

# Sahaja: the pathway to the attainment of literacy and numeracy skill through reinforcement

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## ABSTRACT

The paper highlights the modalities of eliminating the learning gap among the learners. At the outset the learning gaps underlying literacy and numeracy skill were located among the learners of class V. Basing on the gaps a module titled 'Sahaja' was developed and intervention was extended using the module for a period of six weeks. On completion of intervention endline assessment was done and a comparison of the performance of the learners between baseline and endline was done and it was found that elimination of learning gap was observed to the extent of 75 %. Thus the intervention proved effective.

**Keywords:** sahaja module, elimination, intervention, baseline test, endline test.

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Consequent upon the conduct of a member of training programmes for the teachers and transfer of the training inputs to the real classroom situation, it was found that some students lag behind others in respect of learning achievements. Learning gaps were visible in course of monitoring and evaluation. So the planner and educationist thought of some valid steps for the improvement in the scholastic achievement of the learners who could not

come to the level of their peers. The National Curriculum Framework (NCF) - 2005 and RCFCE Act-2009 both point to building on the child's knowledge, potential and talent through a child centric approach. It suggests that everything we do in or for the school should be geared towards a desirable development in student's learning level and prepares them for independence of thought and action, life-long learning, democratic values, creativity and life skills.

Under SSA, the States/UTs are expected to plan and implement interventions to ensure learning enhancement in children. These interventions can be broadly divided into three major categories: First, defining class-wise subject-wise learning outcomes/indicators; Second, planning specialized programmes and interventions including monitoring mechanism and systemic reforms; and Third learning assessment and evaluation of the interventions.

Access this article online	
<b>Publisher</b>	Website: <a href="http://www.ndpublisher.in">http://www.ndpublisher.in</a>
	DOI: 10.5958/2249-5223.2015.00004.2

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The RTE has specified that the teachers will complete the whole curriculum within specified time limit. To facilitate this process, the curriculum may be divided into various smaller units that may be subject to assessments as defined in the Continuous and Comprehensive Evaluation (CCE) modules of the State/ UT. This will also help the teachers to provide additional support to children who require the same for achieving learning benchmarks as defined.

The teaching learning programmes need to be so phased out over the year so that by the end of the grade the essential levels of learning as laid down in the curriculum are achieved by children of that grade. For instance, as per learning indicators developed by NCERT the curricular expectation of a child at the end of grade third are “Counts, Recognizes, Reads and Writes numerals for numbers up to 20. Adds and subtracts single digit numbers would be able to count, recognize, read and write numbers up to 20, add and subtract single digit numbers” hence the teaching learning over the year should cover lessons and activities which result in enhancement of the child’s knowledge to this level.

Traditionally, learning outcomes have been inbuilt in the syllabus and textbooks. Some States have now defined grade-wise learning indicators and NCERT has also developed an exemplar for guiding the States. Each States/ UTs should ideally define grade-wise learning indicators and NCERT has also developed an exemplar for guiding the States. Each States/UTs should ideally define grade-wise learning indicators as per their own syllabus. The academic authority must ensure that the text books, learning indicators and CCE module prescribed are aligned with each other. Defining learning indicators will facilitate monitoring of students’ learning objectively against expected benchmarks and sharing progress of the child with parents/ guardians. It will help identify the overall performance of a school with regard to learning and teacher effectiveness.

Defined learning outcomes are a point of reference for conducting achievement surveys (e.g., NAS of NCERT). Hence, learning indicators should be measurable so that the data can be analyzed over time to see trends and correlate it to the interventions.

### **Focused Programmes for ensuring learning**

States/ UTs are expected to strengthen their classroom

processes in order to optimize children’s learning. There needs to be a holistic plan for learning in which all components (e.g. teacher training, LEP, innovation, text books, school grants, teacher grants etc.) align, to ensure that children attain essential levels of learning, which can be assessed. Two such focused programmes are suggested below though States may put in place similar programmes for other classes/ subjects.

