

## **CURRICULUM VITAE**

**Dr. NARENDRA DADARAO DESHMUKH**



**Date of Birth:** 17/04/1965

### **Academic Qualifications:**

Year	Degree		Name of University	Subject
2012	Ph.D	Doctor of Philosophy	University of Mumbai	Education
2011	M.A.	Master of Arts	University of Mumbai	Education
2004	M.Phil	Master of Philosophy	Alagappa University	Education
1993	M.Ed	Master of Education	Amravati University	Education
1991	B.Ed	Bachelor of Education	Amravati University	Education
1990	M.Sc	Master of Science	Amravati University	Science
1988	B.Sc	Bachelor of Science	Amravati University	Science

**Ph. D Topic:** 'A Study of Students' Misconceptions in Biology at Secondary School Level and Development of Remedial Research Based Material'.

**MBA (Human Resource Development):** A Capstone Project Report on- 'Learning by doing' Pedagogy in School Education: Some Case Studies

**Professional Position:** Since 1991, working at **Homi Bhabha Centre for Science Education**, Tata Institute of Fundamental Research, **Mumbai**, as **Scientific Officer - E**

### **Nature of Work:**

1. Currently working on School Science Research & Development and Teacher Professional Development Programme (Teacher Education)
2. Doing Participatory Action Research with Nutan Vidya Mandir
3. Designing and Development of Concept Inventories & Concept Based Objective Tests tools to assess student's conceptual understanding.
4. Working on RGSTC's Science and Innovation Activities Center Project.
5. Developing Open Educational Resources for Schools project (OER4S Project), funded by RGSTC, Govt. of Maharashtra. Also working for SIAC's in Maharashtra.
6. Editor/Writer/committee member for Kumar Vishwakosh, a project by Vishvakosh Nirmitti Mandal, Govt. of Maharashtra.
7. Course developer for D. El. Ed course and OER Vocational courses of a NIOS: MHRD, Delhi, and for e - B. Ed.
8. TPD –HBCSE-MHRD Project for DIET faculty of Bihar and West Bengal

**Research in Science Education-** Vigorously involved in research work and conducted the following studies.

1. Effective use of science activities and experiments for students' leisure time
2. Peer group interaction among Ashram School Students
3. Study of Science club activities in School
4. Students' Ideas about Nature
5. Students' Perception about Cloning and Biotechnology

6. Textbook analysis
7. Study of teacher's perception about new Science & Technology textbook
8. Study of students misconceptions
9. Study of participatory action research
10. Development of tools to assess student's conceptual understanding

**Current Research Interest:**

1. Study of participatory action research
2. Understanding students conceptions
3. Identifying students misconceptions
4. Design & development of tools for identification of students misconceptions
5. Development of tools to assess student's conceptual understanding
6. Activity Based Science Learning
7. Teachers Professional Development
8. Research on various topics of school Science and specially Biology Education
9. Use of activities centre for school students and communities
10. Role of associations and networking for teachers education
11. Use of ICT, OER and digital material in education

**Courses taught and other services provided to students and the home institution**

**a. HBCSE-YCMOU PG Research Programme:** I have been involved in this programme from last three years, I delivered lectures on: Research methodology, term paper, research proposal, and also participated in discussions and students proposal presentation sessions.

**b. Graduate Course on 'School Teaching Experience':** In collaboration with Prof. Subramanian and with the help of Tuba Khan, the graduate course on 'school teaching experiences' was conducted from August to November, 2015. This course consisted: Research readings & discussion, school visits, internship, teaching and feedback/debriefing meetings.

**c. NVM Participatory Action Research Project:** The aim of this project is to develop participatory action research model in school education. The broad objectives of projects are: to understand the teaching-learning process; to prepare instructional materials (handbook/activity manual), useful for teachers; to generate simple and inexpensive experiments designed to nurture resourcefulness, an eye for detail and an ability to interpret experiences; to develop teaching aids including audio-visual aids, demonstration experiments and charts and projects; to explore teacher education methods and to develop methods of participatory action research. Apart from coordinating the project activity I am teaching class IV (EVS), observing lessons and preparing lesson plans & activity sheets.

**d. Teacher Education Programmes:** Since 1991, I am involved in teacher education programme I started science teacher workshop for Sri Lanka in collaboration with science branch, Ministry of Education, Sri Lanka, Timor teacher workshop and workshops for Rayat Education Society and Shivaji Education Society, science teachers.

**Selected List of Publications**

**A. Proceedings /Journal Articles/Conferences**

**a) Research Publications in Proceeding & Book (18):**

1. 'Why do students have misconceptions about life processes? (Chapter 4, page: 31- 44) was published in a book 'Biology Education and Research in a Changing Planet' published by *Springer September 2015*.

