

# Sujatha Varadarajan

📍 Pune 📩 sujsvarada@gmail.com ☎ +91 8888806426 💬 Linkdin

A versatile educationist with a strong passion for teaching and enhancing the teaching-learning process. Brings extensive experience in pedagogical design, curriculum development, and organizing outreach programs and faculty development initiatives. Skilled in research design, undergraduate course development, and multidisciplinary curriculum planning, with a keen interest in educational innovation and academic community building.

## Education

### Tata Institute of Fundamental Research (TIFR), Mumbai

Ph.D., Feb 2024

Ph.D. in Science Education. Awarded Best Thesis Commendation.

- Thesis: Problem-based Learning in Undergraduate Chemistry Laboratories in India

### Madras University

Jun 1991 - Mar 1993

M.Sc. in Chemistry (University First Rank Holder)

### Bharathiar University

M.Sc. in Applied Psychology

## Experience

### Centre Head, Multidisciplinary Curriculum and Pedagogy

Jan 2025 - May 2025

Maharashtra State Faculty Development Academy, (MSFDA)

- As Centre Head, I spearhead faculty development programs for teachers all across Maharashtra through formal collaboration with many institutes of eminence and national importance.
- The position also demands academic inputs for the design of in-house programs in general, and multidisciplinary curriculum design in particular.
- Development of online content is one of the most important tasks undertaken as centre head currently.

### Research Scholar

Indian Institute of Technology (IT-BHU)

Varanasi, India

1993 – 1996

- Conducted research in applied chemistry and toxicology.

- Brief research stints at Central Leather Research Institute, Chennai and Indian Toxicological Research Centre, Lucknow.

- Published three papers, including two in conference proceedings.

### Graduate Student – Science Education

Mumbai, India

Homi Bhabha Centre for Science Education (TIFR)

2018 – 2023

- Conducted doctoral research on problem-based learning in undergraduate chemistry labs across India.

- Designed pedagogical models emphasizing scaffolding and reflective thinking.

### Visiting Faculty – Chemistry

Pune, India

Savitribai Phule Pune University

2019 – 2022

- Developed and implemented an inquiry-based chemistry laboratory course.

- Taught Environmental Toxicology to undergraduate and graduate students.

### Teaching Assistant

Pune, India

Indian Institute of Science Education and Research (IISER)

2012 – 2014

- Supported teaching in trans-disciplinary courses such as Rational Inquiry.

- Designed and led inquiry-based science workshops for high school students.

- Facilitated science education webinars for students and educators.

### Consultant – Science Communication

Pune, India

MVS Science Center, IUCAA

2007 – 2012

- Designed science communication activities for schools and public engagement.

- Helped establish hands-on science activities in various high schools.

- Conducted workshops for teachers, students, and the public.

**TGT/PGT Science and Chemistry Teacher**  
*Blue Bells Model Public School*

*Gurgaon, India*  
2002 – 2005

- Taught Science and Math at middle school level.
- Taught Chemistry at high school and higher secondary levels.
- Guided students in inter-school science activities and competitions.

**Primary Teacher – Science and Math**  
*St. Joseph's Senior Secondary School*

*Bhopal, India*  
1999 – 2002

- Taught Science and Math to primary-level students.
- Integrated inquiry-based approaches in early science education.

**Workshops and Invited Talks on Inquiry-Based Science Teaching**  
*Colleges, Schools, and Conferences*

*Various Institutions*  
2007 – Present

- Conducted workshops on inquiry-based science teaching at Garware College, Pune; IISER Pune; Modern College, Pune; Vaze College, Mumbai; St. Felix School, Pune; Vidya Niketan, Pune; Scinnoivity, Pune,
- delivered invited talks on the teaching-learning process at Pratibha College, Pune; National Safety Organization, Pune; ChemCollective Virtual Workshop, IIT Bombay.