### **Defining Reinforcement**

Although reinforcement is commonly understood to mean “reward” this term has a particular meaning in psychology. A reinforce is any consequence that strengthens the behavior it follows. So by definition, reinforced behaviours increase in frequency or duration. Wherever behavior is noticed in the learner i.e. persisting or increasing overtime. One can assume the consequences of that behavior are reinforced for their individual involvement.

### **Concept of Remedial Measure**

Remedial teaching means a curative measure for the students who need pedagogical help. There are certain children also function at a lower than average level because of certain learning deficiency problem. Remedial teaching aims at ensuring the desired quality of learning in the way bringing the slow learners to an expected level or at least to the level of average children or more than that. Before extending remedial treatment the teacher has to identify the slow learners and the specific aspects in which they face difficulties. In order to do so, he has to diagnosis the learning difficulties of the learners through proper diagnosis on a physician’s diagnosis of the patient’s problems. He/She adopts several techniques to diagnose the learning difficulties of a learner. The techniques are conversation with the students, checking of written exercises, tests or observations.

### **Competencies to be achieved at the end of the learning cycle**

#### ***Literacy skill***

- ◆ Free Conversation, making sentence on pictures, Identification of 8 letters
- ◆ Picture Reading Identification of 7 letters
- ◆ Say & write 3 sentences on picture

- ◆ Learning 5 key conjuncts, Reading words & sentences using conjuncts
- ◆ Matra/ dia critical markers Ya phala & la phala, reading & writing words using phala
- ◆ Poem recitation, vocabulary development, Reading, Writing, Comprehension
- ◆ Recitation, Sentence Reading, formation of sentences
- ◆ Recitation, reading, writing, comprehension & handwriting
- ◆ Poem recitation, Reading & Expository writing, similar word writing & reading
- ◆ Question answer for comprehension, expository text & writing, sentence making, functional grammar, free writing
- ◆ Reading & writing prose & poetry, question-answer for comprehension, dictation.

#### **Numeracy Skill:**

- ◆ Counting, identifying and writing numbers from 1 to 9 ascending and descending order of number from 1 to 9 (oral & written)
- ◆ Comparison between big and small, near and far etc. counting, identifying and writing numbers from 1 to 9
- ◆ Counting, identifying and writing numbers from 10 to 20 classifying digits/ objects from 10 to 99 in tens
- ◆ Counting, identifying and writing numbers from 1 to 9 ascending and descending order of number from 1 to 9 (oral & written)
- ◆ Addition of single digit numbers  $sum \leq 9$
- ◆ Counting, identifying and writing numbers up to 100
- ◆ Numbers and operations
- ◆ Shapes and spatial sense
- ◆ Measurement
- ◆ Patterns
- ◆ Data handling

#### **Why the need for Reinforcement?**

- ◆ Literacy and numeracy skills are critical for content learning
- ◆ Maximum children are lagging behind in grade level

reading-writing and numeracy across the state

- ◆ Need for focused and targeted intervention for children lagging behind
- ◆ Need for structured and systematic instruction on skills and practice opportunities
- ◆ Time-bound remediation required to address deficiencies at the beginning of a grade to strengthen learning in curricular areas
- ◆ Children identified as at risk of achieving at or below minimum/basic competency levels need additional support.

#### **Objectives of the intervention**

- ◆ To identify the learning difficulties of the learners with respect to the basic competencies in reading and writing skills in language and four fundamental operations in numeracy
- ◆ To develop the level of learning achievement of each learner class-wise.
- ◆ To develop the basic competencies in pre-reading and writing for class-I and reading and writing and numeracy for class II- VIII.
- ◆ To examine the improvement in reading and writing and writing and numeracy skill of the learners.

#### **Major components concerning literacy and numeracy skill**

- ◆ As per the RTE Act 2009 teacher pupil ratio in the primary grades should be 1:30, it is desirable that there be dedicated teachers for classes 1 and 2 as these are foundational grades.
- ◆ An appropriate instructional design which clearly lays out the pedagogical approach to teaching of reading and mathematics. The instructional design should have a balance of oral work along with reading and writing every day. The class room activities should be planned around working with the whole class, children working in small groups as well as children getting an opportunity to work on their own. Instruction and activities must target the child's Zone of Proximal Development (ZPD), propounded by Vygotsky. A strong scaffolding component is critical. The teacher helps by extending purposeful support to the child to accomplish the task.

