



Teachers Learning Stories Of Science Education

Norman G. Lederman, Sandra K. Abell



Teachers Learning Stories Of Science Education:

Teachers' Learning J. Wallace, W. Loudon, 2000-04-30 *Teachers Learning Stories of Science Education* is aimed at science educators who wish for a deeper understanding of how teachers learn to teach science and the role of stories in reporting science education research. It is a fascinating look at the knowledge teachers have and use how context influences teachers work and the role of reflection and collaboration in teachers learning. At the core of each chapter is a story or group of stories written by or about teachers. These stories serve as a form of data to build a set of arguments about how science teachers grow and the possibilities for change in teaching. This book is designed for all those involved in the science teaching enterprise. Pre service teachers, graduate students and science education researchers are invited to utilise both the findings about teachers learning and the research processes employed to develop those findings. *EBOOK: Analysing Exemplary Science Teaching* Steve Alsop, Larry Bencze, Erminia Pedretti, 2004-12-16 I read lots of books in which science education researchers tell science teachers how to teach. This book refreshingly is written the other way round. We read a number of accounts by outstanding science and technology teachers of how they use new approaches to teaching to motivate their students and maximise their learning. These accounts are then followed by some excellent analyses from leading academics. I learnt a lot from reading this book. Professor Michael Reiss, Institute of Education, University of London, provides an important new twist on one of the enduring problems of case based learning. This is a book that deserves careful reading and re-reading, threading back and forwards from the immediate and practical images of excellence in the teachers' cases to the comprehensive and scholarly analyses in the researchers' thematic chapters. Professor William Loudon, Edith Cowan University, Australia, through a celebration of teaching and research, this book explores exemplary practice in science education and fuses educational theory and classroom practice in unique ways. *Analysing Exemplary Science Teaching* brings together twelve academics, ten innovative teachers and three exceptional students in a conversation about teaching and learning. Teachers and students describe some of their most noteworthy classroom practice whilst scholars of international standing use educational theory to discuss, define and analyse the documented classroom practice. Classroom experiences are directly linked with theory by a series of annotated comments. This distinctive web-like structure enables the reader to actively move between practice and theory, reading about classroom innovation and then theorizing about the basis and potential of this teaching approach. Providing an international perspective, the special lessons described and analysed are drawn from middle and secondary schools in the UK, Canada and Australia. This book is an invaluable resource for pre-service and in-service teacher education as well as for graduate studies. It is of interest to a broad spectrum of individuals including training teachers, teachers, researchers, administrators and curriculum coordinators in science and technology education. **Teachers' Learning** J. Wallace, W. Loudon, 2005-12-11 *Teachers Learning Stories of Science Education* is aimed at science educators who wish for a deeper understanding of how teachers learn to teach science and the role of stories in reporting science

education research It is a fascinating look at the knowledge teachers have and use how context influences teachers work and the role of reflection and collaboration in teachers learning At the core of each chapter is a story or group of stories written by or about teachers These stories serve as a form of data to build a set of arguments about how science teachers grow and the possibilities for change in teaching This book is designed for all those involved in the science teaching enterprise Pre service teachers graduate students and science education researchers are invited to utilise both the findings about teachers learning and the research processes employed to develop those findings

Leadership and Professional Development in Science Education John Wallace, John Loughran, 2003-09-02 Leadership and Professional Development in Science Education provides invaluable insight into the role of science teachers as learners and thinkers of change processes The fourteen chapters by an eminent international team of science educators explain and explore the relationship between professional development teacher leadership and teacher learning Research based practical and theoretical exemplars reflect state of the art science teacher leadership in a broad range of international contexts The book is divided into three parts reflecting a multi layered approach to teacher learning Personal initiatives in teacher learning focusing on individual teachers Collegial initiatives in teacher learning focusing on groups of teachers Systemic initiatives for teacher learning focusing on system wide issues Student teachers and practising teachers will find the text highly valuable as they consider and review the challenges of teaching practice and ways of working with colleagues while school leaders and policymakers will benefit from the book s insight into system wide issues of professional development

Dilemmas of Science Teaching John Wallace, William Louden, 2005-06-29 Through the use of case studies and commentaries by senior scholars in the field this unique book provides student teachers with personal and professional insights into some key science education dilemmas

Assessment Reform in Science Benny B.H.W Yung, 2006-01-09 The conclusions and recommendations made in the book are derived from a study of ten teachers in Hong Kong as they tried to change their practice following a reform of the Hong Kong assessment system Hong Kong is simply a context that provided the opportunity to gather very rich and informative data on issues pertaining to assessment reforms which also have very wide implications in many countries contexts The book is written for practising teachers teachers in training teacher educators policy makers and researchers who are interested in teachers classroom practices teacher beliefs teacher professionalism implementation of educational reforms in general and high stakes assessment reforms in particular The structure of the book is organized in a manner that rapidly presents the case stories of the teachers to the readers These stories can be helpful to all teachers whether in training or experienced in a number of ways 1 as a set of ideas to be debated upon and to act as a springboard for reflection on the purposes of assessment in education and on the role of teachers in these purposes 2 as examples of practice that can be compared to the readers own existing practices and 3 as a source of models of practice to apply and test in readers own classrooms These case stories are followed by a discussion of a number of issues that arise from this group of teachers beliefs

and practices To cater for research oriented readers the relevant literature theoretical underpinnings and the intriguing research methodology that led to the case stories will appear as appendices

