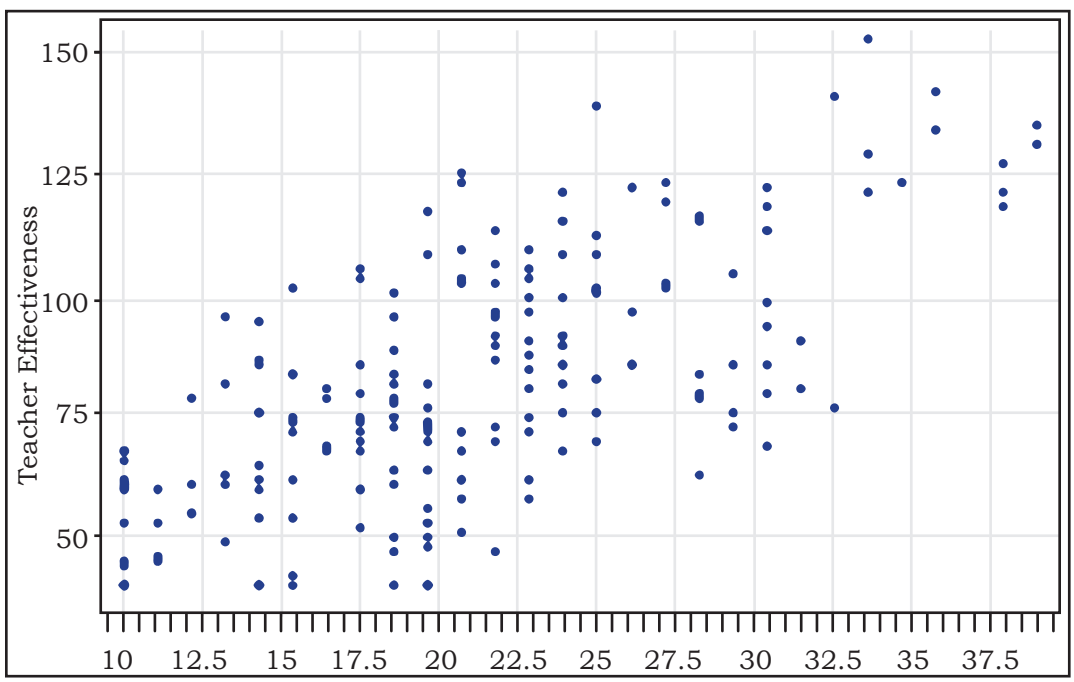

Figure 5: Scatter plot of interpersonal relations and teacher effectiveness of primary school teachers in Kerala

Hypothesis 6

H0: The predictive efficiency of the components of psychological well-being to predict teacher effectiveness among primary school teachers in Kerala is not significant.

Regression to Predict Teacher Effectiveness of Primary School Teachers in Kerala Based on the Components of the Psychological Well-Being

Table 6
Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1.	0.951	0.904	.902	8.136

From Table 6, the R value is obtained as 0.951 which indicates a high degree of correlation among the components of psychological well-being and teacher effectiveness of primary school teachers in Kerala.

The value of R^2 is obtained as 0.904, which indicates that 90.4 per cent of the variance in teacher effectiveness of primary school teachers in Kerala can be explained by the components of the psychological well-being.

Table 7
ANOVA for the Regression Model

Model		Sum of Squares	df	Mean Square	F	Level of significance
1.	Regression	121077.230	5	24215.446	365.793	0.01
	Residual	12842.770	194	66.200		
	Total	133920.000	199			

From Table 7, the F value for the regression model is obtained as 365.793 which is significant at 0.01 level ($F=365.793$; $p<0.01$). It indicates that, overall, the regression model significantly predicts the variable teacher effectiveness of primary school teachers in Kerala.

Table 8
Coefficients for the Regression Model

Model B		Unstandardised coefficients		Standardised coefficients	t	Level of significance
		Std. Error	*Beta*			
1.	(Constant)	-25.939	2.599		-9.982	0.01
	Life satisfaction	1.152	0.109	0.277	10.569	0.01
	Efficiency	1.116	0.120	0.253	9.303	0.01

	Sociability	0.700	0.122	0.166	5.753	0.01
	Mental health	1.405	0.108	0.344	13.000	0.01
	Interpersonal relations	1.004	0.111	0.250	9.050	0.01

From Table 8, it can be seen that all the components of psychological well-being are significant predictors of teacher effectiveness of primary school teachers in Kerala. The Regression equation is obtained as teacher effectiveness = – 25.939 + 1.152 * Life satisfaction + 1.116 * Efficiency + 0.700 * Sociability + 1.405 * Mental health + 1.004 * Interpersonal relations.

Tenability of Hypothesis

Regression to predict teacher effectiveness among primary school teachers in Kerala based on the components of psychological well-being revealed that, the predictive efficiency of the components of Psychological well-being to predict Teacher Effectiveness among primary school teachers in Kerala is significant. Hence the null hypothesis formulated in this context is rejected.

Conclusion

The study revealed a significant positive relationship between the components of well-being and teacher effectiveness among primary school teachers in Kerala. The study also revealed that the components of well-being are significant predictors of the teacher effectiveness of primary school teachers in Kerala. Since a substantial decline in well-being components may lead to a considerable decline in teacher effectiveness, educationists and policymakers should take necessary steps to increase the psychological well-being of primary school teachers. Schools should provide opportunities to attend primary school teachers to refresher courses and orientation classes to improve well-being and increase teacher effectiveness.

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6

Games in Education: Exploring the Perception of School Teachers

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Ali Haider**

Abstract

Games make learning experiences more realistic for learners. A child learns about teamwork, values, and the blending of a variety of skills through playing games. There has been a rapid shift away from more traditional games towards digital or online options. The inclusion of these digital games in education has both advantages and disadvantages. A good teacher in the twenty-first century needs to know how these games can be used in the classroom. As a result, it is of utmost importance to investigate how teachers make use of games for instructional purposes. The main objective of this study was to investigate how teachers use games in the classroom and how they see the role of games in the educational process. The sample for this study consisted of 48 teachers from government and private schools in Delhi, Uttar Pradesh, Uttarakhand, Rajasthan, and West Bengal. An online questionnaire was used to collect data from elementary, middle, and high school teachers. Additionally, the issues and difficulties associated with games in education were discussed. Despite the study's limitations (such as its small sample size and other factors), its findings are interesting and may be useful to teachers, teacher educators, curriculum designers, and other stakeholders.

Introduction

As explained by psychology, the environment affects a child's development in various ways. The psychological significance of a child's developmental stages suggests that when a child first enters the world of senses, they experiences joy through their voice and gestures in the early stages of cognitive

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development. As a child grows and becomes more mobile, they can explore their environment, learn how things are connected, and take control of it. His cognitive abilities develop towards the establishment of object permanence. A child enjoys playing with toys, such as a pull-push toy, blocks, balls, picture books, baby dolls, large pegged-top puzzles, etc.

For a preschool child, socialisation plays an important role. As motor tasks get harder, he gets better at both big and small motor skills. At this stage, a child enjoys interlocking building toys, art tools including markers, paint, scissors, glue, and blank paper of various colours and textures, simple musical instruments and noisemakers, and outside activities like playing with pebbles, sticks, and leaves. When a child comes to school, he learns how to work with other people and solve problems— group skills, cooperation, conflict resolution, etc., develops. He follows the rules made by others, like in board games and sports. A child also makes his own rules for himself and his peers to follow. A child's love for play never diminishes, no matter how old he or she becomes. At first, a child's psychomotor actions are not rule-based or logical, but as they grows older, there become more social, purposeful, and rule-based.

Games make learning experiences more realistic for learners. It seems to be of utmost importance for a teacher to incorporate learning into the learner's environment through games to enhance natural learning. Through the play of games, students develop an understanding of collaboration, values, and the integration of their strengths. Patrick, Elaine, and Shane (2017) emphasised students' beliefs that games kept them interested owing to their novelty and enhanced their motivation by giving them competition and incentives in their studies. Teachers value the use of games in the classroom because it piques students' curiosity and motivate them to study. Subhas, Suresh and Ram (2010) also emphasised that games stimulate the cognitive, intellectual, physical, emotional, and social development of children. In another study, the researchers also found that students' motivation to study was boosted by the element of competition in games. Games helped pupils improve subject-specific and broad cognitive skills (Huizenga, Ten Dam, Voogt & Admiraal, 2017).

According to Kaushik (2018), using games, especially in language classes can make foreign or second language teaching-learning more exciting, interactive, and relevant. Games assist youngsters to build conversational skills, alleviate fear, and motivate them. However, to attain the desired learning outcomes, teachers must employ games optimally and strategically. When teachers used their game creations in the classroom, both learning outcomes and student

motivation improved. According to research, games can help create a dynamic learning environment that encourages questions and fun (Frossard, Barajas & Trifonova, 2012, cited in Ucus, 2015). When games are incorporated into instruction, it is obvious that children enjoy them and spend the majority of their time with them; thus, incorporating such an important method into their training would be beneficial (Ucus, 2015). Yadav (2021)asserted that for children playing is learning and games are an important means for education. Games are also important for the physical, social, cognitive, creative and language development of children. Game based learning enhances students' academic performances, and in many instances, simple online games produce efficacious outcomes (Vu & Feinstein, 2017).

While it is true that games can be an effective teaching tool in some contexts, many factors—including student motivation, teacher experience, and the perceived value of the material at stake—can limit the games' utility in the classroom (Buckley, Doyle & Doyle, 2017). Jabbar and Felica (2015) identified that game-based learning does not follow any specific rule and that the effectiveness of games depends upon gaming proficiency, personality, preferences, and emotional state of learners. For making game-based learning effective multiple learning tools, learning activities, a proper feedback system, and scaffolding should be provided. Pinder (2021) revealed that "game-based learning is an effective strategy for assessing primary students' skills," "can be used in any phase of the instructional process," and "should be increased over time." Soni (2021) stressed upon the games integration into the teaching learning process as it enhances the creativity, skills, and imagination power of children.

Technology has changed gaming in the same way that it has changed other cultural phenomena. There has been a rapid shift away from more traditional games towards digital or online options. The inclusion of digital games in education has both pros and cons. Even though game-based learning is widely used, Ariffin, Oxley, and Sulaiman (2014) state that there are still questions about how well it works as a teaching method or strategy. A teacher in the twenty-first century needs to be aware of and understand the use of these games in education. As a result, it is vital to study how teachers use games for educational purposes. The primary goal of this study is to determine how teachers value games in the learning process and what types of educational games they use in their classrooms.

Objectives of The Study

The objective of this research were to study:

1. teachers' knowledge of games and their importance in school;
2. various types of educational games used by teachers in school;

3. the issues and challenges faced by teachers while using the games in the teaching learning process.

Methodology

The sample of the study comprised 48 teachers from 22 schools out of which 12 were government and 10 were private schools, from the following Indian states: Bihar, Uttar Pradesh, Delhi, Jharkhand, West Bengal, and Rajasthan. Approximately 40.90 per cent of teachers taught Classes VI–X, while the remaining teachers taught Classes I–V. The data was gathered using a survey method and a questionnaire mailed to respondents.

Findings of The Study

The findings of the study are analysed under each objective of this study.

1. Teachers' Knowledge of Games and their Importance in School

The purpose of this research was to study how well-versed teachers were when it came to using games in the school.

Meaning of games

The teachers were posed the question, "What do you mean by the term 'game' in the context of education?" There is a wide variety of responses regarding teachers' knowledge of games at school, as shown in Table 1. The majority of respondents (72.7%) reported that games are physical activities designed to promote health, skill development, etc. About 50per cent of the respondents said that games are outdoor activities played in playgrounds, while about 36.4 per cent said that games are also indoor activities. Approximately 31.8 per cent of respondents said that games require teamwork and joint efforts, which promote cooperation and collaboration. About 22.7 per cent said that games are also used as a strategy in schools to engage students in the teaching and learning process.

Considering that a large number of teachers (72.7%) said that games are physical activities designed to improve students' health and skills at

Table 1
Teachers' Knowledge of Games

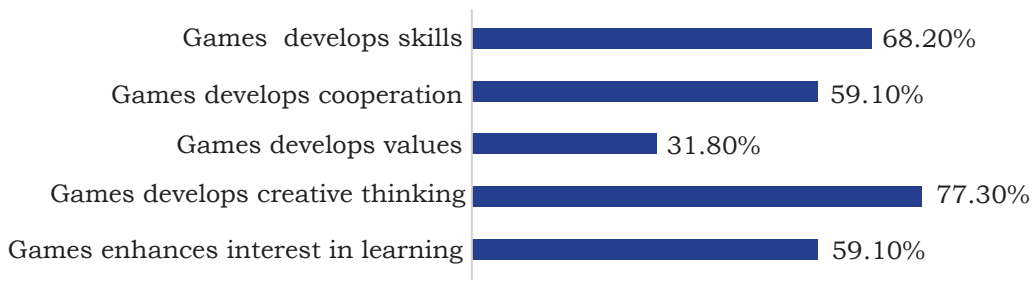
Keywords	%
Physical activities, improvement of skills, health,	72.7
Outdoor activities, in the play ground, outside of the classroom	50
Indoor activities, inside the classroom	36.4
Team work, cooperation, unity, group work, shared work	31.8
Method of teaching, strategy for students involvement in the learning process	22.7

school, it seems likely that teachers were aware that the primary goal of games in schools is to help students develop physically. The percentage of respondents, who were aware that games are also used in schools as teaching tools to engage students, develop cognition, and foster social development, was low (22.7%).

