

## TRANSFORMING EDUCATION: NEP 2020 AND PARAKH IN MATHEMATICS ASSESSMENT

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### Abstract:

*This paper provides a comprehensive overview of the National Education Policy (NEP) 2020 in India and its implementation through PARAKH, specifically focusing on competency-based assessment in mathematics. The NEP 2020 outlines a visionary approach to the development of education in India, addressing various educational facets. PARAKH, established as a constituent unit of NCERT, plays a pivotal role in setting norms, standards, and guidelines for student assessment aligned with NEP goals.*

*The implementation of PARAKH in mathematics signifies a shift from traditional rote learning to competency-based assessment strategies. Examples include real-world problem-solving, mathematical modeling, and project-based assessments. The paper emphasizes the continuous and comprehensive evaluation (CCE) approach, integrating formative and summative assessments to provide a holistic view of students' mathematical abilities. The reduction of examination stress is addressed through learner-centric assessments, offering alternative methods beyond traditional exams.*

*Teacher training initiatives aim to equip educators with the skills to effectively implement competency-based assessments, emphasizing continuous professional development. The promotion of higher-order thinking skills in mathematics encourages critical thinking, problem-solving, and collaborative learning. The shift towards student-centric learning fosters personalized education, emphasizing conceptual understanding over rote memorization.*

*In conclusion, this paper underscores the transformative impact of NEP 2020 and PARAKH on the Indian education system, particularly in the field of mathematics. The focus on competency-based assessments aligns with global educational trends, promoting a holistic and skill-oriented approach to learning and evaluation.*

**Key Words:** *National Education Policy (NEP) 2020, PARAKH, Competency-Based Assessment, Educational Reform, Student-Centric Learning.*

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### Introduction:

The National Instruction Approach 2020 can be a comprehensive report that follows the vision and goals for the advancement of instruction in India. It covers distinctive viewpoints of instruction, tallying early childhood care and instruction, school instruction, higher instruction, proficient instruction, educator preparing, and more. The course of action of policy focuses to change over the instruction framework to meet the needs of the 21st century and to create India a around the world data superpower.



**Previous Policies:** The application of previous policies on education has focused largely on issues of access and equity. The unfinished agenda of the National Policy on Education 1986, modified in 1992 (NPE 1986/92), is suitably dealt with in this Policy. A major development since the last Policy of 1986/92 has been the Right of Children to Free and Compulsory Education Act 2009 which laid down legal underpinnings for achieving universal elementary education.

National Assessment Centre, **PARAKH (Performance Assessment, Review, and Analysis of Knowledge for Holistic Development)** has been set up in NCERT as a private constituent unit of NCERT dated 8th Feb 2023, to fulfill the basic objectives of setting norms, standards, parameters and execute activities related to student evaluation.

PARAKH has been launched as part of the implementation of the National Education Policy (NEP)-2020 that predicted a standard-setting body to advise school boards regarding new evaluation patterns and latest research and promote associations between them. It will act as a constituent unit of the NCERT. It will also be tasked with conducting regular learning consequence tests like the National Achievement Survey (NAS) and State Achievement Surveys. It will work on three major assessment areas: large-scale assessments, school-based assessment, and examination modifications.

#### **Objectives:**

- **Uniform Standards & Rules:** Setting standards, guidelines and rules for understudy appraisal and assessment for all recognized school sheets of India.
- **Upgrade Evaluation Design:** It'll energize and help school sheets to move their evaluation patterns towards assembly the expertise prerequisites of the 21st century.
- **Decrease Difference in Assessment:** It will bring consistency over the state and central sheets which right now take after diverse measures of assessment, driving to wide incongruities in scores.
- **Benchmark Appraisal:** The benchmark appraisal system will look for to put an end to the emphasizing on rote learning, as envisaged by the National Instruction Arrangement (NEP) 2020.

#### **Scope of PARAKH:**

Parakh is a term that gained attention in the context of education in India with the rollout of the National Education Policy (NEP) 2020. "Parakh" in the NEP 2020 refers to the concept of assessment reform in the Indian education system. It emphasizes a shift towards competency-based assessment and learning outcomes.