Contemporary Qualitative Research Peter Charles Taylor, John Wallace, 2007-07-26 This volume offers a unique set of research exemplars for science mathematics and technology educators The volume explores the important challenge of how to translate leading edge methodologies into practical research strategies and techniques The book is divided into three major sections The Golden Age of Research Meeting the Research Crises and A New Era of Research with chapters exploring a variety of methodologies and representational forms and texts These include historical narrative literary phenomenological autobiographical virtual and performance texts among others Qualitative Research in Postmodern Times is an exciting and accessible book that will be essential reading for science mathematics and technology educators interested in new forms of educational research Beginning researchers will find it practically helpful in planning and conducting their research studies while experienced researchers will welcome new theoretical insights into postmodern methodologies

Science Stories Janice Koch, 2017-01-01 *Professional Learning Communities for Science Teaching* Susan Mundry, Katherine E. Stiles, 2009 The volume begins with the argument that in a PLC environment teachers receive continuous professional development therefore improving their teaching skills to the benefit of student learning Later chapters recount the origins of schools as professional learning communities define the characteristics of professional learning communities and review research on the subject

Science Stories: Science Methods for Elementary and Middle School Teachers Janice Koch, 2016-10-11 SCIENCE STORIES helps preservice and inservice teachers contextualize what it looks like to engage their students in meaningful science experiences Using narratives about science teaching and learning in real world classrooms this text demonstrates learning important content and strategies in action Author Janice Koch s approach guides teachers in discovering and exploring their scientific selves enabling them to learn from students experiences and become effective scientific explorers in their own classrooms Featuring connections to the Next Generation Science Standards NGSS the text empowers teachers to infuse science into their own classrooms by answering such questions as Where do I start and How do I use the new standards SCIENCE STORIES contains comprehensive chapters on key science disciplinary core ideas such as life science physical science and earth and space science as well as a chapter that considers student assessment and self assessment Important Notice Media content referenced within the product description or the product text may not be available in the ebook version

Higher Order Thinking in Science Classrooms: Students' Learning and Teachers' Professional Development Anat Zohar, 2004-01-31 How can educators bridge the gap between big ideas about teaching students to think and educational practice This book addresses this question by a unique combination of theory field experience and elaborate educational research Its basic idea is to look at science instruction with regard to two sets of explicit goals one set refers to teaching science concepts and the second set refers to teaching higher order thinking This book tells about how thinking can

be taught not only in the rare and unique conditions that are so typical of affluent experimental educational projects but also in the less privileged but much more common conditions of educational practice that most schools have to endure It provides empirical evidence showing that students from all academic levels actually improve their thinking and their scientific knowledge following the thinking curricula and discusses specific means for teaching higher order thinking to students with low academic achievements The second part of the book addresses issues that pertain to teachers professional development and to their knowledge and beliefs regarding the teaching of higher order thinking This book is intended for a very large audience researchers including graduate students curricular designers practicing and pre service teachers college students teacher educators and those interested in educational reform Although the book is primarily about the development of thinking in science classrooms most of its chapters may be of interest to educators from all disciplines **Playful Science**

Investigations in Early Childhood Azra Moeed, Stephen Dobson, Sankari Saha, 2024-01-01 This book showcases a case study of the development of a generalist early childhood education ECE teacher into a confident and competent teacher of science in early childhood with support from a mentor It argues that with guided mentoring and later timely support of a mentor as and when required ECE teachers can deliver the curriculum teach science by providing opportunities to explore and then build on children's interest through intentionally planned activities dialogue and discourse It presents a comprehensive literature review and research design including theoretical frames and methodology It includes a chapter on teacher development and discusses different approaches to science investigations practiced by the teacher in the case study The book provides evidence of children's science learning and presents the findings as response to research questions It also includes a model of teaching as inquiry in the context of early childhood education **Learning and Teaching Primary Science**

Angela Fitzgerald, 2013-05-20 Brings teaching primary science to life with dedicated chapters for chemistry physics biology and earth and environmental science **Teaching and Learning in the Science Laboratory** Dimitris Psillos, H. Niedderer, 2006-05-05 Scope of the book There is an on going debate regarding the role of labwork in science education which dates back several decades and which illustrates the conviction and interest of teachers researchers and policy makers world wide in the value of laboratory work for understanding science This is evident in more recent books and studies regarding the laboratory which mainly refer to countries with a considerable tradition in practical work in science education Woolnough Alsop 1985 Hodson 1993 Hegarthy Hazel 1990 Wellington 2000 Yet in discussing research studies on labwork several authors express their concern about its effectiveness in facilitating students understanding of various aspects of scientific inquiry They point out a comprehensive re conceptualisation of the aims of labwork and as a consequence of investigating what the students actually learn in different contexts Lazarowitz Tamir 1994 Tobin Tippins 1993 Lunetta 1998 It has also been argued that the relationship between instructional activities and student learning in labwork needs more attention than it has been given in science education research Leach Paulsen 1999 It appears that the case for research

based labwork emerges in several quarters in science education particularly among researchers This book presents and discusses a variety of laboratory practices and their effectiveness The studies take into account recent theoretical developments and empirical results concerning students understanding of scientific inquiry A whole chapter is devoted to technological advances offering new learning opportunities for the students and teaching facilities for the teacher

