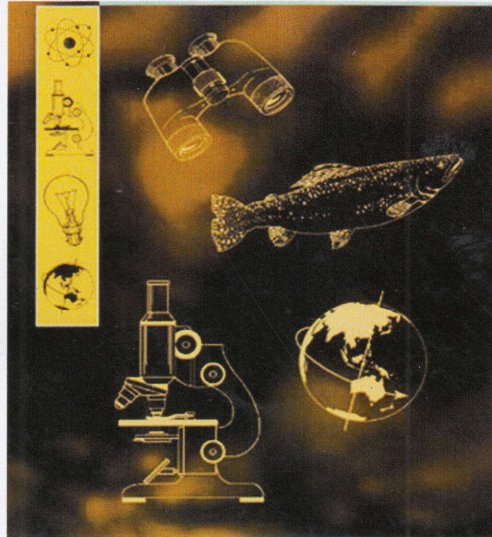


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TEACHERS' HAND BOOK

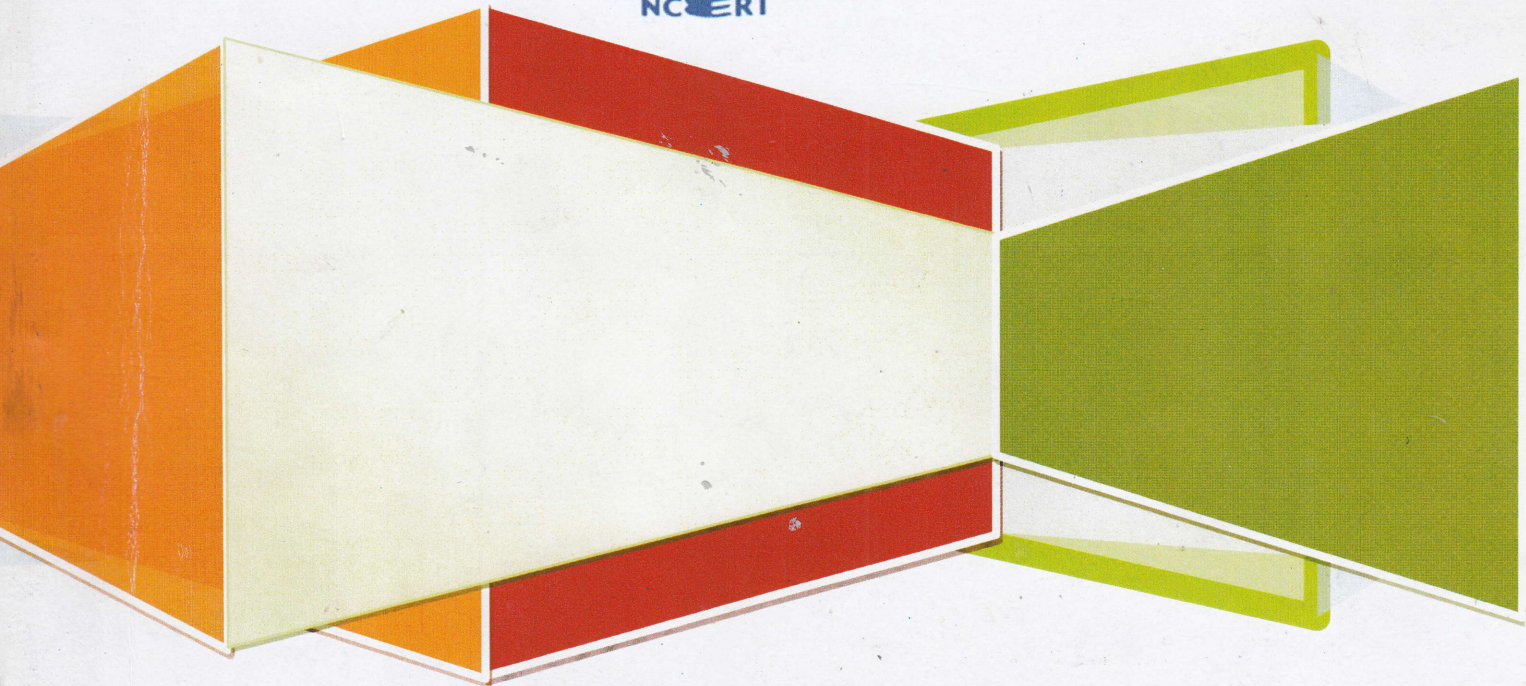
FOR CLASS IX & X

SCIENCE

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NCERT





TEACHERS' HAND BOOK

FOR CLASS IX & X

SCIENCE

MEMBER-COORDINATOR
Dr. Seema R



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F O R E W O R D

The National Curriculum Framework (NCF)–2005, initiated a new phase of development of syllabi, textbooks and handbooks for all stages of school education where in a conscious effort has been made to discourage rote learning and to enhance comprehension. NCF–2005, recommends that children’s life at schools must be linked to their life outside the school and the knowledge constructed by the child based on that. This marks a departure from the legacy of textbook limited learning that has thus far been shaping our educational process and creating a gap between the school, home and community. It is also creating a gap between experience, need and the content taught. The syllabi, textbooks and handbooks developed on the basis of NCF–2005 attempt to implement these basic ideas. While they discourage rote learning and suggest creation of exploratory and active classroom they also discourage the maintenance of sharp boundaries between different subject areas. We hope these measures will take us significantly further in the direction of a child-centred system of education outlined in the National Policy on Education (NPE)–1986.

The success of this effort depends on the steps that school principals and teachers will take to encourage children to reflect on their own learning and to pursue activities and questions that require new thinking and organizing thoughts. We must recognize that, given space, time and freedom, children generate new knowledge by engaging with and analyzing the information passed on to them by adults. Treating the prescribed textbooks as the sole basis of learning is one of the key reasons for other resources of learning being ignored. Inculcating creativity and initiative is possible if we perceive and treat children as participants in learning, not as receivers of a fixed body of knowledge. These aims imply considerable change in school routines and mode of functioning. Flexibility in the daily time-table is as necessary as rigour in implementing the annual calendar so that the required number of teaching days is actually devoted teaching. The methods used for teaching and evaluation will also determine how effective this handbook