2. 'Designing and Field Testing of Remedial Material to Rectify Students' Misconceptions in Biology at the Secondary School Level', Biology Education for Social and Sustainable Development Edited by M.Kim & C. H. Diong, *Sense Publishers 2012*.
3. 'Field Testing Experiences of OER4s Project', (N. D. Deshmukh), Proceedings of the PCF7, 2013 (available on <http://pcfpapers.colfinder.org/handle/5678/124>)
4. 'Criteria's for Quality Assurance in Designing and Developing Open Educational Resources for Schools' (N. D. Deshmukh), Proceedings of the PCF7, 2013 (available on <http://pcfpapers.colfinder.org/handle/5678/104>).
5. 'Supporting school mathematics education through open educational resources' (N. D. Deshmukh & S. C. Agarkar), In K. Subramaniam (Ed.), *Proceedings of the NIME National Conference on Mathematics Education*, HBCSE, TIFR, Mumbai, 2012.
6. 'Developing Open Educational resources in school mathematics' (S. C. Agarkar & N. D. Deshmukh), In Charles A Shoniergun and Galya A Akmayva (Eds.) *Proceedings of the London International Conference on Education*, Infonomics Society, 2011.
7. 'Textbook: A Source of Students' Misconceptions at the Secondary School Level', (N. D. Deshmukh & Veena M. Deshmukh), Proceedings of episteme-4, 2011, India.
8. 'Development of Open Educational Resources Opportunities and Challenges' (N. D. Deshmukh & S. C. Agarkar), Proceedings of the PCF6, 2010.
9. 'A Study of Students' and Teachers' Misconceptions in Biology at the Secondary School Level' (N. D. Deshmukh), Proceedings of the *IAIE Annual Conference 2009, Athens, Greece (ISBN: 978-960-98897-0-4)*.
10. 'Resource Based Quality School Education' (N. D. Deshmukh & S. C. Agarkar), Proceedings of the PCF5, 2008.
11. 'A Study of Students' Misconceptions in Biology at the Secondary School Level' (N. D. Deshmukh & Veena M. Deshmukh), Proceedings of the *HBCSE, epi-STEME-2, 2007*.
12. 'Students' Perception on Cloning and Biotechnology: A study of Indian School Students' (N. D. Deshmukh & S. C. Agarkar), Proceedings of the *CESA-2005 (The Fifth Comparative Education Society of Asia Biennial Conference 2005 on Education for World Peace: The Asian Context at UKM, Malaysia)*.
13. 'Study of Students' Ideas about Nature' (N. D. Deshmukh & S. C. Agarkar), Proceedings of the *CASTME International conference at Nicosia, Cyprus* from April 15 to 18, 2004, page 191 –203.
14. 'Implementing Water Sanitation Hygiene Education: Promotion through School Educations' (Anil Garode & N. D. Deshmukh), Proceedings of the First Peoples Education Congress 2005, Allahabad.
15. 'Need of Understanding Physics involved in Compound Microscope for its Effective Utilization at School Level' (N. D. Deshmukh & V. C. Sonawane), Proceedings of the *NTSC-2005(National Teachers Science Conference)* at Mysore.
16. 'Role of Physical Science in Bioinstrumentation and Techniques in Study of Glamorous Subjects: Microbiology, Biochemistry & Health Care' (Anil Garode & N. D. Deshmukh),. Proceedings of the *NTSC- 2005(National Teachers Science Conference)* at Mysore.
17. 'Rachanawad: Vidnyan Shikshan' (N. D. Deshmukh). Published in a book *Rachanawadi Shikshan* and published by Maharashtra Bal Shikshan Parishad, Kolhapur Branch, 2016.
18. 'Shalay Shikshanat Dnyanrachana' (N. D. Deshmukh). Published in a *Rayat Vidnyan Parishad proceedings*, page: 26-27, 2016.
19. 'Handling of students' common errors & related doubts' (N. D. Deshmukh). Published in a proceedings of one day teachers' conference on 'Encouraging and supporting students' thinking in the learning of science' published by Navi Mumbai Science Foundation proceedings, page: 07-14, 2016.

