



Shri Mohatadevi Shikshan Sanstha, Aurangabad.

PRAGATI MAHAVIDYALAYA

Sawkheda, Tq. Sillod, Dist. Aurangabad.

Affiliated to: S.N.D.T. Women's University, Mumbai

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Dr. Varsha Phalke
Principal

Ref No.: PMS/2023 -2024/—

Date : 22/11/2023

Report on the Three-Day Online Faculty Development Program (FDP) on “Teaching Methodologies”

Introduction: The three-day online Faculty Development Program (FDP) on “Teaching Methodologies” was conducted from 20-11-2023 to 22-11-2023. The program was hosted by PragatiMahavidyalaya, Sawkheda, Sillod, in collaboration with SantDasganu Arts Commerce and Science College, Akolner, Ahmednagar, and New Bhagwandas Arts Commerce and Science College, Tanpurwadi. The FDP aimed to enhance teaching skills and methodologies among faculty members, fostering a better learning environment in educational institutions.

FDP Details:

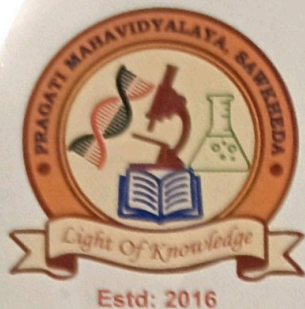
- Mode: Online
- Dates: November 20-22, 2023
- Hosted by: PragatiMahavidyalaya, Sawkheda
- Collaborating Institutions:
 - SantDasganu Arts Commerce and Science College, Akolner
 - New Bhagwandas Arts Commerce and Science College, Tanpurwadi
- Program Coordinator: Prof. Chandranayan K. Waghmare
- Principal: Dr. Varsha S. Phalke

Day 1: November 20, 2023

Speaker: Prof. Sandhya Shinde (PragatiMahavidyalaya, Sawkheda)

Topic: How to Teach Science Using Models

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Overview of the Session: The first day of the Faculty Development Program (FDP) on "Teaching Methodologies" began with a thought-provoking session by Prof. Sandhya Shinde, a seasoned educator from PragatiMahavidyalaya, Sawkheda. The focus of her presentation was on the crucial role that models play in science education. Recognizing that science can often be abstract and challenging for students, Prof. Shinde articulated how models can serve as vital tools to bridge this gap, enhancing comprehension and engagement.


Importance of Using Models in Science Education: Prof. Shinde commenced the session by discussing the necessity of using models in teaching science. She stressed that models not only simplify complex concepts but also facilitate active learning. By providing visual and tangible representations of scientific phenomena, models enable students to grasp ideas that might otherwise seem elusive.

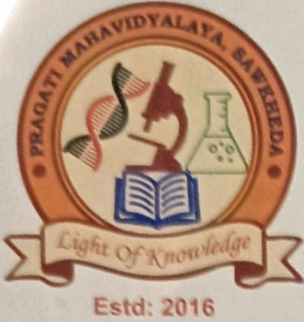
Types of Models Highlighted: Throughout her presentation, Prof. Shinde categorized models into three primary types:

1. Physical Models:

- These are three-dimensional representations that can be touched and manipulated. Examples include:
 - **Molecular Models:** Demonstrating the structure of compounds.
 - **Anatomical Models:** Used in biology to illustrate human or animal anatomy.
- Prof. Shinde emphasized the effectiveness of physical models in helping students visualize spatial relationships and physical structures.

2. Conceptual Models:


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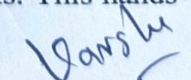
- Conceptual models are often diagrams or flowcharts that illustrate processes and relationships. Examples include:
 - **The Water Cycle Diagram:** Showcasing the phases of evaporation, condensation, and precipitation.
 - **Food Chain Diagrams:** Explaining energy flow in ecosystems.
- These models aid students in understanding complex processes through simplified visuals.

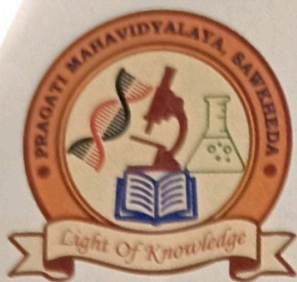
3. Mathematical Models:

- Mathematical models use equations, graphs, and statistical methods to represent scientific laws and principles. Examples include:
 - **Graphing Population Growth:** Utilizing exponential and logistic growth models.
 - **Chemical Reactions:** Representing relationships between reactants and products.
- Prof. Shinde noted how mathematical models can quantitatively express relationships and predictions in science.