**Editorial and Reviewing Roles, Faculty Facilitation**

*India and International*  
*Ongoing*

- Reviewer for *Journal of Chemical Education* (Impact Factor: 2.5)
- Reviewer for *Chemistry Education Research and Practice* (Impact Factor: 2.6)
- Editor for *Science Shore*, an e-magazine focused on science education
- Facilitator in Faculty Development Programs across various colleges in Maharashtra

## Publications

---

**Problem-Based Learning (PBL): A literature review of theory and practice in undergraduate chemistry laboratories**

Aug 2024

*S. Varadarajan*, S. Ladage  
[10.1021/acs.jchemed.3c01335](https://doi.org/10.1021/acs.jchemed.3c01335) ↗

**Doing Science: Introducing Scientific Inquiry to Elementary Classes**

Jun 2023

*S. Varadarajan*, S. Sanzgiri  
*Resonance*, 28(6), 929–944

**Introducing Incremental Levels of Inquiry in an Undergraduate Chemistry Laboratory: A Case Study on a Short Lab Course**

Dec 2022

*S. Varadarajan*, S. Ladage  
*Journal of Chemical Education*, 99(12), 3822–3832

**Problem-Based Learning in Undergraduate Chemistry Laboratories in India**

2022

*S. Varadarajan*  
Doctoral Dissertation, Tata Institute of Fundamental Research, Mumbai

**Exploring the Role of Scaffolds in Problem-Based Learning (PBL) in an Undergraduate Laboratory**

2021

*S. Varadarajan*, S. Ladage  
[10.1039/D1RP00180A](https://doi.org/10.1039/D1RP00180A) ↗

**Adapting an Inquiry-Based Approach for Undergraduate Chemistry Laboratory: An exploratory study**

2021

*S. Varadarajan*, S. Ladage  
[10.18520/cs/v121/i3/354-359](https://doi.org/10.18520/cs/v121/i3/354-359) ↗

## Conference Presentations

---

- **Exploring Higher Education (HE) Teachers' Attempt to Multidisciplinary Curriculum Design.** Conference presentation at *Episteme-10*, HBCSE, Mumbai, January 3–5, 2025.
- **Scaffolding Problem-Based Learning in Undergraduate Laboratories.** Oral presentation at *X-Discipline Conference*, University of Nebraska–Lincoln, USA, March 1–3, 2021.
- **Practicing Science Skills through Virtual Chemistry Laboratory.** Poster presentation at *Methods in Chemistry Education Research (MICER) 2021*, Keele University, UK, May 28, 2021.  
*Co-authors: Anupa Kumbhar and Savita Ladage*
- **Problem-Based Learning: Life-cycle thinking approach to Indigo-dye lab.** Presented at *IUPAC – CCCE 2021*, Canadian Chemistry Conference and Exhibition, August 13–20, 2021.  
*Co-author: Savita Ladage*
- **Science Skills through Chemical Laboratories.** Presented during a *ChemCollective Workshop on Virtual Laboratory*, organized by IIT Bombay for 250 CBSE school teachers, June 17, 2021.
- **Chemistry Laboratory Education in the Digital Era.** Presented at *Conventional and Digital Methods in Chemistry Education (CDMCE)*, organized by NIT Warangal, July 29–31, 2021.
- **Exploring the Role of Scaffolds in Mediating Reflective Thinking: Problem-Based Learning in an Undergraduate Chemistry Laboratory.** Presented at *ECRICE-2020*, Weizmann Institute of Science, Israel.
- **Assessing Small-group Learning in a PBL Undergraduate Chemistry Laboratory.** Presented at *MICER 2020*, University of Edinburgh, UK.

## Achievements

---

- Obtained Proficiency Prize in Inorganic Chemistry and Physics at the undergraduate level
- Secured University First Rank in the M.Sc. (Chemistry) program
- Awarded GATE-93 scholarship for research
- Founded the Funtasktic Science Club for primary and middle school students
- Received the Best Thesis Award from TIFR, Mumbai for Ph.D. research

## References

---

- **Prof. Diane M. Bunce**  
Professor Emerita, Department of Chemistry  
The Catholic University of America, Washington, DC  
*Email:* [Bunce@cua.edu](mailto:Bunce@cua.edu) ↗  
*Phone:* +1 410 279 3724
- **Prof. Savita Ladage**  
Professor and Dean  
Homi Bhabha Centre for Science Education, TIFR, Mumbai  
*Email:* [savital@hbcse.tifr.res.in](mailto:savital@hbcse.tifr.res.in) ↗, [savitaladage@gmail.com](mailto:savitaladage@gmail.com) ↗  
*Phone:* +91 98202 50770
- **Kalyani Gokhale**  
General Manager (Academics)  
Maharashtra State Faculty Development Academy, Pune, Maharashtra  
*Email:* [kalyaniugokhale@gmail.com](mailto:kalyaniugokhale@gmail.com) ↗  
*Phone:* +91 98900 25513