Importance of games

In response to the question, "Why are games important for children?" Teachers provided a wide range of responses, as shown in Picture 1. Games, according to approximately 68.20 per cent of teachers, are important for skill development because they improve motor skills. According to 59.10 per cent of teachers, games foster a sense of cooperation among students. One third of the sample (31.8%) of teachers said that games develop values. A good number of teachers (77.30%) considered that games are important because they develop creative thinking. It was revealed that games enhance interest in learning, as opined by 59.10 per cent of teachers.

Picture 1: Why are games important for children?



Purpose of games in teaching-learning process

In response to the question, "What is the purpose of using games in teaching-learning process?" Teachers provided a wide range of responses, as shown in Table 2. About 86.4 per cent teachers use games in teaching learning process for the holistic development of learners. Engagement of students in learning process is the aim of 31.8 per cent of teachers. It was found that 27.3 per cent of teachers use games in the classroom to provide students with thorough subject knowledge as well as to allow students to enjoy learning and make learning fun for them.

Table 2
Goals of Teachers for the Use of Games in Teaching-Learning Process

Teacher's aim	%
Holistic Development	86.4
Engagement of students in learning	31.8
Give them subject knowledge effectively	27.3
To let them enjoy learning and make learning a fun	27.3
To let them learn to play	22.7
Physical development of students	40

2. Educational games used by teachers in school

Types of games used by teachers

In responses to the question: What types of educational games are used by you in the classroom? The responses were divided into two categories as elementary level (I–V) and secondary level (VI–X) based on the level of teaching. Physical games are applied by teachers at both levels, but their frequency at the secondary level is higher (77.77%) in comparison to the elementary level (60%). When it comes to board games, the responses at both levels—secondary (33.33%) and elementary (20%) revealed that board games are rarely applied by them; this may be due to the unavailability of board games in school. Digital games are common for children, but the results are overwhelming in that teachers do not use or recommend digital games for learning purposes.

Activities provided the opportunities of learning by doing; at the elementary level activity based games were employed by all the teachers (100%) whereas at the secondary level half of them (55.55%) incorporated activity based games in the teaching learning process. Results indicate that at both levels, teachers apply different types of games in the teaching and learning process except for digital games.

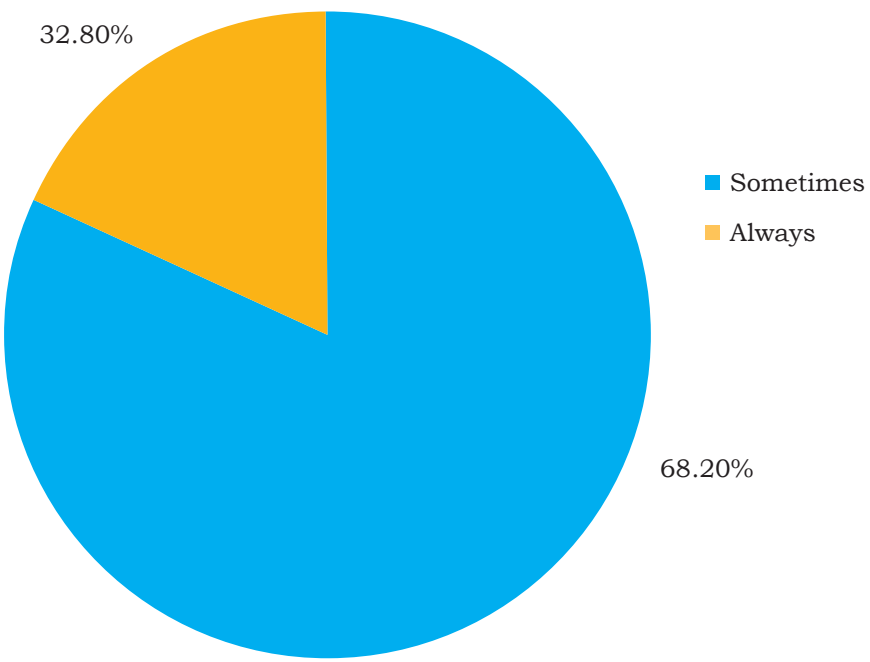
Table 3
Types of Games Used by Teachers

Type of games	Level of teaching	
	Grade I–V	***Grade VI–X***
Physical games	60%	77.77%
Board games	20%	33.33%
Digital games	-	-
Activity based games	100%	55.55%

Frequency of educational games used by teachers

The results revealed that a large number of teachers (81.81%) sometimes used games in classroom teaching. Although 18.18 per cent of teachers revealed that they always used games in the teaching-learning process. There is not a single teacher who has never used games in the process of teaching.

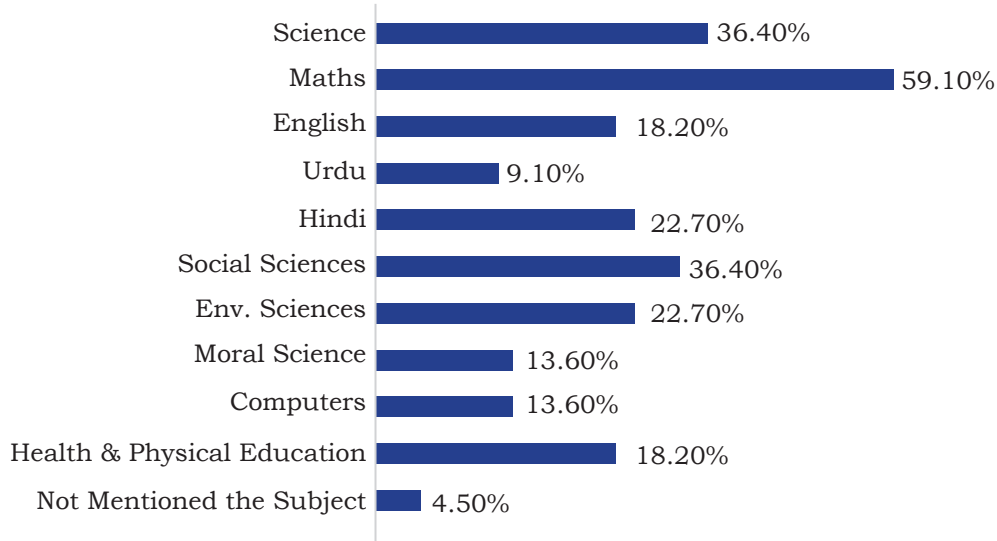
Picture 2: Educational games used by teachers



Educational games used by teachers in different subjects

Games are important for the learning of students. In the present study, results revealed that in the teaching of mathematics (59.10%), science (36.40%), social sciences (36.40%), English (18.20%), Urdu (9.10%), environmental education (22.72%), moral science and computers (13.63%), and health and physical education (18.20%), teachers employed games in the teaching and learning process. However, a very few (4.50%) did not mention subjects in which they employed games.

Picture 3: Educational Games used by teachers in different subjects



Issues and challenges faced by teachers while using the games in teaching-learning process.

Issues and challenges are identified by the teachers while using the games in the teaching and learning process are depicted in Table 4. About 50 per cent of teachers revealed that using games in the teaching learning process takes time. Approximately (50%) of teachers perceived a lack of games equipment in schools for carrying out activities. In addition, 25 per cent of teachers reported a lack of training in the use of games in learning. 12.5 per cent of teachers face the problem that students do not take an interest in learning while using games, and it is very difficult for them to connect content with games.

Table 4
Issues and Challenges Identified by Teachers while Using the Games in Teaching-Learning Process

Issues and Challenges	(%)
Time consuming	50
Lack of games equipments for activities	50
Lack of training in games	25
Lack of sports equipments in schools	25
Lack of interest in games from the side of students	12.5
It is not easy to relate games with content/subject	12.5

Conclusion

The purpose of this study was to investigate how well-versed teachers were when it came to using games in the teaching and learning process. The majority of teachers (72.7%) responded that games are physical activities designed to improve health, skills, and so on. However, only a small number of respondents said that games are also used in the classroom to keep students interested in learning, to help them think more deeply, and to help them grow socially. There was a wide range of responses from educators to the question, "What is the purpose of using games in the teaching-learning process?" 86.4 per cent of teachers said they used games for the holistic development of learners; 31.8 per cent said they used games to engage students; 27.3 per cent said they used games to teach students content; and 33.33 per cent said they used board games. This study found that 81.81 per cent of educators use educational games in the classroom. The teachers have identified several issues and challenges while using educational games, some of which are as follows: time consumption; a lack of game equipment; a lack of training; a lack of sports equipment; a lack of interest in games on the part of students; and difficulty connecting content with games.

The current study's findings help teachers and students understand the value of games in education. It develops a positive attitude towards games. The study also shows that teachers have a lack of understanding when it comes to incorporating activity-based games or educational games into their subject-matter instruction. Consequently, the findings suggest that topics such as gaming, educational games, etc., should be included in the programme for continuing professional development. Even pre-service teachers should be trained in this direction, and therefore the curriculum of teacher training programmes should include the concept of integrating or connecting games with the teaching-learning process. Nevertheless, the study has several limitations, the most notable of which are its limited resources and relatively small sample size. However, its findings may have implications for future research, particularly in school education and teacher education.

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7

Mind Mapping: An Effective Learning Technique

Bindu Saxena*

Abstract

One of the fundamental principles of National Education Policy is an emphasis on conceptual understanding rather than rote learning and learning-for-exams. To develop the understanding of concepts among the learners, teachers have to use various strategies and techniques in the classroom. These techniques are chosen according to the mental level, needs, and interests of the learner to make the learning process interesting and retain the attention of the learners. It is a fact that children are aware of so many things and the teacher is there to facilitate the learner to construct knowledge and develop concepts. One such technique that is very useful is mind-mapping. In this technique, learners can be involved in the teaching-learning process. It is a very interesting technique and beneficial for the teachers as well as the learners.

Introduction

Teachers play an important role in the lives of learners. It becomes more important when the learners are young. To make the learning process interesting, teachers have to use various methods, strategies, and techniques in the classrooms. These are selected based on the content to be delivered, the needs of the learners, the interest of the learner, previous knowledge of the learner, etc. A good teacher selects the techniques for teaching a topic taking into consideration various factors. A technique makes our class more interesting and interactive is mindmapping. It was given by an English psychologist and author, Tony Buzan.

In this technique, the concepts are presented systematically. Learners

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have knowledge related to various things and have varied experiences. So, their experiences should be taken into consideration during the teaching-learning process. The topics should be introduced in such a way that the learners can be actively involved in the activities to maximise learning. The questions related to their previous knowledge and experiences can be asked and the responses (in one or two words) of learners can be written on the board. After all the responses are written, the irrelevant responses can be removed by the teacher citing the reason for the same. Then, the teacher can draw the line between the related words, and a mindmap can be made by joining the words. Mindmaps can also be drawn on the chart paper and shown to the learners.

Components of Mind Maps

There are seven components of a mind map and it is necessary to include all the components in a mind map. It will make the mind map more interesting. An example eliciting all the components of a mind map is given here [This mind map is drawn for the lesson titled 'Water O' Water! of the NCERT EVS Textbook Looking Around for Class III, Chapter 3].

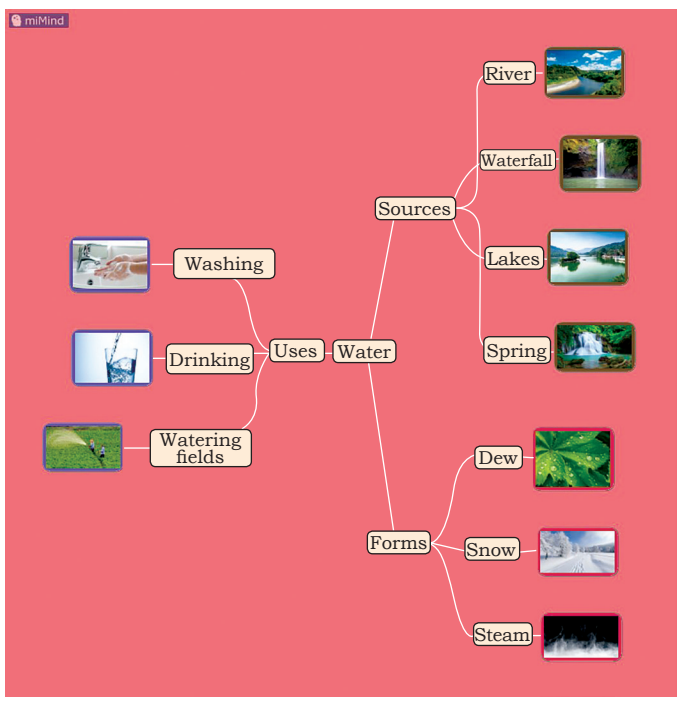


Figure 1: Mind map on the topic 'Water'

The components of the above mind map are:

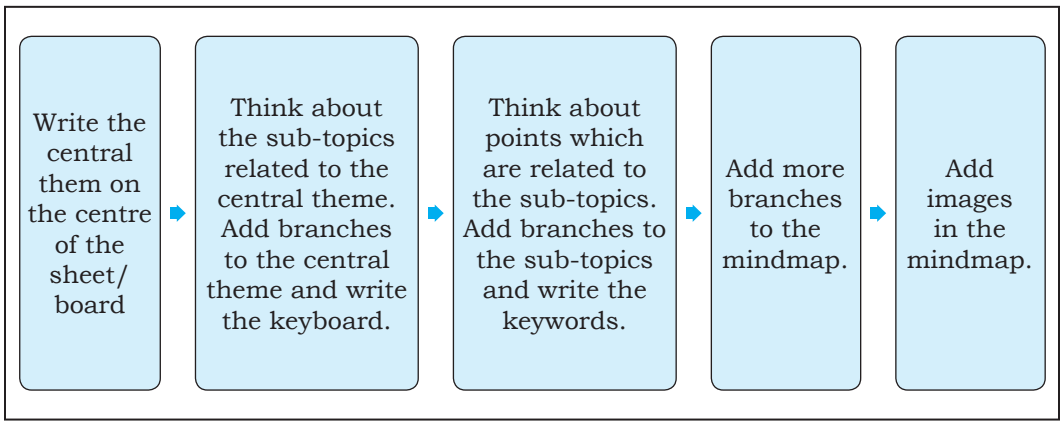
The central theme is the main topic around which the mind map is to be developed. In the given mind map, 'water' is the central theme. Several branches radiate from the central theme. These branches are called associations. In the above mind map, three branches radiate from the central theme 'water', sources, forms and uses. These are called first level associations. The branches which radiate from first level association are known as second level associations. The examples of second level associations are river, waterfalls, lakes, springs, etc. Similarly, the images are the third level associations. More associations can also be added to a mind map.