Practical Demonstrations: To illustrate her points, Prof. Shinde conducted several practical demonstrations during the session. For instance:

- **Building a Physical Model:** Participants were shown how to construct a simple model of a water molecule using common materials like balls and sticks. This hands-


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on activity not only reinforced the concept of molecular structure but also encouraged creativity in representation.

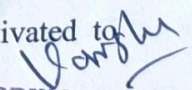
- **Interactive Conceptual Mapping:** Prof. Shinde guided the attendees in creating flowcharts for various scientific processes. This exercise allowed participants to experience the process of breaking down complex concepts into manageable parts.
- **Mathematical Modeling:** She demonstrated how to use a basic graphing tool to visualize data related to population studies, showing how mathematical models can provide insights into real-world issues.

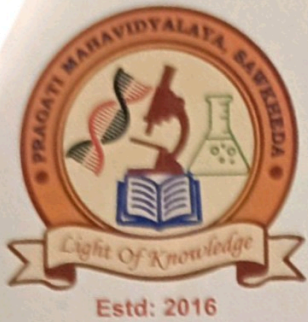
Interactive Discussions: A key feature of the session was the interactive discussion format. Prof. Shinde encouraged participants to share their experiences and insights on using models in their own teaching. Educators from various backgrounds contributed examples of successful model-based teaching strategies, highlighting:

- **Student Engagement:** Many participants noted an increase in student engagement and understanding when models were integrated into their lessons.
- **Challenges Faced:** Several educators discussed challenges, such as resource limitations and the need for training in creating and using models effectively.

This exchange of ideas fostered a collaborative atmosphere, enabling participants to learn from each other's successes and challenges.

Day 1 Summary: Prof. Sandhya Shinde's session on *How to Teach Science Using Models* was not only informative but also empowering. By equipping educators with practical strategies and encouraging interactive participation, the session laid a solid foundation for effective science teaching methodologies. Participants left the session with a renewed understanding of the importance of models in science education and were motivated to


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Implement these strategies in their classrooms. The day set a positive tone for the remainder of the FDP, emphasizing collaboration and innovative teaching practices.

Day 2: November 21, 2023

Speaker: Prof. Jadhav Akanksha (Sant Dasganu Arts Commerce and Science College, Akolner)

Topic: National Education Policy (NEP) 2020

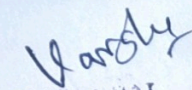
Overview of the Session: On the second day of the Faculty Development Program (FDP), Prof. Jadhav Akanksha delivered a comprehensive presentation on the National Education Policy (NEP) 2020. This landmark policy represents a significant shift in India's educational landscape, aiming to make education more holistic, flexible, multidisciplinary, aligned to skill needs, and aimed at bringing out the unique capabilities of each student.

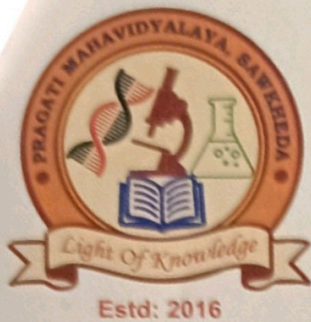
In-depth Analysis of NEP 2020: Prof. Akanksha began the session by outlining the historical context and objectives of NEP 2020. She emphasized that this policy aims to transform both the curricular and pedagogical approaches in Indian education to meet the evolving demands of society and the economy.

Key Changes Introduced by NEP 2020: The session delved into several key components of NEP 2020:

1. Multidisciplinary Education:

- NEP 2020 promotes a multidisciplinary approach to education, allowing students to choose subjects from various disciplines. This flexibility


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encourages students to explore their interests and strengths, fostering a more personalized learning experience.

- Prof.Akanksha discussed how institutions can design integrated curricula that encourage connections between subjects, enhancing students' critical thinking and problem-solving skills.

2. Vocational Training:

- A significant aspect of NEP 2020 is the integration of vocational education at all levels, starting from Grade 6. Prof.Akanksha highlighted the importance of skill development and preparing students for the job market by providing hands-on training in various vocational fields.
- She illustrated how schools and colleges can collaborate with industries to create training programs that are relevant to local economies, ensuring that students gain practical experience.

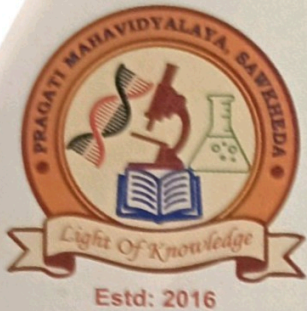
3. Focus on Critical Thinking and Creativity:

- NEP 2020 emphasizes the need for education systems to nurture critical thinking, creativity, and innovation among students. Prof.Akanksha urged educators to move away from rote learning and encourage inquiry-based learning environments.
- She presented various teaching methodologies, such as project-based learning and experiential learning, which promote creativity and allow students to apply their knowledge in real-world scenarios.

