



THE EFFECTIVENESS OF ACTIVITY BASED CURRICULUM ON MATHEMATICS PERFORMANCE OF STUDENTS AT THE PRIMARY LEVEL IN WEST BENGAL

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ABSTRACT :

India have passed the one decade of RTE ACT 2009. At present we are threshold of Samagra Shiksha Avijan, Achieving quality education is main objective of this act. Mathematics education is considered of the dimension of quality education. After the introduction of NCF-2005 and RTE Act-2009 ,all the state redesign their primary curriculum. New text book is developed as per guideline. West Bengal Bard of Primary Education is published new mathematics book at primary level from 2012. Paschim Banga PaschimBanga Samagra Shiksha Avijan is regularly monitor the Continuous and comprehensive Evaluation(CCE) ,Teachers' Training on pedagogy,issues at primary school. Yet the recent survey of NAS2017 indicated the that the mathematics performance of students is not up to the marks. Objective of the study are i) to find out the importance of activity based curriculum of mathematics at primary level. ii) to identify the constraints to teaching activity based curriculum in the classroom.iii)to analysis the effectiveness of activity based curriculum on mathematics performance of students at the primary level. Study is a survey type .Data is collected from ten primary school of Howrah district. Population is the primary students. Primary teacher, schools inspectors interview is taken .then conclusion is reached. Sustainable learning outcomes comes forms regular activity based class teaching. Teacher load in the school, large classroom, lack of TLM, mathematics kit hampers the activity based class teaching. Twenty marks achievement test on mathematics (class-III) is conducted among 130 students. It finds (80%×80% criteria, χ^2 test) that students score the better performance in the mathematics on activity based contains.

KEYWORDS : Curriculum.NAS 2017,NCF-2005,RTE Act.

INTRODUCTION:

India have passed the one decade of RTE ACT 2009. At present we are threshold of Samagra Shiksha Avijan, Achieving quality education is main objective of this act. Mathematics education is considered of the dimension of quality education. After the introduction of NCF-2005 and RTE Act-2009 ,all the state redesign their primary curriculum. New text book is developed as per guideline. West Bengal Bard of Primary Education is published new mathematics book at primary level from 2012. Paschim Banga PaschimBanga Samagra Shiksha Avijan is regularly monitor the Continuous and comprehensive Evaluation(CCE) ,Teachers'



Training on pedagogy, Shala Siddhi ,CAL,RAA ,IE issues at primary school. Yet the recent survey of NAS2017 indicated the that the mathematics performance of students is not up to the marks. West Bengal Government has framed the primary education on the child centric education, constructivist learning, activity based learning, pear learning, joyful learning. Jacque Delors in his book "The treasure Within" (1996 ,UNESCO) emphasized our pillar of education

–i] Learning to know, ii] learning to Do .iii] learning to live together. vi] Learning to be. In every philosophy of education activity is the centre. Secondary education commission (1952-53) remarked the present curriculum is narrowly conceived, It is bookish and theoretical .It is true today also.

OBJECTIVES OF THE STUDY:

Objectives of the study are

- i) To find out the importance of activity based curriculum of mathematics at the primary level.
- ii) To find out the constraints to conduct Activity Based Teaching of mathematics in classroom at primary level.
- iii) To analysis the performance of students in mathematics through activity based learning on activity based contains.

Operational Definition of the Terms:

NCF-2005: National Curriculum Framework 2005 for school education was published from NCERT, NEW Delhi. It gave the reforms the school curriculum. Primary text book are written on the basis of recommendation of NCF-2005

RTE ACT-2009: Right to Free and compulsory Education Act 2009 is came to effect from April 2010. Now education is a fundamental right up to elementary level/

NAS-2017: National Achievement Survey conducted by NCERT .They made a survey of learning outcomes on the students of schools students at the year 2017. Here only their survey result mathematics of class III student of Howrah district of West Bengal is considered.

REVIEW OF LITERATURE:

Draft National Educational Policy(2016): Re –vamping Teacher Education for Quality Teachers as follows New curriculum framework for Teacher Education ,2014 of two year duration at primary and secondary levels includes Ethics ,Arts & Crafts ,Music ,Physical Education and life skills to ensure all round development of children.