Handbook of Research on Redesigning Teaching, Learning, and Assessment in the Digital Era Meletiadou, Eleni, 2023-05-15 Recent evolutions such as pervasive networking and other enabling technologies have been increasingly changing human life knowledge acquisition and the way works are performed and students learn In this societal change educational institutions must maintain their leading role They have therefore embraced digitally enhanced learning to provide increased flexibility and access for their students The Handbook of Research on Redesigning Teaching Learning and Assessment in the Digital Era provides insights into the transformation of education in the digital era and responds to the needs of learners of any context and background through relevant studies that include sound pedagogical and content knowledge Covering key topics such as hybrid learning media remote learning and social media this major reference work is ideal for administrators policymakers academicians researchers scholars practitioners librarians instructors and students

Scientific Inquiry and Nature of Science Lawrence Flick, N.G. Lederman, 2007-10-23 This book synthesizes the most current literature and research on scientific inquiry and nature of science in K 12 instruction It is unique in its presentation of the distinctions and overlaps of inquiry and nature of science as instructional outcomes The text would be appropriate for individuals preparing to become science teachers as well as experienced teachers Researchers and teachers will find the text interesting as it carefully explores the subtleties and challenges of designing curriculum and instruction for integrating inquiry and nature of science

Science Learning, Science Teaching Jerry Wellington, Gren Ireson, 2012-12-06 First Published in 2008 Routledge is an imprint of Taylor Francis an informa company [Handbook of Research on Science Education](#) Sandra K. Abell, Norman G. Lederman, 2013-03-07 This state of the art research Handbook provides a comprehensive coherent current synthesis of the empirical and theoretical research concerning teaching and learning in science and lays down a foundation upon which future research can be built The contributors all leading experts in their research areas represent the international and gender diversity that exists in the science education research community As a whole the Handbook of Research on Science Education demonstrates that science education is alive and well and illustrates its vitality It is an essential resource for the entire science education community including veteran and emerging researchers university faculty graduate students practitioners in the schools and science education professionals outside of universities The National Association for Research in Science Teaching NARST endorses the Handbook of Research on Science Education as an important and valuable synthesis of the current knowledge in the field of science education by leading individuals in the field For more information on NARST please visit <http://www.narst.org>

Culturally Responsive and Sustaining

Science Teaching Elaine V. Howes, Jamie Wallace, 2024-04-18 How can research into culturally responsive and sustaining education CRSE inform and transform science teaching and learning What approaches might teachers use to study CRSE in their classrooms What are teachers learning from their research that might be transferable to other classrooms and schools In this practical resource teacher researchers from the Culturally Responsive and Sustaining Education Professional Learning Group based in New York City provide insights for educators on how to address complex educational and sociocultural issues in the science classroom Highlighting wide ranging and complex problems such as the COVID 19 pandemic and racial injustice and how they affect individual science instruction settings with a particular focus on urban and high need school environments chapters examine and describe what CRSE is and means for science teaching Through individual and collaborative research studies chapters help readers understand various approaches to developing and implementing CRSE strategies in their classrooms and promote students identification with and affinity for science Teachers describe the questions driving their investigations data and findings and reflect on their roles as agents of change Chapters also feature discussion and reflection questions and include examples of assignments protocols and student work that teachers have piloted in their classes This book is ideal for pre service and in service science teachers and teacher educators across grade levels It provides support for professional learning activities as well as undergraduate and graduate teacher education courses It may be particularly useful in science methods multicultural education and diversity equity and inclusion courses with a focus on CRSE This book not only defines one group s approach to CRSE in science education but also takes the next step to show how CRSE can be applied directly to the science classroom

Handbook of Research on Science Education, Volume II Norman G. Lederman, Sandra K. Abell, 2014-07-11 Building on the foundation set in Volume I a landmark synthesis of research in the field Volume II is a comprehensive state of the art new volume highlighting new and emerging research perspectives The contributors all experts in their research areas represent the international and gender diversity in the science education research community The volume is organized around six themes theory and methods of science education research science learning culture gender and society and science learning science teaching curriculum and assessment in science science teacher education Each chapter presents an integrative review of the research on the topic it addresses pulling together the existing research working to understand the historical trends and patterns in that body of scholarship describing how the issue is conceptualized within the literature how methods and theories have shaped the outcomes of the research and where the strengths weaknesses and gaps are in the literature Providing guidance to science education faculty and graduate students and leading to new insights and directions for future research the Handbook of Research on Science Education Volume II is an essential resource for the entire science education community

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