**b) Research Publications in Journal (08):**

1. Development of concept inventory on nervous system for students of std 12<sup>th</sup> (with Ravi Mishra & Shailesh Tawade). Sanshodhan Chetana, Vol 4<sup>th</sup>, issue III, December 2015, page 61-71. Available on <http://sanshodhanchetana.com/issues/Dec2015/7.pdf>.
2. 'Students' Misconceptions and Cultural beliefs in Biology at the Secondary School Level'. *Vetri Education*. January 2011.
3. 'How do teachers in Ashram schools perceive science curriculum at upper primary stage?', *'School Science' Vol. XL No. 3, September 2002 (68 -81)*.
4. 'Organizing Teachers' Workshops for Effective Utilization of Microscope', *Vetri Education*, Vol. 1, Number 1, July 2006. Page 23-28.
5. 'A survey of Teachers Perception on New Science and Technology Textbooks', *Vetri Education*, Vol. 1, Number 2, October 2006 . Page 17-24.
6. 'Vidyarthyanhya Kahi Gairsamjuti' (Students misconceptions) with Veena M. Deshmukh, in Marathi, *Jeevan shikshan* , January 2008.
7. 'Vidnyanatil Vidyarthyanche Gairsamjuti ani shikshkanci bhoomika' (Students misconceptions and teachers role) in Marathi, *Shikshan Sankraman*, March 2008.
8. 'Development & Evaluation of Remedial Material to Rectify Students' Misconceptions in Biology at Secondary School Level'. Science Education in Future: *A bulletin* published on Golden Jubilee year of K. J. Somaiya College of Science & Commerce, Mumbai. Page 11- 19, January 2011.

**B) Research papers presented in conferences & Seminars-not published in any proceedings (31):**

1. 'Channelizing Peer Interaction to Develop Cognitive Skills among the Ashram School Students' (N. D. Deshmukh & S. C. Agarkar), at Delhi, Feb 2-4, 1996.
2. 'Development in Primary Education: Alternative Strategies' (N. D. Deshmukh), Shivaji University Kolhapur on 1997.
3. 'A study of needs and requirements of practicing science teachers in municipal primary schools'(N. D. Deshmukh & S. C. Agarkar),. RIE, Bhopal, 1998.
4. 'Strategy for In-Service Teacher Training in Mathematics for Ashram Schools' (with K.Subraminam, A. T. Mavalkar, N. D. Deshmukh, H. C. Pradhan) at RIE, Bhopal, 1999.
5. 'Activity Based Science Teaching Programme to Develop Scientific Temper among Destitute Children', (N. D. Deshmukh & S. C. Agarkar), at Barkatullah University, Bhopal, 2003.
6. 'Organizing a Teachers' Workshop for Effective Utilization of Microscope' (N. D. Deshmukh & S. C. Agarkar), at CASE, University of Baroda, 2004.
7. 'Study of Students' Perception about Cloning and Biotechnology' (N. D. Deshmukh & S. C. Agarkar), at Ujjain, 2004.
8. 'A Survey of Teachers' Perception on New Science & Technology Textbooks' (N. D. Deshmukh & S. C. Agarkar), RIE Bhopal, 2005.
9. 'A Science Club Activities in School: PUSR' (N. D. Deshmukh), 6<sup>th</sup> National Science Communication Congress, Science City, Ahmedabad, 2006.
10. 'An Analysis of Students' Misconceptions in Biology at School Level' (N. D. Deshmukh & Veena M. Deshmukh) at Shivaji University, Kolhapur, 2007.
11. 'A Study of Students' and Teachers Misconceptions in Biology at School Level' (N. D. Deshmukh), at National Conference on Science Education, BARC, Mumbai, 2007.
12. 'Upper Primary level Teachers' and Students' Misconceptions' (N. D. Deshmukh), at IIE, Pune conference on November 16-17, 2007.
13. 'An Analysis of Students' and Teachers Misconceptions in Biology at School Level' (N. D. Deshmukh & Veena M. Deshmukh), at University of Calcutta from December 5-6, 2007.