Right of children to free and compulsory Education Act 2009 also tells learning through activity, discovery and exploration in child friendly and child centered manner and making the child free of fear trauma and anxiety and helping the child to express views freely. Discovery learning or guided discovery encourages students to make guesses based on incomplete information and stimulates them to find their own systematic means to solve problems. Teacher teaches new concepts with the help of examples. New learning should be applied to many different situations. It is necessary to apply cognitive constructivism in classroom. Is this guideline really followed in the mathematics class teaching?.

NCF highlighted the following points

- Ensuring that learning is shifted away from rote method,
- Connecting knowledge to life outside the school,
- Making examinations more flexible and integrated to classroom and life,

RTE ACT 09 in chapter iv in duties of teacher says that teacher should complete entire curriculum within the specified time and assess the learning ability of each child and accordingly supplement additional instruction .So it is very urgent to review the class teaching in primary stage. Mathematics class transaction how get new dimension on the light of NCF 2005 and RTE Act 2009:

Utkarsha Abhiyan 2015 in West Bengal point out that the mean score in mathematics ,among grade 3 learners of the state emerged as 24(60%) ,out of total score of 40.Eight district scored a little above the state average. Six district scored below the state average .

National Achievement Surveys(2014) (NAS) since 2001 has been periodically conducted by The National Council Of Educational Research and Training (NCERT) .for classes III,V and VIII. National average

score in mathematics Class III students' performance I is 252 on a scale ranging from 0 to 500 in the year 2014. West Bengal is just above the national average (255). Whereas high score was Uttar Pradesh (298). Tamil Nadu (279) and Karnataka (269). As per their report

- 1) Overall .69% of Class II students were able to solve problem based On Addition.
- 2) 65% of Class students were able to solve problem based Subtraction.
- 3) 63% of Class III students were able to solve problem based on Multiplication.
- 4) 57% were able to solve problem based on Division.

Annual Status Of Education Reports (ASER), is the sample based house hold survey in their findings 2010-2012 : " the situation with even more worrying. In most states, children are expected to do simple division problems by Std IV. The ASER data for 2012 indicates that three out of four children in std V have difficulty in correctly solving a 3 digit by 1 digit division problem. Even in std VIII about half of all children are unable to solve such problem. Students of std V have done a simple division problem..

Population and Sample: Population of the study is all the primary student .sample is taken from West Bengal state only.

Data and Sources of Data: Primary data is collected from primary school. Teacher and School Inspectors. Secondary data is taken various books, survey reports .

Methodology: This is a mixed type study. chi square test is used for testing of teaching strategy. A case study is also taken among ten primary schools in Howrah District. 80%×80% criteria, χ^2 test is used.

ANALYSIS AND FINDINGS:

The importance of activity based learning of mathematics at the primary level:

The movements of ABC was started by Rousseau, Montessori, Dewey and Gandhiji. John Dewey said " activity curriculum is a continuous stream of child's activities unbroken by systematic subjects and springing from the interests and personality felt needs of child. 'he also remarked : Life is a by-product of activities and education is bone out of those activities, Activity makes life dynamic and education is preparation for dynamic life.

- 1) It makes a relationship between the theory and practical work.
- 2) Emotional development of the child takes place in a natural way through activities.
- 3) Activities curriculum makes the child self-reliant. It helps to develop a spirit of co-operation. In this way it helps socialization or social development of the child.
- 4) According to Revised Bloom Taxonomy of Education Objectives (2001) said six steps of cognitive development Remembering –Understanding – Applying –Analysis –Evaluation –Creating. So classroom instruction should be given in this way so that sustainable learning outcomes is achieved.
- 5) Students Creativity: The freedom of an activity based curriculum creates an openness and spirit for experimentation in the classroom .Students apply into physical ,mental and emotional knowledge as they explore the material through physical tasks.
- 6) Activity based curriculum is led by students .This curriculum creates responsibility for the students holding them accountable for seeing the lesson through in a meaningful way .
- 7) For sustainable development of learning outcomes the activity based classed teaching is very much needed.
- 8) It increase observational skill of the pupils . established the idea "Learning by doing."
- 9) As per educational Psychology We learn
 - 1) 10% of what we read.
 - 2) 20% of what we hear.
 - 3) 30% of what we see.
 - 4) 50% of what we see and hear.
 - 5) 70% of what is discussed with others.

- 6) 80% of what we experience personality ; and
 - 7) 95% of what we teach.
- At present 95% of the school conducted activity based teaching

Constraints to conduct Activity Based Teaching of Mathematics in Classroom:

1. In the primary school all schools does not have the minimum four classroom, where each class students can sit separately, multiclass room. Teacher remarks regarding the space of the classroom. Seating arrangement of the student should be changed like circle, oval ,semi circle,
2. Main aim of Activity based curriculum is to provide the knowledge behind the activity. Teaching learning material helps to construct the theoretical knowledge. This is sometimes scattered.
3. In class I & II activity teaching is very essential but class III ,VI all contains does not apply activity teaching,
4. Teacher are not empowered in this method due to lack of teacher training.
5. There are not maintained the pupils teacher ratio 30:1 (as per RTE Rule) in the primary school.
6. Teacher load is the one of the important things as per remarks of teacher.
7. There is no mathematics kit, mathematics lab, insufficient of TLM hamper the activity based learning.

Present Activity Base Teaching in the classroom:

In chapter V section 29 RTE Act 2009 clearly indicate ‘Comprehensive and continuous evaluation of child’s understanding of knowledge and his or her ability to apply the same.’ Summative and formative evaluation is started in the classroom. Five point indicator are-

1. Participation.
2. Questioning and Experimentation.
3. Interpretation and Application.
4. Empathy and Cooperation.
5. Aesthetic and Creative Expression.

West Bengal Board of Primary Education introduce the “Peacock Model” at primary level for students for Formative Evaluation ,The indicator of the evaluation are

P	E	A	CO	CK
Participation	Experimentation	Application	Cooperation	Creation in the process of Construction of Knowledge

This are the all activity oriented frame work in the classroom.

In every mathematics contain there are clearly indicated the name of material that will be used in the class teaching by the teacher like color cards, ball, straw ,seeds etc/

The performance of students in mathematics through activity based learning (A Case study)

National Achievements Survey (NAS)-2017 has published their report card of Howrah district, as per their report lowest performing learning outcomes are

1. Fills given region leaving no gaps using a tile of a given shapes (48.75%) .
2. Estimates and measures length and distance using slandered units like centimeters or meters & identifies relationship (58.31%).
3. Extends patterns in simple shapes and numbers (66.82%).
4. Solving simple daily life problem using addition and subtraction of three digit numbers with and whit out regrouping (69.13%).

This is a case study 10 primary school of Howrah district in 60 the primary schoolteacher, students and guardians and school inspectors are interviewed,

District	Block	Name of Primary School
Howrah	Shyampur I	Shyampur primary School Gobindapur Prinary School
Howrah	Bagnal	Bagnan primary school. Khalor primary school
Howrah	Bally Jagacha	Raghunathpur primay school Shantiramn primary school
Howrah	Shyampur II	Anantapur primary school. Ramnagar primary school.
Howrah	Amta	Amta primary school. Mondalpara primary school

Achievement test (25 marks,45 mts) is taken five activity based contains of class III mathematics ,addition ,subtraction , multiplication, clock and money. Achievement test shows the better result than earlier.

1) The performance of students in mathematics on activity based contains& through activity based learning

Class -III	80% and above marks	80% Below marks	Total	χ^2	df	Level of significance
Observed	112	118	130	1.78	1	NS
Expected	104	26	130			

Interpretation:

Results indicates that χ^2 is not significant at .05 level. Meaning there by the distribution of students on 80%× 80% criteria based on actual and expected number of no80%× 80% criteria not differ significantly. The observed distribution is more positive than expected distribution. Therefore students showed better performance after providing activity based learning.

CONCLUSION:

In our country primary students comes different socio economic backgrounds. Their achievement levels is not same. They have different learning styles. So not all students benefit equally from same activity. Every teacher have different teaching style. Above all if we accumulate all we have to use the activity to construct the knowledge. Activity based curriculum is very much effective for children with special needs. According to the NCERT document of NCF-2005, "The higher aim is to develop the child's resources to think and reason mathematically, to pursue assumption to their logical conclusion and to handle abstraction. It includes a way of doing things and the ability and the attitude to formulate and solve problems." It is only possible through activity based curriculum and teaching.

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