Here are some key points about Parakh within the NEP 2020:

1. **Competency-Based Assessment:** Parakh emphasizes moving away from rote learning and traditional examination-based assessments to assessments that focus on the development of competencies and skills among students.
2. **Continuous and Comprehensive Evaluation (CCE):** Parakh aligns with the principles of continuous and comprehensive evaluation, where students' progress is assessed continuously throughout the academic year using a variety of assessment tools and methods.



3. **Formative and Summative Assessments:** Parakh encourages the integration of formative assessments (assessments for learning) and summative assessments (assessments of learning) to provide a more holistic view of students' abilities and progress.
4. **Reduction of Examination Stress:** One of the goals of Parakh is to reduce examination stress among students by promoting assessments that are more learner-centric, allowing students to demonstrate their understanding and skills through various means beyond traditional exams.
5. **Promotion of Higher-Order Thinking Skills:** Parakh encourages the assessment of higher-order thinking skills such as critical thinking, problem-solving, collaboration, and communication. Assessments are designed to evaluate students' ability to analyze information, synthesize ideas, and apply their knowledge to real-world challenges.
6. **Teacher Training and Capacity Building:** Parakh also involves training teachers and educators to implement competency-based assessments effectively and to provide support to students in their learning journey.

#### **Role of PARAKH, NCERT:**

At the National level, PARAKH must reinforce and back the execution of Competency-Based Assessments (CBA) which would include the following steps:

- **Curriculum Design:** Got to collaborate with instructive specialists and partners to plan competency-based educational module. These educational modules would characterize the competencies (information, abilities, states of mind) understudies are anticipated to illustrate. by the conclusion of each review or educational level.
- **Competency Based Appraisal System:** The competencies are then organized into an evaluation system that traces the movement of skills and information from one review level to the following. This system gives a clear pathway for understudies to create their capacities and skills.
- **Learning Outcome:** Clear learning results are characterized for each competency, depicting what understudies ought to be able to do to appear capability in that area.
- **Teacher Training:** PARAKH will organize preparing programmes for the instructors to get it the competency-based approach and how to plan and regulate appraisals that adjust with the characterized competencies and learning outcome
- **Student-Centric Learning:** With CBA, there is regularly a move toward more personalized and student-centric learning. In this way, empowering understudies to advance at their possess pace and evacuating the learning - burden.

#### **Role of PARAKH, SCERTs:**

- **Educational programs Advancement:** SCERTs play a vital part in planning the competency-based curriculum for the state. They work with subject matter experts, educationists, and teachers to characterize the competencies and learning results for each review level.
- **Evaluation Framework:** SCERTs are dependable for creating the assessment system, which incorporates

guidelines for planning competency-based appraisals. It needs to be guaranteed that the evaluations adjust with the characterized competencies and precisely degree students' proficiency.

- **Teacher Training and Support:** SCERTs should organize workshops, preparing programs, and workshops at the district level for instructors to assist them get it the modern competency-based approach. They ought to provide resources and bolster to instructors to viably actualize CBA in their classrooms.
- **Quality Assurance:** SCERTs need to check and evaluate the performance of CBA in schools across the state. They should conduct quality assurance checks to confirm that the evaluations are clean, unbiased, and measure student capabilities.

### **Implementation of PARAKH in mathematics:**

The implementation of **PARAKH** in mathematics involves a shift from traditional rote learning and exam-focused assessment methods to a more comprehensive and skill-oriented approach. Here are some ways in which PARAKH can be used in mathematics:

#### **1. Competency-Based Assessment in Mathematics:**

- Move away from memorization-based assessments to focus on students' understanding of mathematical concepts and their ability to apply them.
- Design assessments that evaluate problem-solving skills, critical thinking, and practical application of mathematical concepts.

examples of Competency-Based Assessment in Mathematics:

Competency-Based Assessment (CBA) in mathematics focuses on evaluating students' ability to apply mathematical concepts in real-world situations rather than just testing their memorization skills. Here are some examples of Competency-Based Assessment tasks in mathematics:

#### **1. Real-World Problem Solving:**

- Task: Present students with a real-world problem that requires mathematical analysis and solution.
- Example: Calculate the budget for organizing a school event, considering expenses such as venue rental, catering, and decorations.

