



Scientific Research in Education

Committee on Scientific Principles for Education Research, Richard J. Shavelson and Lisa Towne, Editors, National Research Council

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Scientific Research In Education

Keith S. Taber



Scientific Research In Education:

Scientific Research in Education National Research Council, Division of Behavioral and Social Sciences and Education, Center for Education, Committee on Scientific Principles for Education Research, 2002-04-28 Researchers historians and philosophers of science have debated the nature of scientific research in education for more than 100 years Recent enthusiasm for evidence based policy and practice in education now codified in the federal law that authorizes the bulk of elementary and secondary education programs have brought a new sense of urgency to understanding the ways in which the basic tenets of science manifest in the study of teaching learning and schooling *Scientific Research in Education* describes the similarities and differences between scientific inquiry in education and scientific inquiry in other fields and disciplines and provides a number of examples to illustrate these ideas Its main argument is that all scientific endeavors share a common set of principles and that each field including education research develops a specialization that accounts for the particulars of what is being studied The book also provides suggestions for how the federal government can best support high quality scientific research in education

Scientific Research in Education Committee on Scientific Principles for Education Research, Center for Education, Division of Behavioral and Social Sciences and Education, National Research Council, 2002-03-28 Researchers historians and philosophers of science have debated the nature of scientific research in education for more than 100 years Recent enthusiasm for evidence based policy and practice in educationa now codified in the federal law that authorizes the bulk of elementary and secondary education programsa have brought a new sense of urgency to understanding the ways in which the basic tenets of science manifest in the study of teaching learning and schooling *Scientific Research in Education* describes the similarities and differences between scientific inquiry in education and scientific inquiry in other fields and disciplines and provides a number of examples to illustrate these ideas Its main argument is that all scientific endeavors share a common set of principles and that each fielda including education researcha develops a specialization that accounts for the particulars of what is being studied The book also provides suggestions for how the federal government can best support high quality scientific research in education

Advancing Scientific Research in Education National Research Council, Division of Behavioral and Social Sciences and Education, Center for Education, Committee on Research in Education, 2004-12-22 Transforming education into an evidence based field depends in no small part on a strong base of scientific knowledge to inform educational policy and practice *Advancing Scientific Research in Education* makes select recommendations for strengthening scientific education research and targets federal agencies professional associations and universities particularly schools of education to take the lead in advancing the field

Progressing Science Education Keith S. Taber, 2009-05-29 Exploring one of the central themes in science education theory this volume examines how science education can be considered as a scientific activity within a broad post positivist notion of science Many students find learning science extremely problematic whatever level of education they have reached

At the end of the 1970s a new approach to tackling learning difficulties in science was developed drawing on ideas from psychology and cognitive science and centred on the way students build up new knowledge in reference to their existing ideas Constructivism became the dominant paradigm in science education research for two decades spawning a vast body of literature reporting aspects of learners ideas in different science topics However Constructivism came under fire as it was recognised that the research did not offer immediate and simple prescriptions for effective science teaching The whole approach was widely criticised in particular by those who saw it as having anti science leanings In this book the notion of scientific research programmes is used to understand the development limitations and potential of constructivism It is shown that constructivist work in science education fits into a coherent programme exploring the contingencies of learning science The author goes further to address criticisms of constructivism evaluate progress in the field and suggest directions for future research It is concluded that constructivism has provided the foundations for a progressive research programme that continues to guide enquiry into learning and teaching science

Discipline-Based Education Research Stephanie

Slater, Timothy Slater, Inge Heyer, Janelle Bailey, 2015-07-16 This expanded and updated second edition book is written for scientists who want to learn more about how science education research is done and how to get started in discipline based education research It provides the reader with an introduction to the philosophical and practical differences between more familiar traditional scientific research and the more unfamiliar domain of sociological research Readers will learn about the most robust ideas in education research which serve as jumping off points in their new forays into the realm of discipline based education research Quantitative interpretive and action research methods are introduced with real life easy to follow examples The authors long time contributors to the science education community provide rubber meets the road guidance to both first time and experienced researchers to get projects off the ground with the goals of improving classroom practice and contributing to the knowledge base on the teaching and learning of science Discipline based education research is much like traditional scientific research in that using different instruments sometimes results in unexpected answers As an example the cover image uniquely reveals vastly different information about flowers when viewed in visible light upper left and in ultraviolet light lower right In much the same way carefully planned and well executed discipline based education research using a variety of research lenses has the ability to yield unexpected insight into teaching and learning that can benefit all of us

Progressing Science Education Keith S. Taber, 2009-08-29 Exploring one of the central themes in science education theory this volume examines how science education can be considered as a scientific activity within a broad post positivist notion of science Many students find learning science extremely problematic whatever level of education they have reached At the end of the 1970s a new approach to tackling learning difficulties in science was developed drawing on ideas from psychology and cognitive science and centred on the way students build up new knowledge in reference to their existing ideas Constructivism became the dominant paradigm in science education research for two decades spawning a vast body of

literature reporting aspects of learners ideas in different science topics However Constructivism came under fire as it was recognised that the research did not offer immediate and simple prescriptions for effective science teaching The whole approach was widely criticised in particular by those who saw it as having anti science leanings In this book the notion of scientific research programmes is used to understand the development limitations and potential of constructivism It is shown that constructivist work in science education fits into a coherent programme exploring the contingencies of learning science The author goes further to address criticisms of constructivism evaluate progress in the field and suggest directions for future research It is concluded that constructivism has provided the foundations for a progressive research programme that continues to guide enquiry into learning and teaching science

The SAGE Handbook for Research in Education Clifton F. Conrad, Ronald C. Serlin, 2011-06-10 This handbook provides an up to date advanced analysis of all relevant issues involved in educational research The expert contributors represent diverse fields within and outside education as well as quantitative qualitative and mixed method approaches to research

Research and Educational Leadership Fenwick W. English, Gail C. Furman, 2007 Research and Educational Leadership will prove to be an invaluable tool in re thinking the way research is conducted in educational leadership and how public and private funding agencies should view research proposals which have potential to improve leadership practices in schools The text will also become a key resource in teaching researchers to think more deeply about school leadership as they engage in dissertation research

Handbook of Education Policy Research Gary Sykes, Barbara Schneider, David N. Plank, 2012-09-10 Co published by Routledge for the American Educational Research Association AERA Educational policy continues to be of major concern Policy debates about economic growth and national competitiveness for example commonly focus on the importance of human capital and a highly educated workforce Defining the theoretical boundaries and methodological approaches of education policy research are the two primary themes of this comprehensive AERA sponsored Handbook Organized into seven sections the Handbook focuses on 1 disciplinary foundations of educational policy 2 methodological perspectives 3 the policy process 4 resources management and organization 5 teaching and learning policy 6 actors and institutions and 7 education access and differentiation Drawing from multiple disciplines the Handbook s over one hundred authors address three central questions What policy issues and questions have oriented current policy research What research strategies and methods have proven most fruitful And what issues questions and methods will drive future policy research Topics such as early childhood education school choice access to higher education teacher accountability and testing and measurement cut across the 63 chapters in the volume The politics surrounding these and other issues are objectively analyzed by authors and commentators Each of the seven sections concludes with two commentaries by leading scholars in the field The first considers the current state of policy design and the second addresses the current state of policy research This book is appropriate for scholars and graduate students working in the field of education policy and for the growing number of academic government and think tank researchers

engaged in policy research For more information on the American Educational Research Association please visit <http://www.aera.net> Dementia Praecox Studies ,1919

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