- ◆ The instructional design of the programme should ensure that children are actively engaged in meaningful learning activities. This can include opportunities to learn by doing and experiencing, constructing knowledge, and practicing skills. Contrastingly, repeating after the teacher and copying from the board are not active engagement activities and therefore should not be used in class instruction.
- ◆ Adequate instruction time at school each day. Developing early proficiency in language requires that adequate time is allocated for language in the time table. Research in reading has shown that in the early primary grades up to 300 – 400 hours (annually) should be set aside for language teaching-learning. Dedicated time during the school day for children to practice reading is critical. There should be dedicated time every day for reading books, in addition to textbooks. Such dedicated reading time is essential for students to practice reading, thereby increasing their positive habits of reading.
- ◆ A mix of oral work, reading, and writing in each class is important. Oral work, reading and writing are skills that support each other and are mutually reinforcing. Having a variety of activities in the classroom for each of their literacy components helps to keep students focused and on-risk.
- ◆ A mix of individual, pair, group, and whole class discussions and activities is ideal. Different activities require different class arrangements. Each arrangement helps to develop different skills. Using a variety of arrangements also keeps the class interesting, thereby increasing students' "time on task".
- ◆ For an early literacy (reading and mathematics) programme classrooms there must be reading corners/ classroom libraries that contain a variety reading materials of varying genres and of varying reading levels so that it can be used for instruction and independent reading. For mathematics there must be a collection of locally available material like stones, seeds, leaves, beads, twigs, bottle caps etc. which can be used for doing problem solving activities.
- ◆ Print-rich and attractive classrooms are important to encourage reading and learning. For many children, there world outside the classroom is print-poor and therefore does not expose them to many literacy materials (e.g. children's magazines, charts with children's names, sign boards, written instruction placed on class walls, poem posters, pamphlets etc.) the print material displayed in class must be used by teachers in their instruction. It is important that all print material for children is placed in the classroom at the eye level of children and is also changed regularly. Teachers must ensure that they provide space in the classroom where children's work (scribbling, drawing, and writing) is displayed. This motivates children and encourages them to attempt independent writing. Activities like children sharing their experience every morning or "show and tell", and one of the statement is written on the blackboard as "Aaj ki baat".
- ◆ Additional support to children who are falling behind the rest of the class is necessary during the year. Teachers, based on the continuous comprehensive evaluation of students should identify those children who need additional practice. Alongside it is desirable that at the beginning of the new academic session, generally after a long vacation, revision of previously taught areas are revised in class.
- ◆ Teacher professional development should be ongoing and planned over a long term period. ongoing professional development-when accompanied by ongoing on-site support increases the likelihood that new skills and practices are sustained.
- ◆ The CRC's/BRP's need to play a critical role in providing academic support to the teachers. Their support can be classified into five areas of instructional support for teachers: 1. Discuss the theoretical framework based on which the programme is designed; 2. Demonstration of activities; 3. Observation of teachers in the class; 4. Feedback and reflection about instruction, and 5. Supporting collaboration among teachers. At monthly meetings there could be practice of examining samples of students work and assessment data of students. Discussions on these information could help teachers in developing their plans for classroom instruction.
- ◆ The school leadership needs to provide a supportive environment to the teachers and students while also holding teachers accountable to ensure that children show progress in learning. School principals should

ensure that teachers regularly share progress of children with parents this could be through community based events or meetings at the school level, creating an educational partnership based events or meetings at the school level, creating an educational partnership between the school and the home.

- ◆ From the state level there should be clearly defined learning goals/ outcomes/ indicators. Teachers, education administrators, teacher trainers should all be working towards ensuring that classroom processes and resources are targeted towards children achieving these outcomes. Alongside there must be a system of monitoring progress towards the specified goals.
- ◆ The programme intervention should have an aligned component of research and assessment/evaluation. Through external agencies, States/ UT's should be assessing, for improvements in students learning. The effectiveness of the various components of the programme should be researched and evaluated in order to make necessary improvements/ corrections.

### Preparing Activities

Adequate monitoring mechanisms need to be put in place to support all efforts addressing student learning. Presently assessments on learning levels are well established at two levels: The NAS of NCERT at National level provides a snap shot of students learning achievements in different states. Through the CCE at school level teachers track the learning progress of students at regular intervals.

Odisha Primary Education programme Authority (OPEPA) has undertaken various studies at different phases of the projects operation like Base line Assessment Study (BAS), Mid-term Assessment Study (MAS) and Terminal Assessment Study (TAS) etc. to assess the school-wise as well as class-wise achievements of the students in different curriculum subjects especially in language and mathematics which depict lot of variations and those have also been observed in the process of Learning Achievement Tracking System (LATS) maintained annually under the project activities. The variations surfaced may be attributed to various factors such as; individual differences in learners' learning ability, motivations,, interest in learning and different types of learning difficulties faced by them. Taking into account OPEPA has conducted an achievement test on minimum

competencies in language and Mathematics of class-II and class-IV students covering 900 elementary schools across the state. In the academic year 2012-13 in the month of February-March, based upon the findings of the said survey the proposed Sahaja-in school reinforcement and learning enhancement programme has been incorporated.

### The existing scenario of academic standard of students studying in elementary schools of Odisha.

- ◆ The annual status of educational report (ASER) shows the findings that the class – II students of Odisha are unable to read and write two to three letter words by using Matra and Phala.
- ◆ The students of class V are unable to do the addition and subtraction by using without carry over and with carry over.
- ◆ The students of class VII are unable to write a short paragraph comprising four to five sentences.

### Planning activities

#### *An effective reinforcement plan*

- ◆ Use results of assessment to set a specific reinforcement plan
- ◆ Design activities for effective, direct, systematic instruction
- ◆ Targeted to develop specific skills that students are lacking
- ◆ Direct instruction is particularly critical in remediation
- ◆ Systematic presentation of skills and activities
- ◆ Step-by-step approach to allow time to practice and master individual skills
- ◆ An intensive and consistent schedule is important for success
- ◆ Strategies for whole-class and small-group instruction
- ◆ Strategies for self-learning, peer-learning and group learning
- ◆ Classroom is organized in terms of time (number of days per week and number of minutes per day)
- ◆ Daily repetition and lots of practice for students
- ◆ Slow paced
- ◆ Not content oriented but skill development based Focused on students with difficulties

- ◆ Complements classroom curriculum
- ◆ Activities allow children to put into use what was learnt
- ◆ Small-group based work for reduced teacher to pupil ratio
- ◆ Instruction aligned to competency framework, emphasize to teach skills not books
- ◆ Regularly assess to plan instruction
- ◆ Ensure that students demonstrate progress towards learning skills
- ◆ Implement the writing process along with reading in the classroom
- ◆ Daily intervention of reading-writing and numeracy

#### **Board framework for the Remediation Strategy**

- ◆ 8 weeks instructional strategy for focused intervention
- ◆ Weekly plan for 5 days in a week
- ◆ 1 daily sample lesson plan for literacy and numeracy
- ◆ Activities for assessments on the 6<sup>th</sup> day of the week
- ◆ Activities of transition to textbook teaching 6<sup>th</sup> week onwards
- ◆ Guidelines for teachers about the package and introduction to the strategy
- ◆ Guidelines for CRCCs for baseline, monitoring, end line etc.
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#### **Implementing strategy**

To address the children's deficiencies, the Department of Elementary Education, Government of Odisha decided to introduce an experimental learning enhancement and

reinforcement programme called 'SAHAJA' for the entire state that aimed at improving the learning achievement of low achiever children in literacy and numeracy from class II to class VI at the initial stage of the two months reinforcement programme. This programme was launched in the state on July 1<sup>st</sup> 2013 and would continue up to August 31<sup>st</sup> 2013. Prior to launching of the reinforcement programme a school level base line assessment in both literacy and numeracy was undertaken by the CRCCs with the help of teachers during the last two weeks of June, 2013 with regard to the learning difficulties of children pertaining to the basic competencies in reading, writing and numeracy. Afterwards, the children in each class have been divided in two groups: (a) Guided/reinforcement Learners (GL), (b) Self Learners (SL), while the prior one received special attention and guidance from the teachers, the latter were encouraged to monitor their own learning with minimal help from the teachers. However, presently there are no such groups among the learners. In this regard the reinforcement programme have been elaborated in detail in the instructional manual 'SAHAJA' developed by the department of school and mass education, Government of Odisha. The Sahaja programme was instituted in every school as per the specified guidelines of three hours exercise in the first half of school hours every day i.e. 1 hour and 30 minutes devoted to reading and writing, 30 minutes to only writing and 1 hour to numeracy. For effective classroom transactions pertaining to Sahaja, the teachers have been oriented at the cluster level. The teachers are supposed to plan lessons and activities on a daily basis. In this regard sample lesson plans for each day and a week have been provided in the booklet, allowing flexibility to teachers to develop their own lesson plans. Teaching learning activities for each week for both the groups have been provided in the booklet for the entire duration of eight weeks. Further, the children in each class i.e. from std. II to VI were subject to weekly basis assessment by the teachers and the end line assessment was carried out by the CRCCs at the end of the two months programme for the year 2013-14. In this regard, the regular school timetable was modified to accommodate the instructional components for the reinforcement programme during July and August 2013.

However, this reinforcement programme launched on experimental basis depicted some opportunities to the

department in the form of experiences and reflected problems as well during the implementation. Taking into account the problems, the department brought some modification in the programme. This modified approach was operated from 3<sup>rd</sup> week of March 2014 to the last week of April 2014 for the children from class-I to VIII. Subsequently, this approach continued till 30<sup>th</sup> June, 2014. However, the Summative Assessment-II for the academic session 2013-14 was considered as the base line test for Sahaja during the academic year 2014-15 likewise the Formative Assessment-I for the academic year 2014-15 has been considered as the end line test for the reinforcement programme Sahaj. Meanwhile, OPEPA has also developed month wise instructional manual for the respective classes. Now onwards no more groups would be formed among the students like GL and SL to avoid a feeling of inferiority complex among the learners. It has been instructed to the teachers that the reinforcement programme would continue in the classroom activities i.e. on the 3<sup>rd</sup> and 4<sup>th</sup> period of Wednesday and 3 hours on Saturday after drill class. For the year 2014-15, the initiative has been integrated with curricular transactions process having specific guidelines.

### Evaluating procedure

#### *Learning Assessment and Evaluation of Intervention*

A questionnaire was developed to know the status of children consequent upon the implementation of Sahaj Programme in Rasulgarh UGP Cluster under Bhubaneswar Municipal Corporation, Odisha. The following findings were arrived at

**Table 1:**

(Learning attainment in Language of class V students under 'Sahaja' Programme)

N = 154

Sl.No	Concept	Baseline test	Endline test
1	Speaking	75 %	81 %
2	Reading	73 %	79 %
3	Writing	61 %	72 %
4	Vocabulary	78 %	83 %
5	Functional grammar	82 %	88 %
6	Comprehension	59 %	66 %

**Table 2**

(Learning attainment in Mathematics of class V students under 'Sahaja' Programme)

**N = 154**

Sl.No	Concept	Baseline test	Endline test
1	Fractional number	48 %	66 %
2	Division	66 %	68 %
3	Addition and Subtraction of Fractional number	70 %	75 %
4	Currency	80 %	92 %
5	Measurement	82 %	94 %
6	Weight and Capacity	73 %	79 %
7	Calender	84 %	88 %
8	Data handling	86 %	89 %

Out of 10 schools it was noticed that 75 % students out of 154 students had improved in literacy (reading and writing). 68 % of students have developed the numeracy skills. Thus the Sahaja Programme helped the students in respect of improving the skills to a considerable degree.

### Conclusion

The programme is continuing on regular basis to bridge the learning gaps in respect of numeracy and literacy according to the competitions. However the teachers need to be committed to fulfill the noble purpose of the reinforcement programme.

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