4. **Assessment Reforms:** The policy calls for reforms in assessment systems to focus more on formative assessments rather than high-stakes examinations. Prof.Akanksha

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suggested implementing continuous assessment methods that provide a more comprehensive view of a student's capabilities and learning progress.

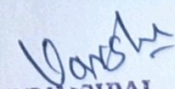
5. Use of Technology:

- Prof.Akanksha highlighted the role of technology in enhancing education quality and accessibility. NEP 2020 advocates for the integration of digital tools in teaching and learning processes.
- She shared examples of how educators can leverage online resources, e-learning platforms, and digital tools to enhance engagement and facilitate blended learning environments.

Adapting Teaching Methodologies: Throughout her presentation, Prof.Akanksha emphasized the importance of adapting teaching methodologies to align with the NEP's vision. She encouraged educators to:

- **Embrace Flexibility:** Adapt curriculum structures to allow for interdisciplinary projects and coursework that reflect students' interests and career aspirations.
- **Encourage Collaboration:** Foster collaborative learning environments where students work together on projects, promoting teamwork and communication skills.
- **Enhance Teacher Training:** Participate in ongoing professional development to understand the principles of NEP 2020 and implement effective teaching strategies.

Interactive Discussion: The session also included an interactive component, where participants engaged in discussions about the implications of NEP 2020 for their institutions. Educators shared their thoughts on:


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Implementation Challenges: Many participants voiced concerns about the practical challenges of implementing NEP 2020, such as infrastructure limitations and resistance to change among faculty.

- Success Stories:** Some educators shared successful initiatives they had implemented in their institutions that aligned with NEP principles, showcasing innovative teaching methods and collaborative projects.

Day 2 Summary: Prof. Jadhav Akanksha's session on the National Education Policy (NEP) 2020 was a pivotal part of the FDP, providing educators with a clear understanding of the policy's vision and the necessary steps to adapt their teaching practices accordingly. Her insights and strategies aimed at promoting a more holistic and student-centered educational framework were met with enthusiasm from participants, leaving them motivated to embrace the changes envisioned by NEP 2020. The discussions also emphasized the collaborative spirit among educators, fostering a sense of community and shared purpose in advancing the quality of education in India.

Day 3: November 22, 2023

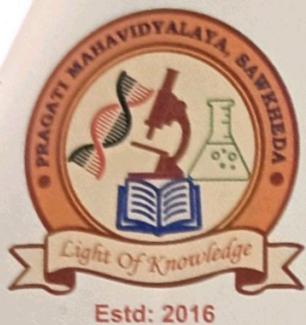
Speaker: Prof. Ramsantosh (New Bhagwandas Arts Commerce and Science College, Tanpurwadi)

Topic: Teaching Mathematics

Overview of the Session: On the final day of the Faculty Development Program (FDP), Prof. Ramsantosh delivered a compelling presentation on effective strategies for teaching mathematics. Acknowledging the common perception of mathematics as a challenging subject for many students, he aimed to provide educators with innovative methods to make math more engaging and applicable to real-life situations.

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Innovative Strategies for Teaching Mathematics: Prof.Ramsantosh began his session by discussing the critical need to shift traditional math teaching methods toward more interactive and relatable approaches. He stressed that mathematics should not be perceived as an abstract set of rules but rather as a practical tool for solving real-world problems.

Key Strategies Discussed

1. Real-World Applications:

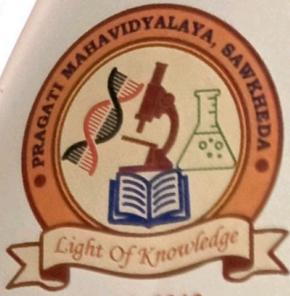
- Prof.Ramsantosh highlighted the importance of connecting mathematical concepts to everyday life. He provided examples of how to incorporate real-world scenarios into math lessons, such as:
 - **Budgeting:** Teaching students how to manage money and create budgets using algebraic equations.
 - **Statistics:** Using sports statistics to explain concepts like mean, median, mode, and probability.
- By framing mathematics within the context of real-life situations, students are more likely to see its relevance and utility.