#### **2. Mathematical Modeling:**

- Task: Ask students to create a mathematical model to represent a specific scenario or phenomenon.
- Example: Develop a mathematical model to predict population growth in a city over the next decade based on current trends.

#### **3. Project-Based Assessment:**

- Task: Assign a project that requires the application of various mathematical concepts to solve a complex problem.
- Example: Design a city layout considering factors like population density, traffic flow, and optimal land use, using geometric and algebraic principles.

#### **4. Case Studies in Mathematics:**

- Task: Provide a case study that requires students to analyze and apply mathematical concepts to make

informed decisions.

- Example: Analyze the financial data of a company and recommend strategies for cost reduction or profit maximization using mathematical reasoning.

**5. Mathematical Presentations:**

- Task: Require students to prepare and deliver a presentation on a mathematical concept or theorem.
- Example: Present the application of trigonometry in real-life situations, such as navigation, architecture, or physics.

**6. Collaborative Problem-Solving:**

- Task: Assign group projects that involve collaborative problem-solving and mathematical reasoning.
- Example: Work in teams to solve a mathematical puzzle or create a board game that incorporates mathematical concepts.

**7. Data Analysis and Interpretation:**

- Task: Provide a set of data and ask students to analyze, interpret, and draw conclusions using statistical methods.
- Example: Analyze survey data on students' preferences and present findings, including measures of central tendency and graphical representations.

**8. Critical Thinking Tasks:**

- Task: Pose open-ended mathematical problems that require critical thinking and creative problem-solving.
- Example: Develop a solution strategy for a complex mathematical problem, explaining the thought process and rationale.

**9. Mathematical Investigations:**

- Task: Encourage independent exploration of mathematical concepts through investigations and research.
- Example: Investigate the patterns and properties of a specific mathematical sequence or explore the applications of fractals in nature.

**10. Performance Tasks:**

- Task: Assess students through performance tasks that involve applying mathematical skills in a hands-on context.
- Example: Design and conduct a survey, collect and analyze data, and present the findings using appropriate mathematical representations.

These examples emphasize the application of mathematical knowledge and skills in practical scenarios, aligning with the competency-based approach to assessment in mathematics.

**2. Continuous and Comprehensive Evaluation (CCE) in Mathematics:**

- Implement continuous assessment throughout the academic year, using various tools to evaluate students' progress in mathematical understanding.
- Include a mix of formative assessments (ongoing assessments during the learning process) and summative assessments (end-of-term evaluations) to provide a holistic view of students' mathematical abilities.

Examples of Continuous and Comprehensive Evaluation (CCE) in Mathematics:

continuous and Comprehensive Evaluation (CCE) in mathematics involves ongoing assessment throughout the academic year, covering a range of skills and aspects beyond traditional exams. Here are some examples of CCE tasks in mathematics:

**1. Classroom Quizzes:**

- Conduct regular quizzes to assess students' understanding of recently taught mathematical concepts.
- Example: A quick quiz on solving equations or geometric theorems.

**2. Peer Teaching and Assessment:**

- Assign topics to students for peer teaching, followed by assessments by classmates.
- Example: A group of students teaches the class about probability, followed by a short quiz prepared by their peers.

**3. Math Journals:**

- Ask students to maintain a math journal where they record their reflections, problem-solving strategies, and personal insights.
- Example: Reflect on a challenging problem-solving experience or share a real-world application of a mathematical concept.

**4. Mathematical Puzzles and Games:**

- Integrate puzzles and games that require mathematical thinking and problem-solving skills.
- Example: Sudoku puzzles, logic games, or strategic board games that involve mathematical concepts.

**5. Group Projects:**

- Assign collaborative projects that involve research, problem-solving, and presentation of mathematical topics.
- Example: Investigate the history of a famous mathematician and present their contributions to the class.

**6. Class Discussions:**

- Facilitate class discussions on mathematical concepts, encouraging students to express their ideas and reasoning.
- Example: Discuss the applications of geometry in the real world and the importance of understanding spatial relationships.

**7. Mathematical Debates:**

- Organize debates on mathematical topics or problem-solving approaches, allowing students to defend their perspectives.
- Example: Debate on whether algebra or geometry is more fundamental in everyday life.