Keywords are the words written in a mind map, for example, form, river, streams, dew, etc. The keywords are joined to each other by drawing lines between two keywords to identify the relation between the words, such as Water → Sources → Lakes. These lines can either be straight or curved. The keywords which are closely related should be in proximity, i.e., written near each other (like uses, washing, drinking, watering fields) to enable the learner to relate the concepts. Different colours can be used to colour the boxes or words related to each other to make the mind map attractive and interesting. It is also done to distinguish separate branches. It can be seen in the mind map.

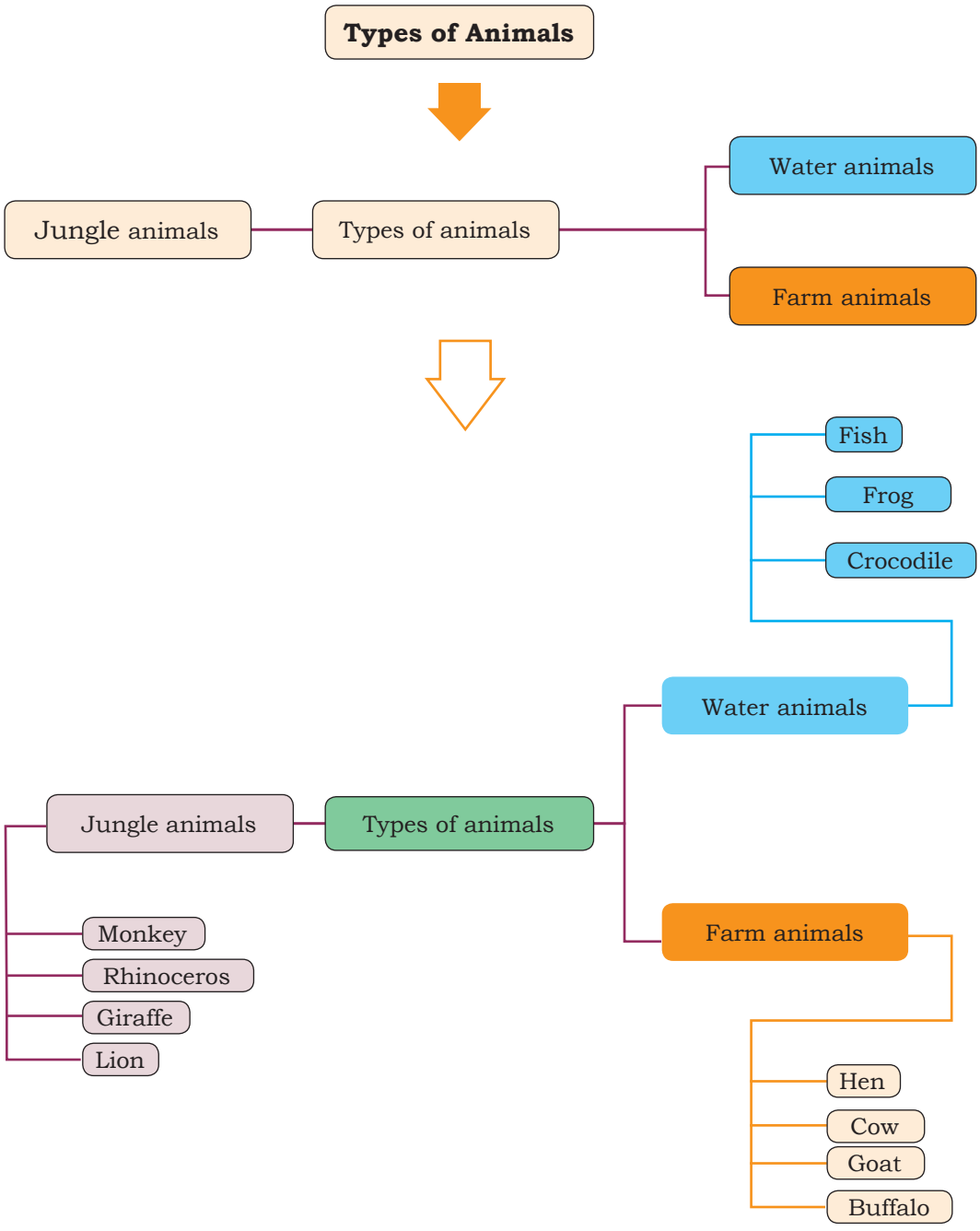
Images can also be included in the mind map to make it more attractive, interesting and retain the attention of the learner. It will also help in understanding the curiosity of the learner.

Making a Mind Map

Creating a mind map involves following steps.



An example is given to below understand the steps:



Uses of Mind Mapping for a Teacher

Teachers can use mind maps for making presentations on the chart or board. It can also be used while developing a lesson in the classroom. Mind maps can be made on various topics such as nouns, pronouns, adjectives, themes related to chapters, etc., in English; plants, means of transport, family, animals, etc., in Environmental studies; days of the week, shapes, time, money, patterns, etc., in Mathematics. Teachers can also use mind maps during brainstorming sessions.

Besides this, the teachers can make a mind map while planning a lesson. All the objectives, activities, methods of teaching, learning material, etc can be included in the mind map. This can boost teachers' confidence (Boyson, 2009). A mind map is a very interesting assessment tool. It can be used for assessing the learners (Goodnough et.al., 2002).

Benefits of Mind Mapping

There are several benefits of mind mapping. Learners can easily memorise the concepts because the concepts are written in the form of one or two words and are presented in an organised way. Mind maps can be used for the improvement of conceptual understanding (Goodnough et al., 2006; Brinkmann, 2003). Learners can find relations among various concepts depicted in the mind maps. It helps them to find similarities and differences and they can understand the concept in a better way. Mindmapping improves memory. (Farrand et al., 2002, Toi, 2009). Children can retain the content for a longer time (Nesbit et al., 2006). When the teacher involves the children, while drawing the mind map, it promotes thinking among the children. They think in divergent ways. It encourages innovation, creativity and concentration (Buzan, 2002). Children can also revise the content easily as the content of three to four pages comes in one page. So, the children do not find learning as a burden.

Mind maps are very useful for primary classes as children retain pictorial mind maps very easily. The topics of different subjects can be integrated into the mind map, e.g., when the learners are taught about leaves, patterns can also be included in the mind map. Mindmaps can also be used for multigrade teaching. In case a teacher has to deal with more than one grade, then the teacher can take into consideration the topics to be taken in different grades and identify the topics that can be taken through one mind map and all the children can be involved in the learning process. The use of mind maps helps teachers make variations in their teaching methods to reach to diverse learners (Nesbit et al., 2006). Mind maps can be drawn on charts, paper, board and in e-format. Many apps are available where teachers can make mind maps.

Points to be Taken Care of While Teaching through Mind Maps

The teachers should try to involve all the learners while developing a mind-map. They should use simple words usually one or two words as a keyword. They should include symbols or images to make the mind map interesting. The teacher should avoid using complicated phrases, ambiguous words and too many associations in a mind map.

Conclusion

Mind maps are very useful and helpful. It makes the learning process more interesting and interactive. It also enhances creativity among the learners and helps in retaining more concepts. It takes less time to learn new concepts. To make learning more enjoyable, mind maps can be used in a variety of ways which can be explored by the teachers.

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Web Links

https://www.mindmeister.com/blog/students-guide-to-mind-mapping/

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https://en.wikipedia.org/wiki/Tony_Buzan

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Using Assessment for Effective Learning

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Abstract

Improving the quality of elementary education was one of the thrust areas under SSA Phase II. Assessment that supports student learning will do a lot of good in achieving the goal of enhanced learning achievement by children in elementary schools. In the context of student learning, assessment is considered as the process of collecting and recording information to reflect how well a student is learning. There have been several efforts in this direction. The major ones at the national level are the development of the Continuous and Comprehensive Evaluation (CCE) package at the Primary and Upper Primary Levels, the formulation of learning outcomes for every class, and the development of CCE Guidelines up to the Elementary Level. In an educational context, we talk of three types of assessment — assessment for learning (formative assessment), assessment of learning (summative assessment), and assessment as learning (self-assessment). When the purpose of assessment is primarily to improve learning by children, and teachers adjust their teaching-learning styles and pedagogy, it is generally understood as 'formative assessment' or 'assessment for learning'. When the work of the children is evaluated to declare what they learned in a specific period, the activity is described as 'a summative assessment or 'assessment of learning'. However, when children are motivated and they are involved in assessing their learning as well as learning by their peers, this kind of assessment is called 'self-assessment' or 'assessment as learning'. This article discusses how to use technology to make these assessments useful, effective, and relevant.

Introduction

In this era of technology it is important to use the benefits of technology, for assessing children and providing appropriate feedback to different stakeholders as per their needs and

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areas of action. If we look at the system of education, we find that schools are at the grass roots level which are supported and monitored by cluster and block level officers. Since improving learning is a constant effort it is always helpful to track the achievement of children to see the effect of interventions and efforts, whether these are teacher-mediated or otherwise, to improve a child's learning.

Information and Communication Technology (ICT) can be of great use in the documentation of student learning as well as the recording of classroom teaching-learning strategies of teachers. Such practices can always be shared to improve the quality of classroom processes and constructive use of documentation done for student learning. Peer assessment and self assessment by students can also be promoted in interesting ways using appropriate technology. The technology can also help customise the presentation of assessment information according to the needs of different users including children, parents, teachers, school leaders, and policy administrators.

The Learning Triangle

Teaching, learning and assessment are the vertices of the learning triangle which signifies that these are parts of the whole and are strongly connected. Assessment should be such that it can serve as a meaningful tool influencing the quality of classroom processes and outcomes. Making assessment integral to classroom processes is a much-needed strategy to achieve better outcomes of learning. Learner-centred teaching should also use assessment as a part of the learning process.

Assessment refers to collecting information on the progress of students' learning using a variety of procedures. The process and purpose of assessment should not be limited to assigning grades or giving away marks, rather the focus should be to include constructive feedback for learners' improvement.

The National Curriculum Framework (NCF) 2005 suggested a major shift in the approach towards teaching and learning. It suggested a learner-centred approach and that the process of assessment should aim at identifying and nurturing the learning capabilities of the learner. Such a shift in approach requires a major change in assessment tools and techniques. In an active and participatory classroom, students should be encouraged to become active and autonomous learners. The teacher should carefully facilitate and provide appropriate scaffolding to all the students as per their needs and potentials as far as possible. Such a warm environment in the classroom can help them develop critical thinking and problem solving attitudes. Group work and peer work are often assigned as a strategy to develop habits of sharing of ideas. The discussion in the group helps in conceptual clarity and wholesome learning.

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Information and Communication Technology (ICT) for Education

The use of ICT in schools provides an opportunity for teachers to reform their practices and offer students improved educational content and more effective teaching and learning methods. There is no point of difference among practitioners and academics that integration of ICT in pedagogy and assessment has a positive impact on the classroom learning environment. It can provide students and teachers with new tools to improve and enhance the quality of teaching and learning. In many cases, tools of ICT are largely used to increase access to different learning resources to provide choices to the learners for using these according to their interests and needs. In our country various ICT tools have been employed over sometime to improve the quality as well as management of primary and elementary education. These include radio, satellite-based interactive meetings, audio and video conferencing and the internet. No doubt there are variations in their use by different states and other users across the country. It is also important to note that the use of ICT in education can also cause damage, if not used wisely and carefully. It is useful for extending the spread of education to difficult areas and reaching out to children in difficult circumstances and empowering teachers. Some advantages of ICT for primary classes can be seen in following forms:

- Images in the form of diagrams, and flow charts, can be used for concept building of students.
- The use of videos brings live experiences to the classroom.
- Teaching-learning through activities and the use of ICT can make learning joyful, which can have a positive impact on student attendance and participation.

Repetition and reinforcement of concepts also become easy on the part of the teacher with the help of ICT.

The commonly cited limitations of integrating ICT in teaching-learning are that setting up the devices is too expensive, sometimes teachers show resistance and feel hesitant in using technology and there is a lack of mentorship and hand-holding for developing confidence in teachers towards the use of technology.

Purpose of Assessment and Use of Assessment Results

All types of assessments are designed to serve some purpose, whether to diagnose learning difficulties, to assess

the regular progress of children toward achieving learning outcomes (LOs) or to determine whether a school in a district has met its targets or not. One type of assessment cannot serve all of the purposes adequately. The major types of assessment that are used in the classroom include formative assessment, self-assessment, and summative assessment. Formative assessment involves the teacher providing constructive feedback to students to promote their learning. Self-assessment involves students in monitoring their progress toward the learning outcomes as well as determining what efforts are needed on their part to achieve the targets or the learning outcomes. Summative assessment reveals a student's performance at the end of a certain period or class and it is usually indicated in the form of grades or marks. However, to make summative assessment truly valuable, formative assessment and self-assessment must be integrated into the classroom processes. All these types of assessments provide the opportunity for enhancing the quality of learning experiences for every learner in the classroom.

Standardised assessments such as achievement surveys are designed to provide information on the average performance of children in districts and schools. However, for classroom teachers, that information is incomplete and inadequate. She cannot make her classroom plans based on these results. To get the right kind of information, she would need the results, at regular intervals, obtained through the consistent use of classroom-based assessments.

Assessment information can be used in multiple ways. It can facilitate judgements on the quality of most elements of our education system. Earlier test and examination results were predominantly meant to serve as an indicator of what and how well a student knew and understood a subject. But now assessment data is used in multiple ways. In such cases, both teachers and students must be aware of the why assessment is taking place. In the same way it is also important that teachers discuss the assessment results and their implications with the students and make future classroom plans.

The Case for ICT Based Assessment

In this era of technology it is almost impossible to imagine the future learning environments that are not supported, in one way or the other, by Information and Communication Technologies (ICT). The current generation is often seen as a digitally oriented generation and as such ICT has a lot of potential to affect the teaching-learning process today and in the future. The technology has a lot of potential in changing and modernising the education systems and ways of learning and assessment. We notice different types of ICT usage in our environment such as computer assisted learning,

web-learning, computer-classes, online training, distance education, e-learning, virtual learning, digital training, etc.

Sindhu, S in the review titled 'ICT Based Assessment in Schools: Teachers' Attitude' took a broad view on ICT and learning. Consequently, its impact on the learning process was considered not only in the form of traditional learning outcomes but also in the use of ICT by teachers, and the organisational use of ICT by education and training institutions. Thus the impact of ICT on learning can be read in different ways. There were two objectives of the review, viz., to study the attitude of teachers towards ICT based assessment in schools and to study whether there exists a significant difference in the attitude of teachers towards ICT based assessment in schools, based on gender. The review was conducted by adopting a normative survey method for the study and the sample comprised 50 high school teachers from the Kottayam district. The tools used were a personal data sheet and a scale of attitude towards ICT based assessment in schools. The findings were that 64 per cent of the teachers showed a favourable attitude towards ICT based assessment in schools while 24 per cent of the teachers remained undecided and 12 per cent of the teachers showed an unfavourable attitude. Another revelation was that male teachers showed a more favourable attitude towards ICT based assessment in schools.

What Assessment Approaches are Found in the Classroom?

ICT supported techniques to make pedagogy and assessment effective

Formative assessment techniques are used to monitor student learning during the teaching-learning process. The results obtained are used to identify areas where students are struggling so that teachers can adjust their teaching and students can adjust their learning. Also it can suggest to teachers if interventions are immediately needed for some students. These are the frequent assessments that happen often in the classroom. Techniques that are used for formative assessment are formal as well as informal. The informal techniques may be written reflections, quizzes and surveys, checks for understanding. Generally at the end of a class or after completing an out-of-class activity, the teacher may ask some basic questions such as 'What was the most important thing you learned today?', 'Did you encounter any confusing topics today?', 'What did you find difficult in today's discussions?', etc. The students may speak or write on a piece of paper or make small presentations using technology. Such methods can provide important feedback to teachers. The teacher may also record the discussion in audio or some small video recording may also be done to help the teacher recall these discussions later on while planning further lesson plans.

The formal techniques for formative assessment could be in-class activities, quizzes, online assignments, etc. In a classroom, students work in pairs or small groups to solve problems. Such opportunities create space for powerful peer-to-peer learning and rich class discussions. Quizzes help teachers to know about students' prior knowledge, assess progress midway through a unit, create friendly in-class competition and review learning before the test. Students also learn a lot through quiz activities. Using a quiz to begin the lesson is also a fun way to assess what students already know, clear up misconceptions, and assess how much they would learn. The teacher can take the help of students to record the points of different teams or students and a data base can be created which may be discussed with the students to encourage them better in the future. Teachers should also try to organise some 'wrapping-up' activities, in the form of reflective questions which may help students develop skills to monitor their learning. These are some examples of formative assessment.

Summative assessment techniques evaluate student learning. These are the assessments that occur at the end of an instructional unit or course and are expected to measure the extent to which students have achieved the desired learning outcomes. We generally use written exam inations, projects, portfolios, presentations, etc. The tests should include several types of questions – short answer, multiple-choice, etc to allow students to fully demonstrate what they know. The use of ICT can be of great help here as teachers may create a question bank with a variety of questions from different units. They can optimally use such a question bank for testing students during or at the end of the academic session. The performance of students and their record can be managed effectively using ICT supported means and methods. Such data will not only help the teacher but also other stakeholders.

Data on student opinions, attitudes, behaviours or confidence in understanding can be gathered either during class or outside of class using Google Forms. The data analysis can be done instantly and teachers can show the immediate results to students. Such efforts can make students more active and participative in the classroom and at the same time teacher can also make changes in the future course of action, if it is felt after analysis. Audio-visual mediums can be used to understand and illustrate student engagement with the material as well as their prior knowledge, misconceptions, and comprehension.

Papers, projects, and presentations give students a chance to go deeper with the material to put the knowledge they have acquired to use or create something new from it. The use of ICT can be significant and handy here. Creating a portfolio at the end of a course can be a powerful way for

students to see the progress they have made. Instead of keeping students' work in the form of papers, portfolios can also include reflections on their learning in the form of diagrams or other visual ways which help to quickly decide on about the assessment. The students must be involved while deciding what should be kept in their portfolio. Photographs of children while they are engaged in activities can sometimes make them motivated learners. The beauty of ICT is that it helps children to see themselves and their performance. This can have a good impact on students' habit formation and personality development.

Over some time several Learning Management Systems have been innovated, which allow students to solve problems or answer questions along the way. This can provide useful information on student responses and class performance which can be utilised by the teacher to modify her instruction and for other purposes according to the particular learning needs.

Conclusion

The usages of ICT and its impact on educational performance may be influenced by a several factors such as attitude and exposure of students and teachers to ICT, curriculum and teaching practices, infrastructure and school environment, etc., To make assessment useful and worthwhile for the learners, they need to be empowered through training and mentoring in the usage of ICT for assessment. They should be given periodic training in the form of seminars, workshops, etc. It is high time to realise that the ICT must be harnessed to make classrooms more interactive, and attractive. Teachers should also be empowered in the use of technology through hands on experience in Continuous Professional Development (CPD) Programmes. The advantages and disadvantages of ICT must be seen in perspective and carefully balanced in the best interest of children.

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9

Teacher-Student Interaction: Direct Instruction versus Suggestive Instruction

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Abstract

The core element in all academic discourse is pedagogical practice. To engage learners actively, to interest them in the content, to guide them to correct their mistakes, and to make them independent learners, teachers need to regularly interact with students. Teacher-student interaction is an important aspect of learning as it creates opportunities for the learners to construct their knowledge including language with the help of a more knowledgeable and expert person, i.e., their teacher. A teacher-led interaction may be direct or indirect in class; it may facilitate learners in comprehension, or at times may confuse the learners in comprehending the message of the teacher. The reasons for students to get confused include differences in cultural context and the requirements of the learning situation in the classroom. The learning process is affected due to differences in the interaction styles of teachers and students. Identification of the communication style, conscious efforts by the learners to understand the message, and careful planning of the classroom processes that include direct as well as indirect communication style by the teacher can help the learners to own their learning and to help the teachers to be more effective.

Introduction

Language is a means of communication. Language serves the function of expression as well as perception. So, language is an integral part of various processes related to interaction including learning. In the words of Lier (1996:5) "Interaction is the most important element in the curriculum." Everything that is learned in a classroom is done through language. Teachers present content, they ask questions to students, and

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students respond to the questions asked by the teacher, students talk to each other, and students read what the teacher writes on the board or in their notebooks, students write papers... all this is done through language.

Classrooms serve as a social setting. According to Vygotsky's sociocultural theory, learning is a socially mediated process in which children acquire culture, beliefs, problem-solving, and skills with more knowledgeable members of society. Social learning becomes a part of the cognitive learning. The concept of the Zone of Proximal Development (ZPD) in Vygotsky's theory of learning is often interpreted as the possible gap between what a learner can do without help, and what they can do with support from someone with more knowledge or expertise. In a classroom, a teacher is generally the more knowledgeable person who helps students to learn newer things.

Teacher-student interaction is instrumental in fostering active student participation, enhancing the motivation of students and bringing a sense of achievement to them. These reasons contribute to making classroom teaching-learning process more effective because teachers also affect the psychology of students. Teacher-student interaction becomes important in a language classroom especially the second language where student motivation and participation become crucial factors in preparing students to learn the language and providing opportunities for using the language. Thus, students learn not only about language but also learn the language itself through their interaction with their teacher.

The skills and knowledge of a language are learned in a language classroom when teachers and students interact with each other for various purposes — from introducing a lesson to doing assessments and providing feedback to students. During each interaction, a teacher communicates something to her students. Do students fully understand what the teacher is saying in the way the teacher wants them to?

The examples given below illustrate the difference between what a teacher says and how students may interpret and respond to what the teacher is saying.

Example 1

Beginning a Lesson	
Teacher A	**Teacher B**
Students! Open your book and start reading lesson 4 which is a story about an enormous turnip.	Students! Do you know what a turnip is? Would you like to know about a turnip that was so huge that it could not be pulled out from the ground?

Example 2

Correction of Work	
Teacher A	**Teacher B**
This sentence is wrong. Change 'going' to 'go.'	Do you think 'going' is the correct verb in this sentence? How can this sentence be corrected? Do you think a different tense form can be used in place of the one used in this sentence? Do you think this sentence can be modified? How? Would you consider referring to the tense forms while reviewing your sentence?
	Pay attention to the underlined word and correct the sentence.

Differences in Communication Styles in the Given Examples

The learning environment created by teacher B in both the examples, from a pedagogical perspective, is empowering for the students. In example 1, teacher B is creating excitement for learning in her class and students decide whether they want to read the story or not. In example 2, teacher B is encouraging the students to reflect and is initiating the culture of self-assessment. Not only this, teacher B is trying to make students look at the errors committed by them in a polite manner and without making them feel ashamed about making mistakes in the process of learning. The most distinguishable aspect in both the cases is that the students are encouraged to play an active role in learning which is prescribed and sanctioned by almost all the modern and progressive learning approaches.

Is the situation equally reassuring from a language perspective? The situation becomes slightly problematic. In example 1, the instruction given by teacher A to the students is direct. The researcher observed that students have no confusion about such a message and they are likely to follow the instruction as it is directed to them. Instruction given by teacher B is suggestive and students are most likely to follow the instruction. Most students would be excited to know about a very big turnip but some students may not understand the message and respond negatively to the choice given to them. In example 2, while correcting a sentence, the suggestion given by teacher A is direct and it was observed that the students would at once understand and make the change in the sentence as suggested by the teacher. The suggestion given by teacher B, on the other hand, is indirect and students may not pay attention to the error the teacher is suggesting the students to focus upon. Chandler (2003) also

finds that indirect feedback is too demanding for learners.

Teacher B in both the examples is trying to prepare the students for more participatory learning and more responsibility in learning. Some students, however, may feel that the teacher is not helping them at all because they are not getting any direct instruction or suggestions from her. In example 1, teacher B may seem, to such students, as dependent on them for making even a small and simple decision. In example 2, teacher B may even be considered incompetent because she is not telling the students how to correct the grammatical mistake in a sentence. As a result, some students may even ignore the suggestions given by the teacher.

In both examples, the language, rather than conveying the message of the sender (in this case, the teacher), may confuse the receivers (students). The researcher draws from her own experiences both as a student and as a teacher observing students, when the language of some of the teachers was hard to decode; as a teacher when a few students becoming confused about the feedback given to them, and furthermore, as a teacher-educator when some of the teachers did not respond to my indirect suggestions.

Why does language not help in the learning process? If a teacher conveys the message to the students and students know the vocabulary and syntax of the instruction given by the teacher, why does the message not reach the students? What is amiss? According to Fatiha Guessabi, "Learning a language, is not only learning the alphabet, the meaning, the grammar rules and the arrangement of words, but it is also learning the behaviour of the society and its cultural customs."

Students who are from cultures where language is spoken indirectly, may well understand the message even if the instruction is conveyed in suggestion mode or if the feedback is given indirectly. Such students appreciate the indirect use of the language, because they understand that the teacher tries to avoid any discomfort that may arise due to direct criticism. They, at times, may find the direct use of language harsh. Contrarily, students acclimated to the direct use of language may find the indirect use of the language by the teacher baffling. These students may think that the teacher is biased against them because they do not get any direct suggestion or instruction from the teacher and see other students not complaining about the instruction or suggestion that they consider vague. They commend a teacher who talks to them in direct language because they can understand the message immediately.

Culture and Communication Styles

Indian classrooms are multicultural and multilingual. Each language and culture has their distinct communication styles. Some cultures have a linear and direct style of conveying messages and some

have a circular and indirect style of communication. The direct and linear style of communication emphasises the message rather than the context of the message. The message is explicit and the conversation is generally addressed directly to the person who is to be given the message. It focuses on the cognitive aspect of the message by reducing the ambiguities in the communication so that message is conveyed as it is intended to be done. But the affective aspect of the communication is ignored in the direct communication style.

Indirect or the circular style of communication values the affective aspect of the communication by carefully selecting words and tone while conveying a message in communication. In this communication, context building is given importance and the main message is given in the form of suggestion and contextual cues. But there is no certainty that message is conveyed as it was intended to be. People belonging to a certain type of communication culture find the other one challenging to understand and to participate in. Therefore, learning a communication style, other than the familiar one, may facilitate the process of meaning making in communication. Learning new communication styles thus, becomes critical not only in the development of communication skills but also in learning intercultural skills.

Learning the Other Communication style

A direct and linear communicator, while listening, must make efforts to understand the non-verbal cues of communication such as facial expressions, gestures, paralinguistics tone of voice, body language and posture and eye contact in the context of the words to make meaning of the communication taking place with a circular and indirect communicator. Asking questions may also prove helpful in getting a clear meaning of a seemingly ambiguous message. While speaking, the direct and linear communicators must be aware that they may be perceived as harsh, aggressive, and crude by the listeners. So, they may try to talk a little about context and may select to be a little indirect.

An indirect and circular communicator, at the time of listening, must understand that a direct and linear speaker values sincerity in conveying messages and is not necessarily aggressive, insensitive, or offensive. While speaking, an indirect and circular speaker must be cautious of 'going round and round' around the main point because building context and being diplomatic may become frustrating for a direct and linear communicator. So, keeping the conversation to the main point of the communication may prove helpful in making the communication more meaningful and effective.

Hence, for effective communication to take place, the speaker and listener both must first accept that they may have different communication styles. They must pay close attention to the communication styles of others not only to understand the differences

in communication styles but also to be aware of their own biases towards certain styles of communication.

Activities and Strategies That Promote Effective Communication in a Class of Different Communication Styles

Teachers may encourage students to participate in communication activities that facilitate understanding of communication styles other than their natural communication style. Some of the activities and strategies are:

1. Students may be given a simple checklist to help them identify their communication styles. Such a checklist may be developed based on the discussion on the communication style given above. An example of such a checklist is given below:

How do I talk? Mark a tick (✓) on the statement that describes best what you are most likely to do in the process of communication.

Sr. No.	Statement	Mark if applicable
1.	I do not add unnecessary details to my ideas while conveying messages.	
2.	I try to understand the implied meaning of the speaker while listening or reading.	
3.	I tend to add details before coming to the main point.	
4.	People tell me that sometimes I seem harsh while talking.	
5.	I find it hard to stick to the time limit given for speaking.	
6.	I understand what is spoken or written, but not beyond that.	
7.	Sometimes people ask me the main idea of my conversation.	
8.	If I must convey a message to someone, I generally give an example of someone else.	
9.	I feel bored when someone goes on speaking before coming to the main point.	
10.	I generally use words or phrases such as may be, as per your choice, probably, I think, etc. while talking.	
11.	I try to avoid questions and direct statements.	
12.	My answers are short.	

Students who mostly select statements 1, 4, 6, 9 and 12 may talk directly most of the time and the students who select the statements 2, 3, 5, 7, 8, 10 and 11 may talk indirectly.

2. Students are asked to identify the main idea from the communication of the characters of stories selected or created by the teacher or examples of direct and indirect communication as found in conversation with students or colleagues.
   Details of the activity are given below:

   Name of the activity: What was the message?

   Material required: Script of story or Dialogues written on cards

   Type of activity: Group activity

   Process: Students are divided into groups of four each. The teacher tells a story or speaks some dialogues from selected stories or excerpts of the conversation. Each group is given a different character or dialogue to focus on. In their groups, they discuss the main idea of the message of the character and how easy or difficult it was to understand the message. They share their discussion with the class one by one. The teacher concludes the discussion and draws the attention of students towards direct and indirect styles of communication.

3. Students are asked to identify the tone of a conversation.

   Name of the activity: How did I feel?

   Material required: Dialogues from stories written on the cards/ excerpts of conversation

   Type of activity: Group Activity

   Process: Students are divided in groups of 4 each. The teacher reads out dialogues from stories or excerpts of conversations from cards. While doing so the teacher may make use of both direct and indirect manner of providing feedback. Each group is given a dialogue or conversation excerpt to focus on. They listen and share in their groups; how did they feel after listening? One student from each group shares the summary of the discussion of the group. The teacher concludes the discussion and draws the attention of the students towards the merits and limitations of speaking in directly and indirectly.

4. Students are given a word limit for writing answers, even in regular classroom activities such as:
   - Students are asked to summarise a conversation.
   - Students are asked to write the main idea of a poem or a written article.
   - Students are asked to rephrase a suggestion, feedback or comment given to them, in their communication style.
   - Students are asked to note down and discuss the non-verbal cues used by the speakers while participating in speaking activities.

5. Students are given a time limit for speaking on the topics selected by them. When students participate in classroom discussions or answer questions, they can be encouraged to stick to the given time limit.
   - Students are encouraged to ask questions for clarity on the suggestion given to them or on a response given to them by others.
   - Students are asked to change the given statements related to conversation, feedback or suggestions in a communication style that is different from their own communication style.
   - Students are asked to focus on responding to a question rather than on the tone of the voice of the speaker, when they participate in activities such as debates, presentations on given topics, etc.

In addition to the activities given above, teachers and students may design more activities together to include culture in the classroom processes and to have a better understanding of the different communication styles. In other words, the activities must focus on developing socio linguistic competence in the classroom so that teacher A and teacher B (examples 1 and 2) both can connect with their students and the students with them and each other.

Conclusion

In conclusion to the above discussion, it can be proposed that in a classroom, students and teachers may have different styles of speaking, based on their cultures. As a result of this difference, the communication happening in the class may not fulfill the function of conveying a message in its true form. So, what is the way ahead? What is the solution to this interaction style conflict? The answer to these questions is related to Ellis' (2000) assertion that "learning arises not through interaction, but in interaction" (cited in Walsh, 2011, p. 51) which implies that in classrooms, teachers and students need to understand that learning about interaction, through interaction itself is as important as learning through interaction. Both the sender and receiver of the message (teachers and students) need to pay close attention to the meaning making process, especially when the instruction is suggestive or indirect, as used by teacher B in examples 1 and 2. Teachers, in such situations, would have to create opportunities for students and help them to understand a style of interaction that is different from what they are habitual of. A language, in its true function in a classroom, must help in communication and learning and not confuse the learners.

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10

Mathematisation: Channelising Children's Enthusiasm for Developing Concepts in Mathematics

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Abstract

Mathematics! With a slight change in spelling, it can be read as "Ma – the – Magic". Ma – is the creator and creation is knowledge. All knowledge is the creation of mathematics. Humans, with the highest developed intellect, observe and perceive the physical and biological world around them. They process it in the mind and store it in the form of knowledge. One can notice that all 'knowledge' is in the form of NUMBERS? It is MAGIC. How old is civilisation? How many colours are there in the rainbow? What is the circumference (or radius) of the earth? How many stars, planets, satellites, continents, mountains, oceans, and rivers are there? How many people are there in a country? The answer to all these questions is in some form of 'numbers'. There is no situation where numbers do not exist. The human mind works in numbers. The human body is represented through numbers. How many bones, hands, feet, fingers, eyes, and ears are there? Therefore, one has to consider 'all knowledge' as an offshoot of mathematics and mathematics as the mother of all 'knowledge?' Now the question is: 'How to 'Mathematise the knowledge'? How to make children realise that mathematics is nothing but the life they live.

Introduction

The 2005 National Curriculum Framework for schools states that the main goal of mathematics education is to develop children's abilities for 'Mathematisation.' It also endorses the idea that mathematics is not to be perceived as a discipline, but it is about a way of thinking and reasoning and how children's enthusiasm can be channeled into opportunities for

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developing concepts in mathematics. The question arises, what does mathematisation mean? Moreover, how can children's ability be developed for mathematisation? To answer these questions, first we need to discuss the meaning of the term mathematisation, the process of mathematisation and then the process of developing children's ability for mathematisation.

Meaning of the Term 'Mathematisation'

The term 'Mathematisation' means 'the act of interpreting or expressing mathematically, or explaining mathematically, or to reason mathematically or to do mathematical calculation'. It may also be described as an activity for the students who are dealing with word problems, since the basic process through which the students solve their real-life problems is referred to as 'mathematisation'.

Process of Mathematisation

Mathematising includes the processes of modelling, symbolising, generalising, formalising and abstracting. Therefore, mathematisation is a five-stage process, which can be elaborated as:

1. Identification of a real-life problem
2. Analysing the problem, i.e., identifying the relevant mathematics and organising it according to the mathematical concepts involved.
3. Promote the mathematical features of the situation and transform the real-world problem into a mathematical problem, that consciously represents the situation by gently trimming away the reality through processes like accomplishing assumptions, generalising and formalising.
4. Solve the mathematical problem.
5. Making sense of the mathematical solution in terms of the real situation including identifying the limitations.

Moreover, mathematisation involves the following cognitive processes:

- thinking and reasoning;
- discussion or argumentation;
- conversation or communication;
- modelling;
- problem solving and posing
- representation;
- using formal, symbolic and technical language and operations; and
- use of tools and aids.

The process to Develop Children's Ability for Mathematisation

Any mathematical task may comprise one or more of the above mentioned cognitive processes at various levels of complexity. With the help of these competencies, we can identify the ways we anticipate seeing children using numerical reasoning skills or working mathematically. Teacher's questions in the classroom are essential for the

development of learners' reasoning. These questions can encourage children to rationalise, analyse and evaluate their problem-solving strategies. Children can be asked to visit the data again in a systematic manner so that in the data, the assumptions related to patterns and relationships can be more focussed. We know that children are very enthusiastic so we can channel this enthusiasm, into opportunities to develop concepts in mathematics. Questions like, can you explain why this is right, how did you reach this conclusion, why do you think this, can you please show me how you did this, is there another way, might prove useful in probing learners' thinking and hence the ability to develop mathematisation.

In all competency classes mathematisation takes place, since there is a need to identify the relevant Mathematics in any contextualised problem. With the help of the following examples, the different complexities of mathematisation can be understood. The first one is an example where simple mathematisation is required and in the second example complex mathematisation is required.

Example 1: Geeta had ₹368 in her purse. She bought a book for ₹123. How much money is left in her purse?

Example 2: Rahul needs stamps of ₹25 for his parcel. He went to the post office. Only stamps for ₹1, 2, 5 and 10 were there at that time. Using those stamps in how many different ways can he make ₹25? What is the heaviest parcel he can send using stamps of ₹25?

The second example requires complex mathematisation, since it requires the child to recognise the relevant mathematics and also to develop and communicate a mathematical argument. Mathematics education should not focus on it being a closed system, but as the process of mathematisation, as an activity. Mathematisation provides a challenge for mathematics education as it becomes important to establish a critical position for mathematical coherence as well as new methods of the construction of meaning.

Mathematics is a process of abstracting ideas and generalising them. For example, if we want students to learn to add the one digit numbers by using drawing lines then, we also want them to abstract the idea of addition from their lines and not get stuck using lines for addition. Being able to do this unlocks the power of mathematics for students, because it allows them to work with more complex ideas in the abstract and then reapply this to the concrete situation. Representation in the physical world will be useful as far as they helps students make abstractions and work with these. For example: Halves and Quarters from Chapter 9, Class IV Math-magic Textbook NCERT, 2019.

9 Halves and Quarters

Mintu cat and Mottu cat were friends. Once they stole a chapati from Malini's kitchen. I will take it — said Mintu. No, I will take it — said Mottu. While they were quarrelling, there came Tittu Monkey. Hi! What is the problem? why are you quarrelling? — he asked. "We don't know how to divide this chapati between us — the cats said. OK! don't worry. I will divide the chapati equally for both of you — he said. Clever Tittu divided the chapati like this:

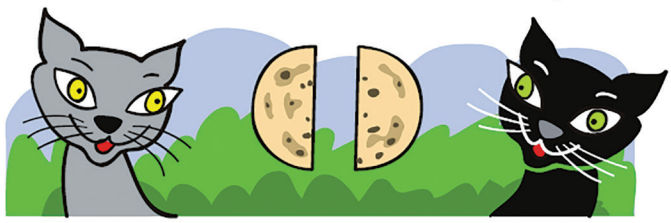
These are not equal, the left part is bigger — Mintu and Mottu said. Oh, no problem, I will make it equal — Tittu said. He then cut a part of the left piece and ate it.

Oh! Now the right part is bigger — the cats cried. I am sorry — said Tittu. He cut a part from the bigger piece and ate it. When there was only a small piece remaining, he said — This is my share for the work. Tittu then quickly ate the last piece and climbed the tree.

Half-Half

- If the cats ask you to divide the chapati equally, how will you divide it?

If you do not cheat like Tittu, the cats will have these parts.



Half of Half

- If two more cats come for food, how will you divide one chapati equally for four cats?

Half of Many Pieces

Rani got a chocolate. She divided it equally and gave half to her friend Reena.

- Circle the portion that Reena got.

Students should be taught to 'mathematise' the situation, to see the mathematics involved, its structure, and be able to articulate this through symbols. However, this process of mathematisation takes place in two different phases: Horizontal mathematisation and vertical mathematisation.

Where horizontal mathematisation is a process of interpreting the real world in terms of the mathematical world. For example 'Who is Heavier' Chapter 8, Class III, *Math-Magic* Textbook of NCERT.

