Enhancing Digital Pedagogy Skills of Higher Education Teachers in the context of Indian National Education Policy 2020

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BRIDGES_symposium_1 (Online learning symposium) “Bridging Educational Emergency to Digital Pedagogies”

SEPTEMBER 20-22, 2022
Revision and revamping of all aspects of the education structure

21st century education goals including SDG4

Emphasis on conceptual understanding

Foster creativity and critical thinking

Continuous professional development

Open Distance Learning (ODL) and online programmes

Indian National Education Policy 2020
Ideation of MS-DEED Program

The program aims to create a dynamic ecosystem of high-quality education through training and up-skilling of UG/PG teachers from HEIs in Maharashtra over the period of 3 to 5 years and has trained over 1000 teachers so far.

The Indian Institute of Science Education and Research (IISER) Pune has collaborated with the Maharashtra State Faculty Development Academy (MSFDA) from the year 2021, to develop and run a comprehensive professional development program for the in-service undergraduate/postgraduate teachers.
The need-based goals of MS-DEED Program

- Formal Training for UG/PG Teachers on Teaching-Learning Process
- Up-skilling and Capacity Building
- Alignment to NEP 2020 Principles for Higher Education
- Adapting to Effective Online-Education
Core Values of MS-DEED Program

- Strengthen modern inquiry-based teaching skills
- Promote research-based hands-on laboratory techniques
- Inspire through subject/field experts in science and education
- Inculcate core philosophies of science and mathematics education
Implementation of the MS-DEED programme

- Level I - Short Term Online Engagement with Larger Numbers
  - 3 days Online Workshop
  - Common Subject-wise sessions
  - Assignments and Evaluation

- Level II - Intensive Training of Selected Motivated Teachers as Master Trainers

- Master Trainers and Experts working at HEIs
  - Regional Level Workshop Organization
  - Hand-holding by IISER team
Strategies to Overcome the Challenges of The Online Mode of Level 1 Workshops

- Pre-workshop survey & Introductory sessions
- Ice-breaking activities
- Orientation to use of online platform
- First day sessions planned with strategies to address diversity
- Sharing experiences of implementing any such teaching method previously
- Multilingual settings (English, Marathi and Hindi) to address language preferences
- First half an hour of the workshop allotted for previous day’s feedback
- Activities and assignments directed towards co-creation of knowledge
- Digital pedagogical tools: Padlet, Mentimeter, Zoom polls, Google classroom & social media apps

Establishing a connect with the participants

Measures to address diversity and bring inclusivity

Increasing interactivity
Designing the Workshop Contents to Promote Digital Pedagogical Skills

- Inquiry-based Learning (IBL)
- Student-Teacher Role Play
- Moving Beyond the Online Space
- Maintaining Rigor and Individuality
- EnGaugement

Digital Pedagogical Skills
Designing the Workshop Contents to Promote Digital Pedagogical Skills

Inquiry-based Learning (IBL)

The focus of the various sessions was centered around Inquiry-based learning (IBL) in order to facilitate the incorporation of innovative pedagogies in the light of NEP 2020.

- Relevance and significance of incorporating IBL through very simple yet enlightening examples
- Fruitful discussions among teachers of different subjects through inclusive discussion prompts
- Importance of addressing misconceptions through concept inventories
Designing the Workshop Contents to Promote Digital Pedagogical Skills

Student-Teacher Role Play

- Orient the teachers to find correct simulations and incorporating them effectively to promote inquiry & critical thinking skills
- Demonstrate how a teacher and a student would interact while using this digital pedagogical tool to enhance the learning by the inquiry-based approach

Demonstration of effective use of simulations in teaching science concepts, with the use of PhET Interactive Simulations and CT-STEM lessons
Designing the Workshop Contents to Promote Digital Pedagogical Skills

Moving Beyond the Online Space

- Focusing on **Hands-on-Minds-on** philosophy, various non-digital activities were included in the program.
- These activities were selected and designed with a **low-threshold-high-ceiling** approach.

How to use the existing technology and to develop newer modes of instruction that would enhance student engagement by not completely relying on only the online teaching.

![Image showing milk and oil containers](image_url)
Designing the Workshop Contents to Promote Digital Pedagogical Skills

Maintaining Rigor and Individuality

Subject-specific tools for effective teaching in Physics, Chemistry, Life Science, and Mathematics through a mix of innovative pedagogies

- 'Learnings from Subject-specific Exemplars' session conducted by Experienced subject experts in four separate sections via the Breakout Room

- Elements of effective teaching such as types of inquiry methods, real-life context, designing learning outcomes, problem-solving, assessment, etc.
Designing the Workshop Contents to Promote Digital Pedagogical Skills

‘EnGaugement’

Process of joining active learning student engagement at the same time gauging students’ progress using formative assessments

EnGaugements

- When you ask a student to do something, they are simultaneously engaged in learning and can gauge their progress by whether or how well they can perform.
- Handelsman et al. Scientific Teaching.

Concept of EnGaugement was addressed through a dedicated session on

Assessment: Purpose and Strategies

- Coin Exercise (interactive assessment)
- ILO Quiz
- Polls
- Mentimeter
- Padlet

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Encouraging Implementation and Building Community of Practice

• Target Setting and Action Planning:
  ➢ ‘Blockers and Enablers’
  ➢ Setting SMART Targets
  ➢ Action planning and implementation at Colleges

• Ensure internal support by trainers and peers through social media platform
Encouraging Implementation and Building Community of Practice

Breaking the online monotony through exercises
Our Experiences

Positive feedback through formal and informal mode

Effective module designing from learnings of each workshop

Community of practice with teachers from urban as well as rural set-up

Platform for addressing common issues of teachers
India is progressing step-by-step through such initiatives to accept the newer challenges of HE, following guidelines of NEP 2020 with diligent efforts of the teacher community and the required support from the system.
References


6. PhET Homepage, https://phet.colorado.edu/

7. CT-STEM Homepage, https://ct-stem.northwestern.edu/
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Thank you for the opportunity and Your kind attention

Roshan, Asim, Neeraja & Manawa