**8. Portfolio Assessment:**

- Create portfolios that showcase students' mathematical work, including problem-solving tasks, projects, and reflections.
- Example: A portfolio containing various mathematical artifacts, such as solved problems, project reports,

and self-assessments.

#### 9. Peer Evaluation of Projects:

- Incorporate peer evaluation into group projects, where students assess their peers' contributions and collaboration.
- Example: Each group member evaluates the effectiveness of their teammates in a collaborative geometry project.

#### 10. Open-Ended Problem Solving:

- Present open-ended problems that require critical thinking and creative solutions.
- Example: Solve a real-world problem involving multiple mathematical concepts and present the solution process.

#### 11. Self-Assessment and Goal Setting:

- Guide students in self-assessment and goal-setting exercises related to their mathematical skills and understanding.
- Example: Reflect on personal strengths and weaknesses in algebra and set specific goals for improvement. These CCE examples in mathematics aim to provide a more comprehensive and continuous evaluation of students' mathematical abilities and understanding.

#### 3. Formative and Summative Assessments in Mathematics:

- Integrate formative assessments, such as quizzes, class discussions, and peer evaluations, to gauge students' understanding and provide timely feedback for improvement. Use a variety of formative assessments, such as exit tickets, concept maps, or one-minute papers, to gauge ongoing understanding. Example: A one-minute paper summarizing the key concepts learned in a particular lesson.
- Use summative assessments, like traditional exams or projects, to evaluate overall mathematical proficiency.

#### 4. Reduction of Examination Stress in Mathematics:

- Create assessments that are learner-centric, allowing students to demonstrate their understanding of mathematical concepts through various means, reducing stress associated with traditional exams.
- Provide alternative assessment methods, such as project work, presentations, or problem-solving tasks, to showcase mathematical skills beyond written tests.

#### 5. Teacher Training in Mathematics:

- Organize training programs for mathematics teachers to understand and implement competency-based assessment strategies effectively.
- Equip teachers with the skills to design assessments aligned with defined competencies and learning outcomes in mathematics.

#### Continuous Professional Development:

Encouraging teachers to participate in workshops, seminars, and other professional development opportunities to stay updated on best practices.

**Student-Centric Approaches:**

Promoting student-centric approaches in mathematics education.

Training teachers to focus on the individual needs, interests, and learning styles of students.

**6. Promotion of Higher-Order Thinking Skills in Mathematics:**

- Design assessments that focus on higher order thinking skills, including critical thinking, problem-solving, and logical reasoning.
- Encourage students to apply mathematical concepts to real-world situations, fostering a deeper understanding of the subject.

**Problem-Solving Challenges:**

- Present students with open-ended, real-world problems that require critical thinking and creativity.
- Encourage collaborative problem-solving and discussion among students.

**Mathematical Investigations:**

- Assign projects or investigations that require students to explore a mathematical concept in-depth.
- Allow students to choose topics of interest and formulate their own research questions.

**7. Student-Centric Learning in Mathematics:**

- Foster personalized and student-centric learning in mathematics by allowing students to progress at their own pace.
- Implement strategies that remove the burden of traditional rote learning, emphasizing conceptual understanding and practical application.

**Conclusion:**

The National Education Policy (NEP) 2020 in India represents a significant and comprehensive reform in the education sector. PARAKH can enhance the teaching and learning process, promoting a more comprehensive and skill-oriented approach to assessment in alignment with the goals of the National Education Policy 2020.

**References:**

<https://parakh.aicte-india.org/>

MARATHI.pdf (education.gov.in)

<https://aslap.aicte-india.org/aboutus>

Aithal, P. S.; Aithal, Shubhrajyotsna (2019). "Analysis of Higher Education in Indian National Education Policy Proposal 2019 and Its Implementation Challenges". *International Journal of Applied Engineering and Management Letters*. 3 (2): 1–35. SSRN 3417517

[https://www.education.gov.in/sites/upload\\_files/mhrd/files/NEP\\_Final\\_English\\_0.pdf](https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf)

<https://www.drishtias.com/daily-updates/daily-news-analysis/parakh>

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