proves for making children’s life at school a happy experience, rather than a source of stress or boredom. The handbook attempts to enhance opportunities for contemplation and wondering, discussion in small groups and activities requiring hands-on experience. The North East Regional Institute of Education, National Council of Educational Research and Training (NCERT), appreciate the hard work done by the handbook development committee and other members responsible for this book. As an organization committed to systemic reform and continuous improvement in the quality of its products, NERIE, NCERT welcomes comments and suggestions which will enable us to undertake further revision and refinements.

Prof. B. Barthakur
Principal

Shillong
March 2011

North East Regional Institute of Education
National Council of Educational Research and Training

H A N D B O O K D E V E L O P M E N T C O M M I T T E E

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Anant Kumar Jena, *Assistant Professor*, Assam University, Silchar.

Rihunlang Rymbai *Assistant Professor*, North East Hill University, Shillong

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Seema R Nambiar, *Assistant Professor*, NERIE, NCERT

A C K N O W L E D G E M E N T

The National Council of Educational Research and Training (NCERT) and its constituent North East Regional Institute of Education (NERIE), Umiam, deeply appreciate the valuable contribution of the individual members and organizations involved in the development of this Teachers' Handbook of Science for Class IX & X. The Council and the NERIE, Umiam, gratefully acknowledge the contribution of R.K. Parashar, Professor, DESM, NCERT, New Delhi; Ajay Kumar Singh, Associate Professor, Assam University, Silchar; Remith George Carri, Assistant Professor, Assam University, Silchar.; Anant Kumar Jena, Assistant Professor, Assam University, Silchar; Rihunlang Rymbai Assistant Professor, North East Hill University, Shillong; Jubilee Padmanabhan, Assistant Professor, Central University Punjab.Punjab; Sumin Prakash, Assistant Professor, Rajiv Gandhi University, Itanagar, Arunachal Pradesh.; Suchiangelgiva Suchiang Eligiva, DIET, Noghphoh, Meghalaya.; Nripen Saikia, Sr. Lecturer, DIET, Nalbari, Assam Delhi for their academic inputs and suggestions in developing this handbook. The contributions of the faculty members of DESM, support of the administrative staffs, ICT and studio staff members, Vijay Kumar Rai, Kyrmen lawphniaw, Naphidei.M. Syiemiong and other academic and non academicl staffs of NERIE, NCERT is highly appreciated.

Member-coordinator
Seema R Nambiar

**A COMPARATIVE STUDY OF TEACHING APTITUDE,
VALUES AND CITIZENSHIP QUALITY OF B.Ed.
STUDENTS STUDYING IN SELF-FINANCE AND
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International E - Publication

427, Palhar Nagar, RAPTC, VIP-Road, Indore-452005 (MP) INDIA

Phone: +91-731-2616100, Mobile: +91-80570-83382

E-mail: contact@isca.co.in , Website: www.isca.me , www.isca.co.in

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ABSTRACT

Present study titled “A Comparative study of teaching aptitude, values and citizenship quality of B.Ed students studying in self-finance and regular institutions” conducted on B.Ed students studying in self-finance and regular institutions of Allahabad. Descriptive survey method was implied to collect the data of the study. The population of the study comprised all the B.Ed students of Allahabad district studying in self-finance and regular institution. Sample of the present study consisted of 400 B.Ed students (200 males and 200 females) studying in self-finance and regular institutions of Allahabad district. Values inherent in Fundamental Duty Questionnaire for Teachers (V.F.D.Q.T.) by Kalplata Pandey & Dhyanendra Mishra, teaching aptitude test battery (TATB) constructed by Shamim Khan and Ashok Khare scale and Citizenship Quality Questionnaire (CQQ) developed and standardized by investigator have been used to collect the data. Descriptive and inferential statistics (mean, standards derivation, t-value and correlation) have been used for analyzing and interpreting the data and its finding are conducted as:-1. No significant difference in teaching aptitude of B.Ed students studying in Self-finance and Regular institutions. Significant difference was found in favour of B.Ed students studying in regular institutions with respect to all the eight values. The findings of the study revealed that there exists significant difference in values (Patriotic Value, Law Abiding Value, Social Value, Cultural Value, Environmental Value, Spiritual Value, Knowledge Value and Value of Excellence) of B.Ed students studying in Self-finance and Regular institutions. It was observed that significant difference was found in favour of regular institutions. 2. The finding revealed that there exists significant difference in teaching aptitude of B.Ed students with respect to the area of institutions. The direction of difference was in favour of urban area. values (patriotic, law abiding, social, cultural, environmental, spiritual value, knowledge value and value of excellence) of B.Ed students studying in teacher training institutions situated in rural and urban area were compared, there exists no significant difference in citizenship quality of B.Ed students with respect to the locality of the institutions. there exists no significant difference in citizenship quality of B.Ed students with respect to the locality of the institutions. 3. There exists no significant difference in Teaching Aptitude of Male and Female B.Ed students studying in Self-finance and regular institutions. Significant difference was found in Cultural Value, Environmental Value and Spiritual Value of Male and Female B.Ed students. The direction of difference with respect to Cultural Value, Environmental Value was in favour of female students while the direction of difference with respect to spiritual value was in favour of male students. There exists no significant difference in Teaching Aptitude of Male and Female B.Ed students studying in Self-finance and regular institutions. 4. There exists significant and positive correlation between knowledge value and teaching aptitude of male students studying in regular institutions situated in urban area. Significant negative correlation between environmental value and teaching aptitude of male B.Ed students studying in self-finance institution situated in rural area was found. 5. There exists significant Positive relationship between patriotic value and citizenship quality of male students studying in regular institution situated in rural area. No significant correlation was found with respect to other values, sex, area and type of institutions. 6. There exists significant and Positive relationship between teaching aptitude and citizenship quality of female students studying in regular institution situated in urban area.

About Author



Dr. Ajay Kumar Singh has been working as an Associate Professor in the Dept. of Education Assam University (A Central University Established by an act of Parliament) Silchar, Assam from 2015. Earlier he has worked as an Assistant Professor in the Department of Teacher Education SHIATS, Allahabad from August, 2004 to March, 2015. He has been serving the Department of Teacher Education since 2004 with an academic record with M.Sc. in Physics, M.A in mathematics, M.Ed. and Ph.D. in Education. He has so far published 25 research papers and presented 50 papers/participated in seminars/ workshops and conferences organized by different Institutions, conducted two National seminar/workshops, conducted one week workshop for faculty members of faculty of Medical science and Biotechnology SHIATS on teaching learning & examination and guided more than 30 dissertations of M.Ed. / M.A. (Education) / Ph.D. in Education.