14. 'Students' Alternative ideas in Biology' (N. D. Deshmukh & Veena M. Deshmukh), at Maharashtra State Secondary Teacher Educator's Association Conference at Kusgaon, Lonavala from December 22-23, 2007.
15. 'Paryayi Sankalpana (Alternative Concepts)' (N. D. Deshmukh), at YCMOU, Nashik on March 10-12, 2008.
16. 'A Programme for Developing Open Educational Resources for Schools'(N. D. Deshmukh), paper presented at All India Association for Educational Research conference, (Mumbai, 2008).
17. 'A study of students' and teachers' misconceptions in biology at secondary level' (N. D. Deshmukh), paper presented at Vetri Education Society National conference, (Puduchery, 2008).
18. 'Development of OER: Opportunities and challenges' (N. D. Deshmukh), presented paper at KKCE conference, (Mumbai 2009).
19. 'Development of Learning Objects: Opportunities and Challenges' (N. D. Deshmukh & S. C. Agarkar), presented paper at 2<sup>nd</sup> People Education Congress, (Mumbai 2009).
20. 'Use of Confluence for Development of RLOs for OER4S project' (N. D. Deshmukh), presented paper at KKCE conference, (Mumbai 2010).
21. 'Tribal Education: HBCSE Project' (N. D. Deshmukh), paper presented at International Seminar on Tribal Development, (Udaipur, 2012).
22. 'Let us understand Biodiversity' (N. D. Deshmukh), paper presented at National Seminar on "Biodiversity, Biology and its Terminology including new biological trends and Science Writing"(Anandwan, 2012).
23. 'Use of Digital Resources for School Mathematics' (N. D. Deshmukh), presented at International Conference on Mathematical Sciences, (Nagpur, 2012).
24. 'Supporting School Mathematics Education through Open Educational resources' (N. D. Deshmukh & S. C. Agarkar), presented at National Conference on Mathematics Education, (Mumbai, 2012).
25. 'A study of students' misconceptions in biology at school level and development of research based remedial material: Cultural Aspect' (N. D. Deshmukh), at Annual Research Meet 2010, HBCSE from February 11 – 12, 2010.
26. 'Tools used for identification of students' misconceptions' (N. D. Deshmukh), at Annual Research Meet 2011 from April 19 -21, 2011.
27. 'Development and Application of a Concept Based Objective Tests (CBOTs) for High School Students' Understanding of the School Biology Syllabus' (N. D. Deshmukh), 24<sup>th</sup> Biennial Conference of the Asian Association for Biology Education held at University of Philippines, Diliman, Quezon City, Manila, Philippines, from December 05-10, 2012.
28. 'Use of Technology in Classroom for Implementing Remedial Module to overcome School Students' Misconceptions' (N. D. Deshmukh), 25<sup>th</sup> Biennial Conference of the Asian Association for Biology Education held at University of Malay, Kuala Lumpur, Malaysia, from October 13-16, 2014.
29. 'Does School Science Curriculum promote peace and harmony? (N. D. Deshmukh), 4<sup>th</sup> Indian Ocean Comparative Education Society's conference, held at St Joseph College Bangalore, India, from June 16-17, 2015.
30. 'Use of OER for School Science & Mathematics Education: An Indian Experiences' (N. D. Deshmukh). 6<sup>th</sup> Distance Education and Teacher Education in Africa (DETA) conference will be held at Mauritius Institute of Education, Mauritius from July 20-24, 2015.

### C. Books:

1. **Vidnyan Prashnamanjush** (Marathi version)- It contains 1000 science questions.
2. **Quiz on General Science** – It contains 1100 science questions.
3. **Krutipradhan Vidnyan Adhyapan** - It contains 30 biological science activities.
4. **Self Instructional Material (SIM):** A laboratory Manual contains more than 35 experiments. This is collaborative work with Maharashtra Prathamik Shikshan Parisad (**MPSP**), Mumbai and HBCSE.
5. **All about Microscope: History, Use and Care:** In this book comprise 12 chapters.
6. **Science Questions Bank for S.S.C:** for Ashram School Project.

#### I. Participation in Material Development:

1. CBSE – Sample Questions Booklet for Std. IX.
2. CBSE – Sample Questions Booklet for Std. X.
3. Kendriya Vidyalaya Science Activities Manual book for Std. V - VIII.
4. RMSA- Teachers Handbook for 9 & 10<sup>th</sup> Std. Science

#### II. Editor/coeditor/Guest Editor:

1. **Samwad:** worked as co-editor & editor of these 13 journals.
2. **Charchaughni, February 2009,** issue. 'Abhyas Kasa Karawa ani Pariksha Kashi Dyawi' (How to do study and prepare for examination).

#### III. AIR Programme:

1. Participated in the script writing on the problem of Education and traffic in 2000 AD. workshop conducted by AIR, SIET and HBCSE.
2. Interview under Ananddai Palkatva – Various competitive examinations for students and role of the parents, All India Radio (Asmita Vahani), January 24, 2008.