2. Collaborative Learning:

- Emphasizing the power of teamwork, Prof.Ramsantosh advocated for collaborative learning techniques where students work together to solve problems. This approach encourages communication, critical thinking, and peer learning.
- He demonstrated various group activities, such as:

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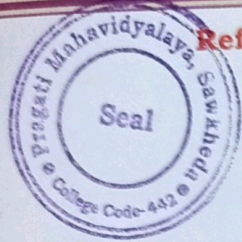
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- **Math Circles:** Small groups discussing and solving problems collaboratively.
- **Peer Teaching:** Students teaching each other different mathematical concepts, reinforcing their understanding.

3. Problem-Based Learning (PBL):

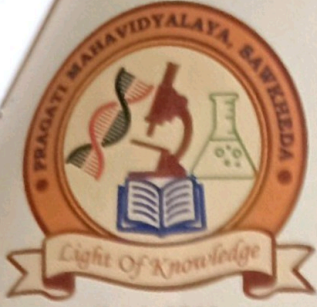
- Prof. Ramsantosh introduced the concept of problem-based learning as a method to enhance students' analytical skills. He explained how PBL allows students to explore complex, real-world problems without a predetermined solution, fostering deeper learning.
- He shared examples of PBL tasks, such as:
 - **Project-Based Assignments:** Students designing a small business and calculating costs, revenues, and profits using various mathematical techniques.

4. Integration of Technology:

- The role of technology in modern mathematics instruction was a focal point of the session. Prof. Ramsantosh discussed how digital tools can enhance the learning experience by providing interactive and visual aids.
- He introduced various online platforms and software that can be used for:
 - **Graphing:** Visualizing functions and equations.
 - **Simulations:** Allowing students to experiment with mathematical concepts in virtual environments.

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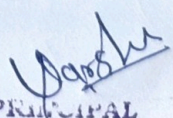
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Interactive Problem-Solving Activities: To engage participants actively, Prof. Ramsantosh facilitated several problem-solving activities. These activities were designed to reinforce the strategies discussed while allowing educators to experience firsthand how to implement them in their classrooms.

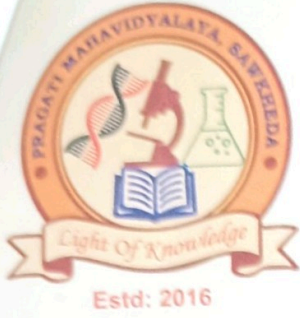
- **Real-World Math Challenge:** Participants were divided into groups and tasked with creating a lesson plan that incorporates real-world applications of a specific math concept, such as geometry in architecture or statistics in sports.
- **Collaborative Problem Solving:** Educators worked in pairs to solve a set of challenging math problems using the collaborative techniques discussed. This exercise highlighted the importance of discussion and different approaches to problem-solving.
- **Tech Integration Demo:** Prof. Ramsantosh showcased an educational app that helps students learn math through gamification. Participants explored the app's features, discussing how it could be integrated into their teaching practices.

Day 3 Summary: Prof. Ramsantosh's session on *Teaching Mathematics* concluded the FDP on a high note, leaving participants energized and equipped with practical strategies to enhance their mathematics instruction. By emphasizing real-world applications, collaborative learning, problem-based learning, and technology integration, he provided educators with a toolkit to make mathematics more relatable and engaging for students.

The interactive nature of the session encouraged educators to reflect on their teaching methods and consider innovative approaches to foster a deeper understanding of mathematics among their students. Overall, the FDP successfully achieved its goal of equipping educators


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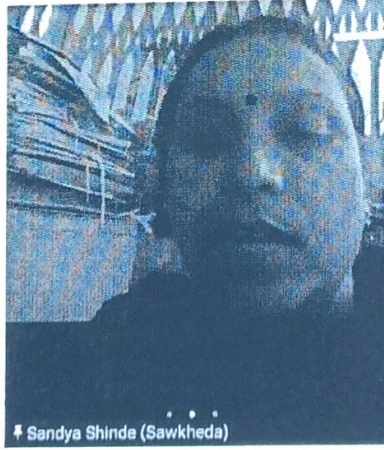
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With modern teaching methodologies, paving the way for improved learning experiences in their classrooms.

Overall Summary: The FDP on "Teaching Methodologies" provided a comprehensive platform for educators to enhance their teaching skills through exposure to innovative methodologies and contemporary educational policies. The sessions were well-received, and participants appreciated the interactive format, which fostered engagement and collaboration among faculty members from various institutions.



† Jadhav Aakansha (Akolner)




† Sandya Shinde (Sawkheda)



† Ramsantosh Tanpurwadi


Coordinator


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