8 Who is Heavier?

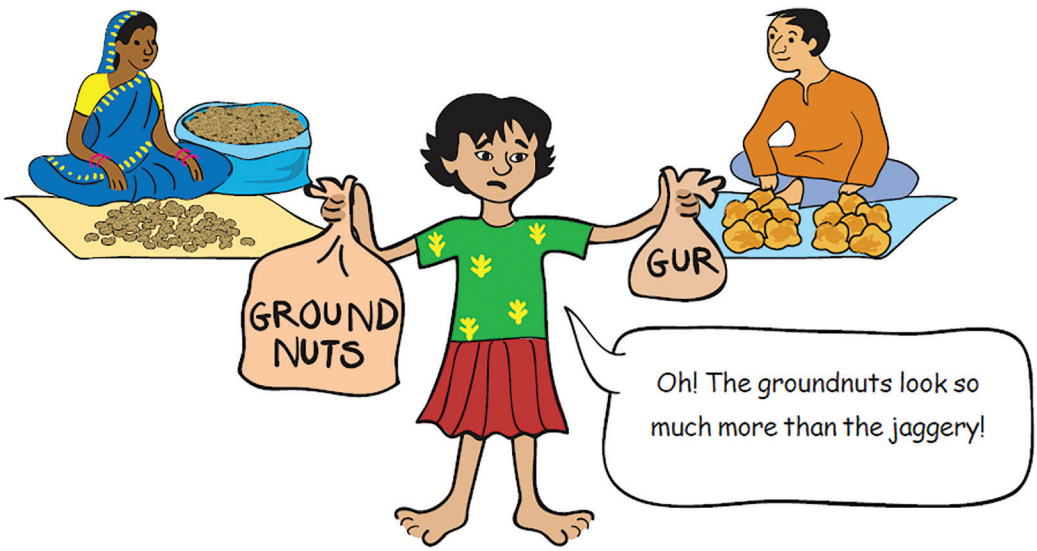
0325CH08

Gur (jaggery) and Groundnuts

Shabnam loved to eat jaggery (gur) and groundnuts.

One day she bought 1 kg of jaggery and 1 kg of groundnuts.

(You know that kilogram is also written as kg.)

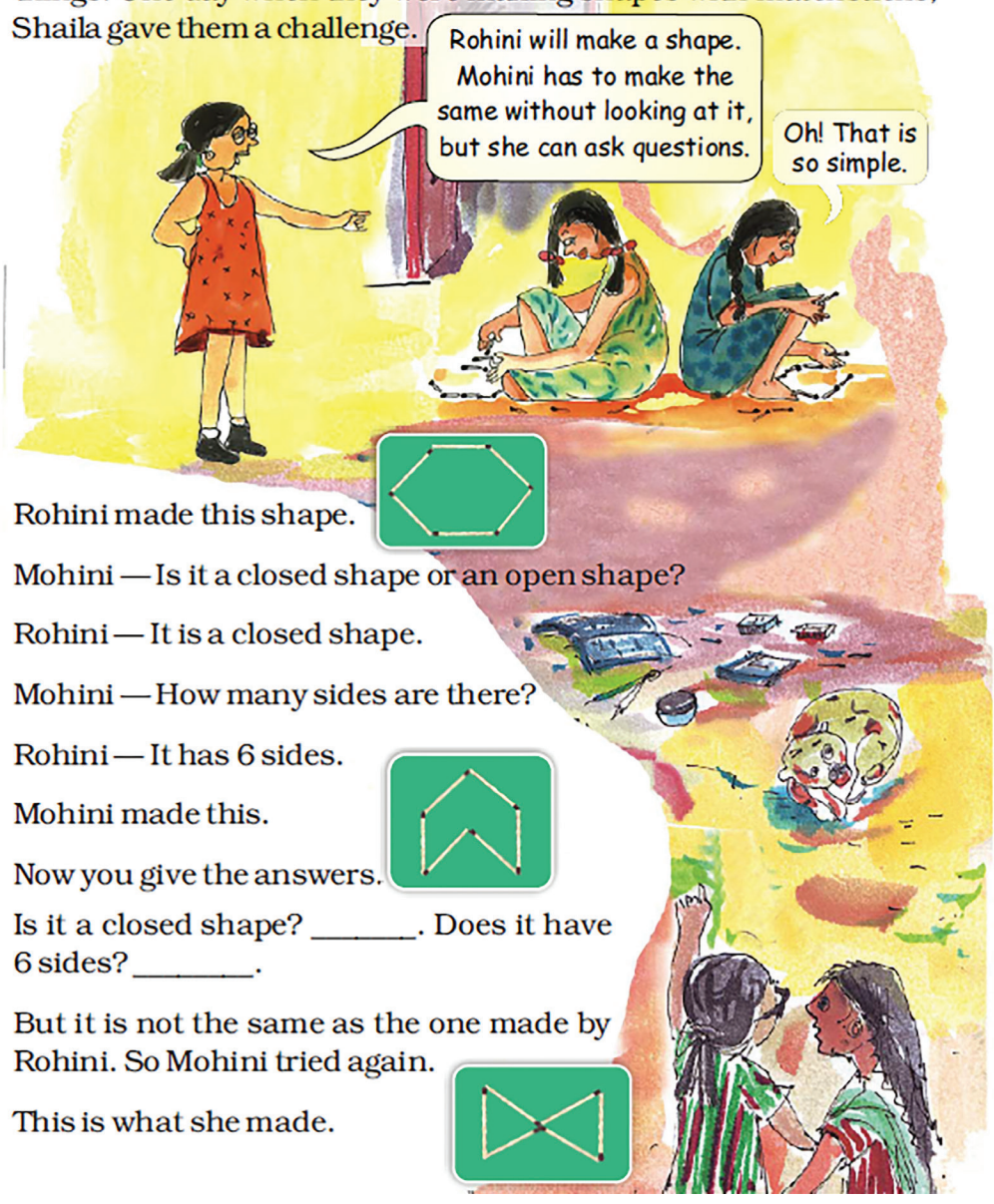


❊ Are the groundnuts really more than the jaggery (gur) in weight or do they just look more?

It explains how the gap between formal mathematics and informal mathematics is extended. It helps students to shift from the world of real life into the world of symbols. It encourages the students to initiate mathematical tools to organise and solve the real problem. Whereas, vertical mathematisation is the process of working on a problem within the mathematical world and using mathematical tools to solve the problem. It refers to the students working with the world of symbols. For example, 'Shapes and Angles' Chapter 2, from Class V *Math-Magic* Textbook, NCERT (2019).

2 Shapes and Angles

Rohini and Mohini are twin sisters. They love doing the same things. One day when they were making shapes with matchsticks, Shaila gave them a challenge.



Rohini made this shape.

Mohini — Is it a closed shape or an open shape?

Rohini — It is a closed shape.

Mohini — How many sides are there?

Rohini — It has 6 sides.

Mohini made this.

Now you give the answers.

Is it a closed shape? _____. Does it have 6 sides? _____.

But it is not the same as the one made by Rohini. So Mohini tried again.

This is what she made.

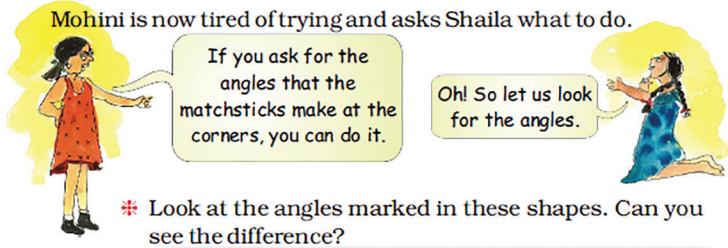
Is it a closed shape with 6 sides? _____

Is it the same as the one made by Rohini? _____

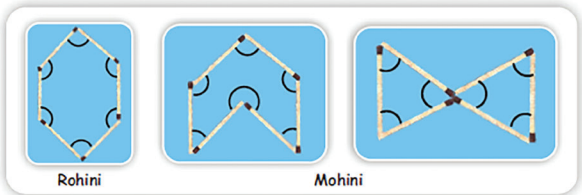
Is there some way to say in what way these shapes are different?

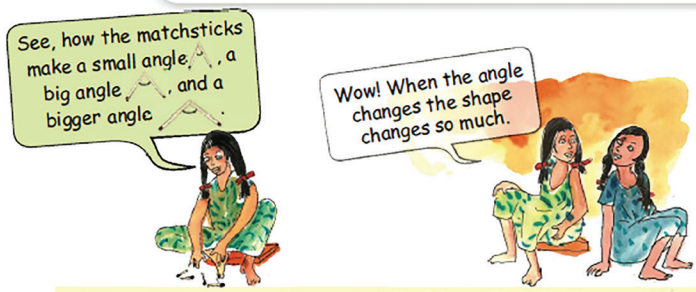
❊ Mohini tried again but got different shapes. Guess and make two more shapes Mohini could have made.

Mohini is now tired of trying and asks Shaila what to do.



❊ Look at the angles marked in these shapes. Can you see the difference?

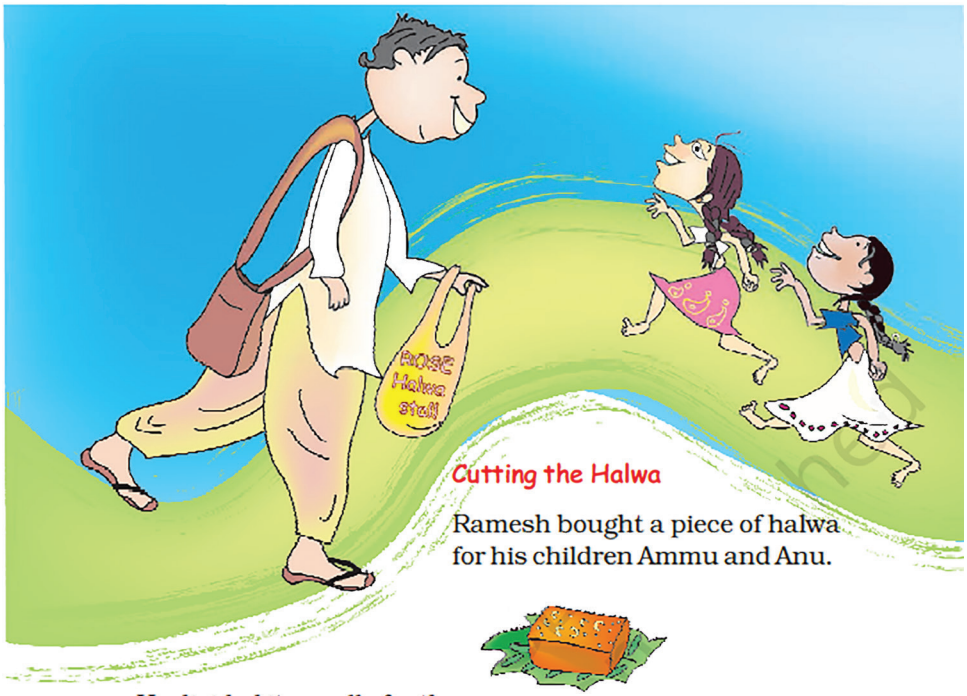




It is important to encourage children to think about the way in which shapes can differ even when the number of sides is the same. This will help them to get a sense of how angles determine the shape of a polygon.

It encourages the students to make connections between the concepts and strategies, leading to reorganisation within the mathematical system. Reflecting on the solution concerning the original problem is an essential step in the process of mathematisation.

Let us take an example of the learning process in mathematising. The topic is 'Fraction', which is the most difficult subject in primary school. A fraction can be learned by two methods, by using situations of fair sharing or by measuring situations. The situations of fair sharing encourage students to develop a fraction language. For example, 'Parts and Whole from Class V, Chapter 4, *Math-Magic* Textbook, NCERT (2019).



Cutting the Halwa

Ramesh bought a piece of halwa for his children Ammu and Anu.

He divided it equally for them.

* Each will get _____ part of halwa.

"This piece is too big. We can't eat it", they said.

So he divided the pieces into half again. Now how many pieces will Ammu get? _____

* What part of the halwa is it? _____

"Make it even smaller, Dad" they asked.

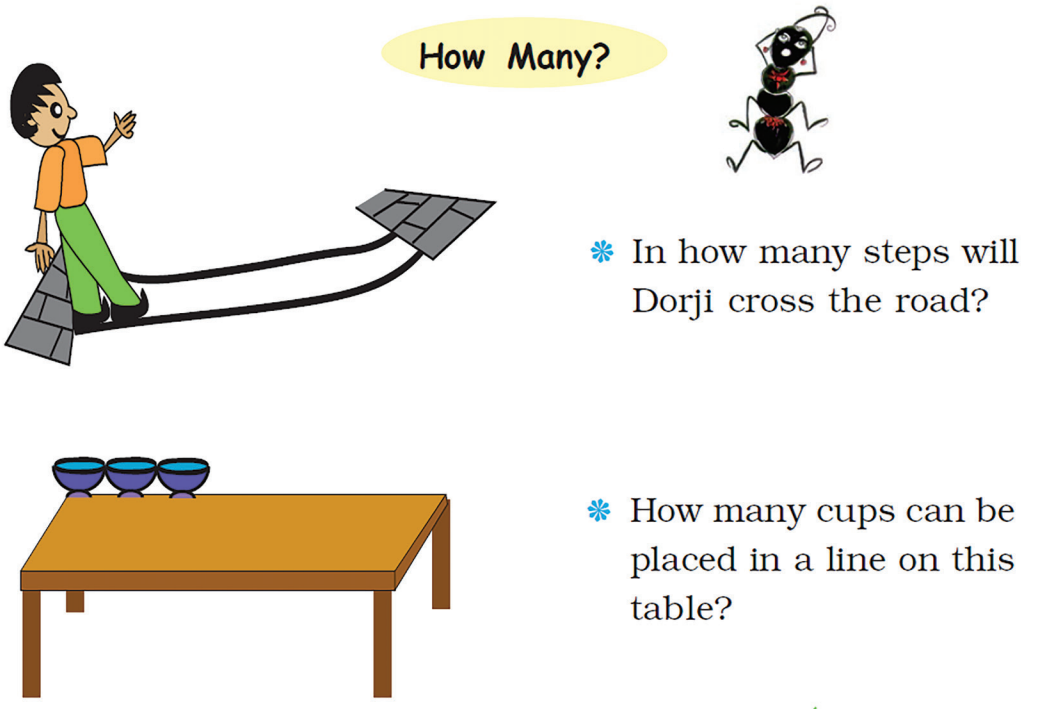
So he again cut the halwa into smaller pieces.

"Ok, thank you, Dad."

The sharing context starts with fractional notation and provides a process to concretise the concept. This sharing context starts with the fraction notation and provides a path to concrete fractions as part of a shape such as a circle. This fraction representation may be elaborated to constitute equivalent fractions and formal fraction subtraction and addition. Similarly, we use fraction language, but through the use of

measuring situations instead of situations of fair sharing. These measuring situations prepare students for positioning fractions on a number line, where equivalent fractions appear as fractions in the same position, hence forming a base for fraction operations. This example of learning Fractions is an example of the process of mathematising, as it can be seen as a process of modeling, symbolising, generalisation, abstraction, and formalisation. Moreover, the learning of fractions aims at vertical mathematisation, as one hardly experiences fractions in daily life; the fraction concept is about abstract and formal relations.

Mathematics must be connected to society and students should learn by the process of mathematisation. There is a need to prepare our students in terms of their problem solving skills and mathematical literacy to meet the challenge of mathematisation. By mathematical literacy, I mean the capacity of an individual to identify and understand the role mathematics plays in the world, for example: 'Long and short' lesson of Chapter 4 of *mathematics* Class III Textbook of NCERT.



This will help students to make well-established judgements and to engage with mathematics in ways that meet the needs of that individual's life as a constructive, concerned and reflective citizen. It emphasises the importance of solving mathematical problems in real-world settings. Central to this approach to defining mathematical literacy is the notion of mathematising. An important part of mathematics education is the ability to use and do mathematics in different situations. The type of mathematics used depends on the situation in which the problem is presented.

Children's ability for mathematisation can be developed if teachers:

- Emphasise a more interactive approach to teaching mathematics by engaging our students in discussing problems, both before they have solved the problem, and afterward. Identification of the mathematics needed to solve the problem, and discussing the students' reasoning after it has been solved are the main focus areas of discussion.
- Put more emphasis on the use of language in mathematics classes. There is a need to develop language skills in the students (including reading and writing). Students must be encouraged to engage in discussions about how to solve problems and how the solutions to problems can be applied in real-world contexts.
- Help students to develop mathematical knowledge in the context of solving problems. This can be achieved in part by providing students with real-world mathematics problems and by discussing with them the mathematics involved and how this mathematics can be applied to other problems.
- Do not over-emphasise on repetition in classrooms and exams. This can lead to students not getting an opportunity to apply higher-level competency, including connecting and reflecting. We should emphasise on the full range of cognitive competencies (processes) during teaching. Likely, the application of these competencies by students at all levels of ability will result in greater conceptual understanding and more independence in solving problems.

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11

Meaning-Making through Education in the Slums: My Experiences

T. Lhingneichin Haokip*

Introduction

The concept, perception, and definition of slums vary across the states, depending on their socio-economic conditions, but their physical characteristics are almost similar. Slums are usually a cluster of hutments with dilapidated and infirm structures having common toilet facilities, suffering from lack of basic amenities, inadequate arrangement for drainage, and disposal of solid waste and garbage (Slum Report, 2010: p.3). According to Encyclopaedia Britannica slums are "…residential areas that are physically and socially deteriorated and in which satisfactory family life is impossible…" Slums, hence, are not a conducive place to co-habit. And expecting the children from these ghettos to have quality education would be too tall an expectation. Needless to say, children in the slums are bound to miss basic life amenities that every normal child is expected to enjoy and cherish.

Field Experiences

The field experiences were opposed to what I had envisaged. This was a new excursion into a realm of social solidarity and togetherness made possible through education. This slum, which has roughly 20–30 odd households, is located in Timarpur, North Delhi, a few kilometres from the Delhi University North Campus. The children range in age from 5 to 15, with the majority attending primary and secondary schools. This is the story of my encounter with slum children and their way of life, and how they make sense of the education, we gave them. My interaction with the slum children transformed my perception

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of education. The instruction we gave them was not restricted to textbooks, but also included various additional activities such as music, games, and painting to help children acquire basic English language and grammar.

Community Support

Initially, getting along with the community was difficult. I questioned whether the team would ever win the locals' trust, and I still do at times. This was important since a youngster couldn't take part in the learning process without the parents' permission. The parents of the local children were more than pleased to embrace us with much expectation despite the social and cultural divides that separated us from them. This was a sharp contrast to the impression I had initially formed, which surprised me much. And this hands-on experience broadened my thinking and enabled me to accept them in return. This paved the way for a bonding that would endure for the following three years that I would remain devoted to them.

Figure 1: Teachers with the parents and students

Making-Meaning through Education

We all know that education is important for a child's overall development. With this idea in mind, we approached schooling with these children in a somewhat different way than the traditional method of imparting knowledge. The children's attention was gained with activities, singing, music, and the distribution of sweets towards the end of each lesson.

(a)

(b)

Figure 2 (a) and (b): Learning through fun and games

The personal engagement of the teachers in cleaning the surroundings started to leave positive impression on the children's ideas and minds. Earlier, the students used to be reluctant, or otherwise shy to sweep or clean the surroundings where classes were held. After a month, students began to assume responsibility on their own and would keep the classroom tidy and clean in preparation for our arrival. This made it quite simple for us to complete the tasks on schedule and without any fuss. This was a noticeable change in their behaviour, which even surprised many of the parents as the behaviour of their child is beginning to change for good. And as a result, the bond that we share became solidified and something to be cherished.

To enable us to continue these good deeds we also provide fascinating awards for the students and allow minor competitions to draw their attention. This not only helps them boost their interests but also encourages them to do better next time. Depending on the pupils' achievements, prizes range from pencils to instrument boxes.

(a)

(b)

(c)

Figure 3 (a), (b) and (c): Teachers engaged in cleaning the area meant for class and games

After the year, we had tokens for maximum attendance in class. And to ensure that the transfer of knowledge is not a burden to them, we practise a learner-cantred pedagogy and create space for interaction and learning by doing.

Any nagetive views or remarks from teachers were excluded to ensure that all pupils felt accommodated and included. We were required to always end the class or interaction on a good note. Furthermore, we also taught them to be disciplined and responsible sons and daughters both in school and at home. Eventually, some of the students began to excel in their performance at school.

(a) (b) (c)

Figure 4: (a), (b), (c): Teachers and students engaged in teaching-learning

Challenges

There were a few difficulties that I ran into when working with the kids. I wish to highlight a few difficulties by classifying them into tangible and abstract categories. The former concerned space, whereas the latter has to do with learning ability. Simply put, there wasn't enough room to shelter all the neighbourhood children. Hence, we decided to create a spot out of the only available space that was also being used as a dumping ground by the locals (Figure 1). On a rainy day, we had no choice but to cancel the class. Also, the youngsters' poor comprehension of the basic English that is taught to them makes it extremely challenging. This was not a surprise as most of them goes to the neighbouring Hindi-medium government school and were fairly alien to conversing in English. Hence, we had to teach them the fundamentals of communication using both Hindi and English languages. It was particularly challenging for teacher volunteers who could not converse in both the languages. But the love and compassion for the children and their hunger to learn gave us the much-needed impetus to try and give our best no matter the circumstances.

Conclusion

My involvement with the kids in the slum has made me felt more fulfilled as a responsible citizen. What is done with love and compassion makes a difference. Also, it provided me the chance to learn outside of the confines of the classroom. However, as education encompasses all facets of learning, learning, therefore can occur anytime and anywhere. Education like this helps underprivileged children and raises their aspirations for better accomplishments, whether in terms of their academic performance or their moral education and discipline, which is crucial for them to become a better citizen. One feels satisfied and meaningful when knowledge is shared with those in need. Furthermore, this noble task is in tune with NEP 2020 objectives, which aims to provide quality education for all regardless of their social and economic circumstances (pp. 3). Hence, it gives us every reason to forge ahead and contribute our part in changing lives that matter; and to do that in the lives of those children of the slums could be considered a noble act.

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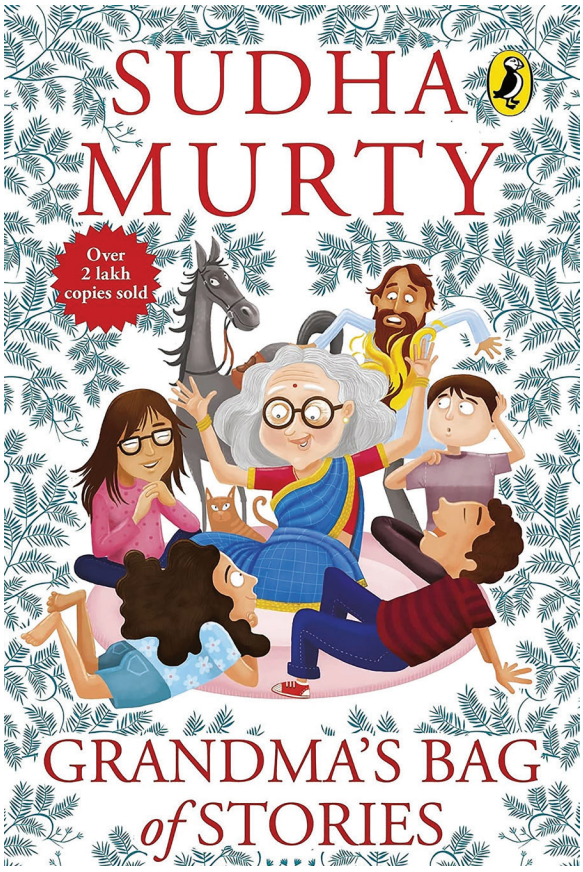
12

Grandma's Bag of Stories

Deeksha Marothia*

Author : Sudha Murthy
Illustrator : Priya Kuriyan
Ages : 6 years and above
Price : ₹ 250
Publishers : Penguin Books Limited
Year of Publication : 2015



Sudha Murthy, a renowned writer in English and Kannada, is an award-winning writer of children's fiction, who has written collections of short stories and four books for children. She is a recipient of the RK Narayan Award for Literature and also won Padma Shri for the same in 2006. Her '*Grandma's Bag of Stories*' is a collection of 22 short stories that were originally told to her grandchildren and also takes its inspiration from

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stories told by her grandmother, to her, while growing up. All stories are set in India, reflecting the rich culture and traditions of the country. Set in the backdrop of Shiggon, a sleepy town in North Karnataka, it features a variety of characters from young children like Raghu, Meenu, Anand, and Krishna to grandparents like Ajji and Ajja.

The cover of the book is illustrated by Priya Kuriyan in a variety of colours which makes the book look fascinating and leaves the young readers bewitched. It has elements of magic and adventure attached to it. There are some details that add depth to the character like Grandma Ajji's attire, 'saree', and a 'bindi', giving the Indianness to the character. In between the stories, there are simple yet beautiful black-and-white images which also make the details stand out.

Although the book contains many stories, few out them like, 'Doctor, Doctor' keeps the readers hooked throughout. 'Doctor, Doctor' for instance, is a story about a shopkeeper named Ravi who lives in a small village somewhere near a great desert in India. On a very hot and sunny day, Ravi receives a visitor in the form of a very old man in his shop. The old man is so tired and thirsty that he cannot utter a single word. He somehow opens his mouth to utter the word, 'water'. It is an acute drought, the villagers bring water from a faraway stream, making it extremely precious—every drop of it. Ravi offers water to the old man who, very surprisingly, empties the whole pitcher. Ravi feels dismayed to see this but still feels a sense of satisfaction as he has helped someone in real need. His kindness to the old, thirsty man turns the ordinary pot into a magical one. Whosoever drinks water from it gets cured of any ailment and deformity. What makes it so special is that it never gets empty. The shopkeeper and his magical pot become very famous even in faraway places in no time. People start coming to him more often to have the precious medicine. This makes him turn greedy and he starts favouring rich patients to earn a few bucks over the poor in need. Ravi's new found wealth also brings with it greed. One day again, the same old man returns but instead of quenching his thirst, Ravi goes to the palace to take care of the queen who was exasperated due to a mosquito bite.

If Ravi's kindness had given the pot magical powers, his greed turns it into an ordinary pot again. But before he could realise this, it was already too late. This makes him regret his choices and decisions, leaving him to live an ordinary life with an ordinary pot like before. This story is a heartwarming tale about the importance of kindness and compassion over monetary benefits. It teaches us that kindness is always rewarded when we help each other in difficult times and by doing so, we are also helping ourselves to become happier and more fulfilled people when we make a difference in the world while greed and selfishness will always lead to pain and suffering.

Another story, "Who was the happiest of them all?" is a story of a king named Amrit like king Akbar and

a minister named Chandan like Birbal in Akbar's court. The story is about king Amrit's desire to see how many people in his kingdom are content and satisfied with what they already have. For this, one fine day, he calls everyone to his kingdom and they are asked to share if they are content or in need of something more. Everyone declares that they are happy but to actually test their happiness, the king gives them all a task to go through his precious garden and pick fruits and flowers they like. Whosoever said earlier that they are happy with what they have, after going inside the garden and finding golden and silver fruits turns greedy and fills their sack with it. But after exiting the garden, they are faced by a stream of water through which the only way is to swim in, in order to cross it and reach the exit of the garden. Feeling sad, many people leave their full sack of fruits and flowers there and reach the king's kingdom. Seeing sad faces, the king asks them the reason. Out of many, only one man confesses that his happiness lay in the fact that the king made them visit his garden and not having a bag full of precious fruits and flowers. Listening to this and his minister Chandan makes him realise that "People's contentment does not end with having enough food or money. They also need to be truly happy inside. Only then will they not be swayed when they gain or lose wealth."

The story gives the lesson that in times of individual achievements and gaining milestones, the happiness lies in collective joy and well-being. Happiness is subjective and can be found in the simplest and smallest of things. It also highlights that every king needs a clever minister in the kingdom to show them the right path to rule the state smoothly just like how everyone needs someone in their lives to tell them the difference between right and wrong whenever needed.

Last but not least, the story, "What's in it for me" is told by Ajja instead of Ajji to kids. It's about a mouse known as Mushika who likes to get paid for everything he does no matter how big or small. He constantly seeks personal gain in every possible endeavour be it helping someone, or doing a chore his first question is always, "What's in it for me?" As the story progresses, he gets trapped in his plan and realises the true value of selfless actions and contentment which comes from acts of giving without expecting anything in return.

What makes all these stories stand out is the fact that the characters here are relatable and believable. The stories are well written and engaging with the plot which is easy to follow and leaves the reader hooked for more. The book is a must-read as it is not only heartwarming but thought provoking too and also teaches moral life lessons with the help of crisp and adventurous stories. It not only entertains young as well as adult minds but also educates. With blended magic and realism in the stories, it is a valuable addition to anyone's library.

Flowers—Nature's Wonderful Gift

Sharika Muthu*

When we go for a walk around the neighbourhood, or visit a garden or park, we are enthralled by the sheer beauty of flowers around us. While most of us love flowers, not many can identify more than a dozen varieties. Further, in these hectic times, not many adults bother to find out, even though the information is just a click away. A curious child may ask an adult the name of a flower, but if the adults (parents and teachers) do not know the names, the child's vocabulary does not increase.

The 'language experience' approach which combines the personal appeal of the learner's interest with carefully sequenced vocabulary development brings together two important features of language learning. To kindle a love for flowers (and by extension, to the environment) among young learners, teachers and elders need to make a little effort. All they need to do is to learn the names of a few flowers especially those that children see in their daily lives—and share them enthusiastically with young learners. Here are the descriptions of some common flowers along with their pictures.

Bougainvillea

Mainly cultivated as an ornamental vine, the plant bears small elegant flowers in thick clusters. It is also called the 'paper flower' due to its thin, papery flowers. The shrub grows in warm and temperate regions. A hardy, drought-resistant plant, bougainvillea thrives in the hot and dry Indian climate. It is typically grown along garden walls and streets, though it can also be cultivated in a large pot. However, its 'flowers'—purple, white, pink, magenta and orange—are not flowers! Botanically, these are called

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'bracts'. The flowers are tiny white blossoms that are surrounded by the brightly-coloured bracts.

Chrysanthemum

Mostly found in yellow, white, and purple colours, these pretty flowers grow in the winter months in India. Although most species originated from Asia, countless varieties have been cultivated from the original wild one. The flowers occur in various forms, and can look like small thick buttons or large showy blooms. The name 'chrysanthemum' comes from the Greek word 'chrysos' which means 'gold'—as the original flowers were golden-yellow.

Dahlia

Did you know that the dahlia is a composite flowerhead, meaning that it is not a single flower, each petal is a flower! In India, these thick, ball-like flowers thrive in the cooler months and can be seen in large numbers in private gardens and public parks. Dahlias are a great favourite at flower shows. These highly attractive blooms can be found in many bright hues such as yellow, pink, purple, red, and lavender, and even white ones with maroon streaks.

Hibiscus

Known for their large, showy flowers with curved petals and long stamens, the hibiscus flower is known as '*gudahal ka phool*', '*javaakusum*' or '*japaapushp*' in India. The 5-petalled red hibiscus is the national flower of Malaysia. The plants, with a thick foliage of serrated leaves, grow into dense shrubs and small trees. Thriving in warm tropical regions, this flower is found commonly in India, where hibiscus oil is also used as a hair oil. Hibiscus tea is very popular in many parts of the world, and is known for its vitamin C content. There are more than 200 species of hibiscus in the world. The flowers, though most commonly red, are also found in white, pale pink and orange colours.

Jasmine

Widely grown for its fragrance, jasmine is famous for its strong, sweet scent. The small, delicate blossoms grow in white clusters on short shrubs and bushes. In India, thousands of garlands made of fragrant white jasmine flowers are sold daily outside places of worship and also worn by women in their hair. A rare yellow jasmine is found at high altitudes in the Himalayas, and is known as a tonic for the heart. Many Indian girls are commonly given one of the many Hindi names of the flower - *Juhi*, *Chameli*, *Bela*, or Yasmeen. The soothing fragrance of jasmine is one of the most popular fragrances used in Indian incense sticks.

Lotus

India's national flower, the lotus is also known as 'sacred lotus' because it is Goddess Lakshmi's seat. Another name for Lakshmi is '*Padmaa*' which is the Sanskrit word for lotus. A large, graceful aquatic flower, lotuses are traditionally pink. The lotus is considered extremely sacred in Buddhism, as a symbol of

enlightenment and spiritual purity. The tiny, tasty fruit of the lotus can be eaten raw like any other fruit. The stem—known as '*kamalkakadi*'—is prepared as a delicacy in many parts of India. The lotus is sometimes confused with a water lily, which is a similar-looking aquatic flower. The so-called 'blue lotus' is a type of water lily.

Marigold

Who would not be familiar with marigolds—one of the most popular and common flowers in the world. Known as '*genda*' in India, here the flower is traditionally used in religious rituals. Foreign guests and very important people are welcomed with marigold garlands. The name 'marigold' is derived from "Mary's gold. The earliest use of marigolds is said to have been by the Aztec people who attributed magical and medicinal properties to these flowers. Marigolds are found in golden, orange, yellow, and deep saffron colours, and sometimes with dark maroon highlights.

Plumeria

Most species of plumeria are in the form of shrubs or small trees. Their blossoms grow in large clusters on ends of branches, and typically consist of five petals. The flowers, known in India as '*champaa*' give out their scent at night. Although the flowers are typically white, some uncommon species bear pink or yellow flowers. The flower is also called '*frangipani*'. Some plumeria plants can grow up to 30 feet tall!

Rose

This elegant flower comes in a variety of colours, from white and yellow to pink and red. Found all over the world, all varieties of roses are considered edible. Each rose colour has a different meaning, with yellow standing for friendship and red for love. There are numerous references to roses in literature, especially in medieval English poetry. The small Indian rose, deep pink in colour, is used to make '*gulkand*' - a kind of sweet jam, as well as a perfume.

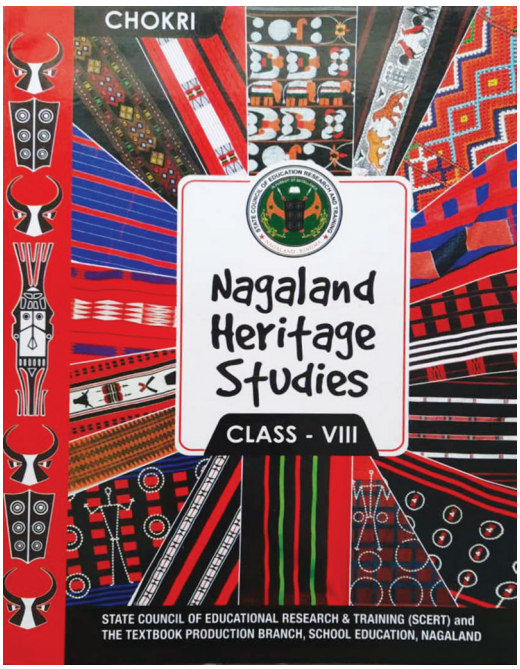
Snapdragon

These extremely attractive flowers grow in clusters on tall stems that get almost hidden by the blooms. It is widely used as an ornamental plant in gardens and also as a decorative cut flower kept in vases. The species has been grown since the fifteenth century. These flowers can be found in half a dozen colours including white, yellow, pink, red, orange, and purple. Snapdragons are also known as 'lion's mouth'.

Teachers could encourage learners to identify the flowers in their vicinity, relate them to seasons, and perhaps even grow some of these in a corner of the classroom or on a window ledge. Projects that involve creating bookmarks with pressed flowers, or block prints of floral patterns, can contribute to observation, identification, and an appreciation of nature.

Mother Tongue Education in Nagaland

Keduwe-u Tsuhah*



The first school in Nagaland was established in Mokokchung district in 1878. This laid the foundation of language education in the state. Despite having a small size population of approximately 20 lakhs (2011), the language variation in Nagaland is so diverse that no two persons meeting from two different tribes can understand one another. Ethnically, the Nagas are one. However, the languages spoken by different tribes are so distinct that they are not mutually intelligible. Though Nagaland has 18 officially recognised languages, English occupies the status of the official language of the State, owing to the local linguistic complexities.

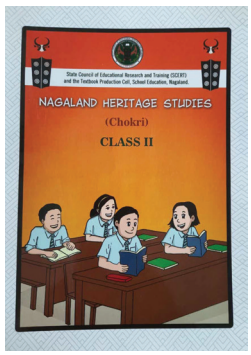
Recognising the need to preserve and introduce the mother tongue in schools, the Government of Nagaland constituted a committee to study the feasibility of introducing local languages to replace alternative English in the school curriculum. Based on the recommendation of the committee, the Nagaland Heritage Studies textbooks for Classes I to VIII were developed by the State

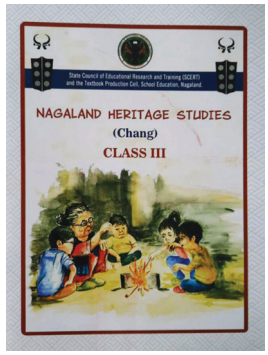
* *Vice-Principal,* Language Cell, SCERT, Nagaland

Council of Educational Research and Training (SCERT) Nagaland in collaboration with various Naga Tribal Organisations, State Centre for Naga Languages and Naga Literature Committees.

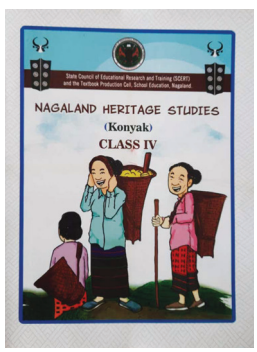
The introduction of Naga languages in the State's schools in 2018 aligned with the guidelines of the NCF 2002. While issuing a notification regarding the introduction of the Naga languages, the government made it clear that English would continue to be the medium of instruction in all schools. However, teachers are encouraged to explain difficult concepts and scientific terms in the mother tongue. The Nagaland Heritage Studies textbooks are developed for 18 different Nagaland languages in each class, i.e., from Class I to VIII. The languages are:

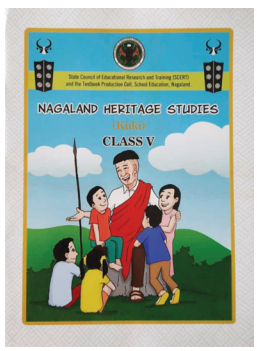
1. Ao
2. Chokri (Chakhesang)
3. Khuzhale (Chakhesang)
4. Chang
5. Khiamniungan
6. Konyak
7. Kuki
8. Lotha
9. Phom
10. Pochury
11. Nethenyi (Rengma)
12. Nzonkhwe (Rengma)
13. Sangtam
14. Sumi
15. Tenyidie
16. Yimkhiung
17. Liangmai (Zeliang)
18. Zeme (Zeliang)





The curricular expectations of Nagaland Heritage Studies textbooks used in schools, as a school subject, are not confined to language acquisition or proficiency in the mother tongue alone, but developed with the plan to teach the Naga languages using local culture and heritage as its content base. The contents have been selected encompassing nearly all the important aspects of Naga culture from across the Naga tribes.





The aims of Nagaland Heritage Studies are:

- to improve language skills in the mother tongue for effective communication;
- to promote multilingualism;

- to know and appreciate each other's culture;
- to foster unity among Naga tribes;
- to promote one's own tribal culture and language;
- to revive, and practice the common Naga traditional values of honesty, integrity and hard work;
- to enhance pupils' awareness of their immediate environment;
- to promote local literature, arts and crafts, and skills of local artisans; and
- to reacquaint the pupils with the universal values of justice, freedom concern for others well-being, and respect for human dignity and rights which are old Naga values as well.

It is hoped that the material would be of interest to other States/UTs as well.

To the Contributors

The Primary Teacher invites teachers, teacher educators and research scholars to write articles, field notes and reports that impact Primary stage of education. The focus areas may be issues and concerns that you feel should be shared with other stakeholders.

- 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 and a communicative tone.
- The photographs and illustrations should be sent in JPEG format, having a resolution of at least 300 dpi.
- The articles must be sent in soft and hard copy to:

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Regular Features

My Page

This section contains letters and feedback, where one can put forward responses, suggestions and expectations in the form of articles, papers and columns. It also addresses issues, concerns, doubts, incidences, experiences related to teaching-learning processes, classroom practices, syllabus, textbooks, evaluation patterns and research related to the primary stage of education.

Book Review

This section reviews fiction and nonfiction, books and documents relevant for school teachers. It provides a concise and critical perspective of a variety of works with details on language and style, along with a short summary, that would facilities schools in replenishing their libraries.

Did You Know

This section provide interesting snippets of factual information which helps teachers and teacher educators not only to expand their knowledge, but also, if used judiciously, contribute to increasing the interest of young learners in different areas of study.

From the States

Various initiatives are taken up in school education by States and Union Territories of the country. This section showcase the best practices in teaching, highlights supplementary reading material and discusses new approaches to training and orientation developed by States/UT that may be replicated or scaled by stakeholders in other regions.

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