### Other professional activities: Networking with Various Organizations & Miscellaneous Work :

- a. Govt: NIOS, NCTE, MPSP, SCERT, SISE, SSC Board, BMC, KV, AEES, NSC, NP, COL,
  - b. Rayat Education Society, Satara; Shivaji Education Society, Amravati; Nashik Education Society, Nashik; shikshan Prasarak Mandal, Akluj.
  - c. MVP, Door Step School, NYASS, PRATHAM, Mumbai Science Teacher Association, IWSA, I-CONSENT, MKCL, WCT, BNHS, Various Universities & Education colleges, Various NGOs & Free lancers, Various teachers associations & schools, etc.
1. **Mitra programme:** From last twelve years I have been providing articles for Mitra every month in science education. This bulletin is published by Acworth Leprosy Hospital Society for Research, Rehabilitation and Education in Leprosy, Wadala, Mumbai and circulated in tribal schools.
  2. **M. Ed Examiner:** Working as an examiner at the Viva of M. Ed students at University of Mumbai.
  3. **NCTE – B. Ed. College Inspection:** participating in National Council for Teacher Education B. Ed colleges' inspection work.
  4. **SSC Board Book Review:** participated in X Standard Science & Technology book review process.
  5. **MVP Science Project Competition:** involved in Marathi Vidnyan Parishad (MVP) Programme from many years.
  6. **Door Step School Programme:** conducted workshops, centered on activity based science teaching were organized in collaboration with the Door Step Organization for BMC schools.

7. **State Level & National Level Children Science Congress:** working as Academic Coordinator and as a experts, examiner.
8. **Observer for INO and NEST:** working as an Observer for the INO & NEST.
9. **Guide for Balbharati Action Research Project (2002),** - Mrs. Sandhya Chandanshive primary teacher from Nutan Vidyamandir, Mankhurd took the project on "Evaluation of Kishor magazine", under my guidance.
10. **Science Exhibition:** Prepared Seven Panels on "A Planet Alive' under the Kishor Bharati programme (2001).
11. Participation in Debate/Essay/ Other Competitions: Founders Day at TIFR and Hindi Divas.
12. **Literacy Project:** Participation in Literacy project, to educate illiterates in Mandala Colony (1993-1995).
13. **Paper Setting:** Participation in Paper Setting of Homi Bhabha Young Scientist Examination (2001-04): the question papers were produced in Marathi as well as English Language.
14. **Project Review:** Participated in Review of Learner Centered Science Education Programme, Gujarat (LCSEP): Ministry of Human Resource Development (MHRD) requested HBCSE to review LCSEP (2004).
15. **SCF-2010:** Participation in State Curriculum Framework (SCF-2010): in a Classroom Teaching-Learning group.

#### **Professional honors, Awards and Scholarship**

1. Secured the highest marks in Botany & Zoology at the B.Sc. examination (1988) & was awarded cash award by the College.
2. Secured the First Rank in the University at M.Sc. level (1990) & was awarded a gold medal.
3. Received award in 1991 from Nehru Memorial Fund, New Delhi.
4. Received Best Instructional Material Dr. Anand Waskar award (2007) from YCMOU for Krutipradhan Vidnyan Adhyapan: Jaivik Vidnyan book.
5. Honored as "Sammelanadhyaksha" (President of the Congress) for Children Science Congress organised at S. P. S. High School, Uttur, Gadhinglaj, January 5 - 6, 2009.

#### **Participation in International conferences:**

Cyprus (2004), Egypt (2004), Jordan (2004), Malaysia (2006), England (2008), Greece (2009), Singapore (2010), Philippines (2012), Nigeria (2013), Malaysia (2014), Mauritius (2015).

#### **Community Services:**

Dahanu Project, Solapur Project, Rankol Activity Based Science Project, Bal Vidnyan Manch (Children Home), Ashram School Project (Thane Region), Ashram School Project (Nashik Region), AEES-HBCSE Project, Health Education Project, Latur-Umerga Project, Talent Nurture Project, NCTE Teacher Education, Lonere BATU Talent Nurture Project, Kumar Vishvakosh, Acworth Leprosy Hospital: Mitra Project, Development of Open Educational Resources for Schools Project, MHRD- TPD, BEST, SIAC

#### **Membership and activities in professional associations:**

1. Life member of Asian Association of Biology Education, and was Executive Director (Convener) for 26<sup>th</sup> AABE2016 conference.
2. Life member of Indian Ocean Comparative Education Society and Executive Committee member for 2015-2017 IOCES conference.
3. Life member of All India Association for Educational Research
4. Life member of the Commonwealth Association of Science Technology and Mathematics Educators (CASTME).

5. Life member of the All India association of Environmental Science.
6. Life member of the Indian Science Writers Association.
7. Life member of the Maharashtra Association of Secondary Teacher Educators.
8. Life member of the All India Science Teachers Association.
9. Life member of the Indian Association of Teachers in Biological Sciences.
10. Life member of the Marathi Vidnyan Parishad, an organization for science popularisation.

### **Referees List**

#### **1. Prof Sugra Chunawala**

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Venue: Mumbai  
Date:



