

RESEARCH-BASED INSTRUCTIONAL STRATEGIES THAT WORK

BY BRYAN GOODWIN AND KRISTIN ROULEAU

6

PHASES OF LEARNING

14

STRATEGIES

45+

CLASSROOM TIPS

NEW INSIGHTS FROM THE SCIENCE OF TEACHING—AND THE SCIENCE OF LEARNING

A growing body of scientific research has revealed a powerful set of 14 practical teaching strategies that work with diverse learners in modern classrooms. As a result, today's teachers have a proven science of teaching at their fingertips that they can apply to dramatically improve student performance and close achievement gaps. To go a step further, these strategies can be mapped onto six key phases of learning.

6 PHASES OF LEARNING



Become Interested

Our brains are designed to ignore most of the stimuli in our environment, so to learn anything, students must first become interested in it—find it personally relevant, meaningful, or intellectually stimulating.



Commit to Learning

All learning requires mental effort. To learn anything, students must find it both meaningful and achievable and therefore worthy of mental effort. Goal setting is a powerful way to help students commit to learning. Because achieving goals activates the brain's reward centers.



Focus on New Learning

Once students are interested in and committed to learning, they must focus attention on new learning in their short-term working memories. They're better able to do this when new learning is presented both verbally and visually, illustrated with concrete examples, and modeled for them.



Make Sense of Learning

Working memories can juggle only small amounts of information at once, so students need to pause regularly to process new learning. And because they only learn what they think about, we must give them opportunities to think about and make sense of their learning, and process new learning with peers.



Practice and Reflect

Repetition is the key to memory, especially when practice sessions are spaced over time. Prompting students to retrieve newly encoded information and reflect on what they've learned so far and what they will learn next helps ensure new learning sticks.



Extend and Apply

Ultimately, the key to deep learning is being able to make multiple neural connections to it by, for example, applying it, thinking about it, and creating something new with it. Students must extend and apply new learning to encode it deeply into their memories.

POWERFUL EFFECTS FOR DIVERSE LEARNERS

To identify the 14 strategies, a team at McREL International, a nonprofit education research and school transformation organization, examined 105 scientific experiments that compared the effects of a randomly assigned treatment group with those of a control group. Notably, more than 70 percent of these studies were conducted in classrooms with diverse student populations, students in poverty, multilingual learners, or previously low-achieving students. Thus, we can confidently conclude these 14 strategies support better outcomes for all learners.

Moreover, all 14 strategies have been found to have significant effect sizes. We report the range of effects for each strategy using an established metric called an improvement index score, which estimates how many more percentile points an average student would demonstrate after exposure to an intervention. For example, an improvement index score of 15 suggests that effective use of a particular strategy with students would bring those at the 50th percentile to the 65th percentile.

Research In Instructional Effectiveness

Hay McBer



Research In Instructional Effectiveness:

Teaching Effectiveness Madan Mohan, Ronald E. Hull, 1975 *Assessing Teacher Effectiveness* R. J. Campbell, 2004
Systems of teacher appraisal and evaluation are being created across the world in order to monitor and assess teacher performance This book builds on current theory and international research opening up possible new debates **Teacher Effectiveness** Marjorie Powell, Joseph W. Beard, 2018-06-13 Originally published in 1984 the field of research on teaching had expanded dramatically in the 15 years covered by this bibliography 1965 to 1980 The expansion had included studies conducted for many purposes This bibliography contains relevant citations to the research which has been conducted for the purposes of increasing our understanding of the science art and craft of teaching The existence of research publications has been documented with relevant reference information and brief annotations there has been no attempt to evaluate the quality of the studies A brief perusal of the bibliography provides an indication of the range of topics addressed by these studies and also of the variety of studies within a single topic **Advances in School Effectiveness Research and Practice** D. Reynolds, B. Creemers, P.S. Nesselrodt, E.C. Shaffer, S. Stringfield, C. Teddlie, 2014-06-28 *Advances in School Effectiveness Research and Practice* presents a worldwide state of the art summary of the rapidly growing field of school effectiveness research by an internationally renowned group of authors Current knowledge in the field is reviewed to present an integrated and coherent internationally valid perspective on school effectiveness and instructional effectiveness The book creatively outlines some new directions in which the field should move if it is to fulfil its promise These include the development of international studies and the generating and testing of school effectiveness theory *International Beliefs and Practices That Characterize Teacher Effectiveness* Grant, Leslie W., Stronge, James H., Xu, Xianxuan, 2021-06-18 Research surrounding teacher quality and teacher effectiveness has continued to grow and become even more prominent as teaching has become more professionalized globally and countries have invested more comprehensively in teacher education certification and professional development To better understand teacher effectiveness it is important to have a global viewpoint to truly understand how beliefs and practices vary in each country and can lead to different characterizations of what makes an effective teacher This includes both cross cultural commonalities and unique differences in conceptualization of teacher effectiveness and practices With this comprehensive international understanding of teacher effectiveness a better understanding of best practices teacher models philosophies and more will be developed *International Beliefs and Practices That Characterize Teacher Effectiveness* identifies shares and explores the predominant conceptual understandings of beliefs and practices that characterize effective teachers in different countries This book provides international and cross cultural perspectives on teacher effectiveness and examines the prominent philosophies of teaching and pedagogical practices that characterize teachers in selected countries Each chapter includes a background such as history and undergirding philosophy within each country effective teacher models prominent applications of teacher effectiveness practices and special or unique

features of teaching in the specific countries mentioned This book is essential for practicing educators in various countries teacher educators faculty and students within schools and colleges researchers in international comparative studies organizations engaged in international education and administrators practitioners and academicians interested in how teacher effectiveness is characterized in different countries and regions across the world *Teacher Effectiveness Research* Geraldine Gilliss, Marita Moll, Canadian Teachers' Federation, 1984 This 723 item bibliography lists materials on teacher effectiveness research published from 1978 to early 1984 Reference to some earlier works of significance is also included Teacher effectiveness research is here defined to include principally studies conducted in the presage context process product tradition in an attempt to determine relationships between teacher behaviors and students cognitive and affective attainments The bibliography deals with specific aspects of the topic 1 classroom climate warmth enthusiasm 2 classroom management 3 direct instruction 4 expectations 5 instructional time 6 mastery learning 7 nonverbal behavior 8 questions turn allocation and wait time 9 reinforcement feedback praise behavior modification and 10 structure planning decision making and clarity Author JD Effective Teachers=Student Achievement James Stronge, 2013-07-23 Research has shown that there is no greater influence on a student's success than the quality of his or her teacher This book presents the research findings which demonstrate the connection between teacher effectiveness and student achievement Author James Stronge describes and explains the value added teacher assessment research that has emerged in the past decade and demystifies the power and practices of effective teachers **Methodological Advances in Educational Effectiveness Research** Bert Creemers, Leonidas Kyriakides, Pam Sammons, 2010-04-26 Methodological Advances in Educational Effectiveness Research is an important new work by some of the leading researchers in the field of Educational Effectiveness Research EER The book provides a state of the art snapshot of the methodology of EER now and clearly demonstrates the way it is applied in both research and evaluation It shows how developments in the research methodology area such as the use of multilevel modelling approaches to analyse nested data have promoted the knowledge base of educational effectiveness But at the same time as the authors show the knowledge base of educational effectiveness and the attempt to establish theoretical models do paradoxically challenge the development of methodologically appropriate studies including ways of analysing data Guiding readers through the effective and appropriate use in educational effectiveness of Longitudinal Studies Experimental Studies Mixed Research Methods Meta analyses of effectiveness studies Using IRT to measure outcomes and factors Using Generalisability Theory to test the quality of data Multilevel modelling and Structural Equation Modelling Techniques The authors draw in the expertise of scholars from around the world to show the mathematical background of each technique the current and future applications and Specific examples of applying this orientation to help the readers design their own effectiveness studies using specific methodological tools Qualities of Effective Teachers James H. Stronge, 2018-03-21 Every teacher seeks to be an effective teacher Every teacher wants to have a positive

remarkable and lasting influence on students lives But what makes for an effective teacher What role does teacher preparation play in teacher effectiveness What do effective teachers do during planning instruction and assessment How do they create a learning environment that engages and supports students And how do effective teachers interact with their students to promote the best opportunities and results for all In *Qualities of Effective Teachers* 3rd edition James H Stronge explores these questions and more as he synthesizes the literature on teacher effectiveness The result A research based framework for effective teaching that addresses Professional knowledge Instructional planning Instructional delivery Assessment Learning environment Professionalism Stronge also examines characteristics of effective teachers of at risk students and high ability students To bridge the gap between research and practice he includes checklists of skills and positive qualities associated with effective teacher performance as well as red flags that indicate that teachers may not be reaching their full potential in the classroom This resource is for any educator interested in improving teaching It offers research based advice for teachers who wish to improve their own performance as well guidance for teacher leaders and supervisors school administrators and department heads staff development specialists teacher and administrator educators human resource specialists and education policymakers and their staffs Anyone who has a vested interest in students and their success can gain valuable insight and practical tools to ensure positive outcomes for all students New to the 3rd edition Introduction of the Framework for Effective Teaching and its six domains professional knowledge instructional planning instructional delivery assessment learning environment professionalism Chapter vignettes updated to illustrate the domains of the Framework for Effective Teaching Updated reference charts at the end of chapters keyed to the subdomains of the Framework for Effective Teaching and expanded to include references for 21 century teachers Twenty nine sidebars interspersed throughout chapters that provide state of the art supplementary text on effective teaching practices and research findings Updated Teacher Skills Assessment Checklist keyed to the domains of the Framework for Effective Teaching Updated Part 2 presents positive qualities and red flags associated with effective teachers keyed to the domains of the Framework for Effective Teaching More than 1 000 entries in the References [The Routledge International Handbook of Educational Effectiveness and Improvement](#) Christopher Chapman, Daniel Muijs, David Reynolds, Pam Sammons, Charles Teddlie, 2015-08-14 The International Handbook of Educational Effectiveness and Improvement draws together leading academics and researchers in the field to reflect on the history traditions and the most recent developments in this dynamic and influential field This handbook provides a comprehensive overview of the foundations of the field the evolution of educational effectiveness theory and methodology the links with other research disciplines the links between policy and practice In conclusion the handbook sets out a new agenda for future educational effectiveness research This handbook is an essential resource for those interested in the effectiveness of educational systems organisations and classrooms It offers academics researchers students and policy makers new insights into the latest thinking and evidence about educational

effectiveness **Research Into Teacher Effectiveness** Hay McBer,2000 **Educational Effectiveness and Ineffectiveness** Jaap Scheerens,2015-11-20 This book is a critical assessment of the knowledge base on educational effectiveness covering a period of five decades of research It formulates a lean theory of good schooling and identifies and explains instances of ineffectiveness such as low effect sizes of malleable conditions for which expectations are highly strung The book presents a systemic outlook on educational effectiveness and improvement as it starts out from an integrated multi level model that comprises system level school level and instructional conditions It offers a classification of school improvement strategies and scenarios for system level educational improvement Above all the analysis is very systematic comprehensive and strongly grounded in theory The book includes a case study analysis of various strands of improvement oriented educational policy in the Netherlands as an illustration of some of the arguments used International Perspectives in Educational Effectiveness Research James Hall,Ariel Lindorff,Pamela Sammons,2020-08-10 This edited volume explores questions about what works how for whom when and why in education and considers how and to what extent such knowledge can be understood and extended across countries and different educational systems The book starts by presenting an overview of the history of educational effectiveness research and offers examples of current theories of educational effectiveness Next it provides exemplars of effectiveness studies that report on educational systems policies and practices from across six continents These studies vary in their research methods and outcomes illustrating a field of research that is conscious of its origins its agenda and its ambition to understand and improve the functioning of schools networks and education systems around the world The book brings these threads together within the final chapter and uses them to signpost directions for future research International Perspectives in Educational Effectiveness Research is an excellent and timely addition to the educational effectiveness literature It offers a rigorous and insightful range of international perspectives that will be of interest to researchers policy makers and students of the field Professor Christopher Chapman University of Glasgow UK President Elect of the International Congress for School Effectiveness and Improvement This important new volume brings up to date the contributions of educational effectiveness research to the development of policy and practice in the field over the last 50 years Drawing together the ideas of many of the major researchers in the field it provides a comprehensive analysis of these earlier contributions leading to critical commentaries that point to areas for future attention The editors make use of expertise from a range of disciplines to strengthen the themes that are addressed Most importantly the book emphasises the need to pay greater attention to the challenge of equity arguably the most significant challenge facing education systems internationally In this respect a particular strength of the book is the accounts provided from many different parts of the world These underline the importance of context a factor often previously overlooked in this field of research Given all of this I have no doubt that International Perspectives in Educational Effectiveness Research will become a major source for practitioners policy makers and researchers Professor Mel Ainscow

Emeritus Professor of Education University of Manchester Professor of Education University of Glasgow UK **Effective Teaching of Reading** James V. Hoffman, International Reading Association, 1986 Distilling and interpreting past and current research on the effective teaching of reading is the focus of this volume The titles and authors are as follows Research in Effective Teaching An Overview of Its Development William H Rupley Beth S Wise and John W Logan Process Product Research on Effective Teaching A Primer for a Paradigm James V Hoffman Principles for Conducting First Grade Reading Group Instruction Jere Brophy Effective Use of Time in Secondary Reading Programs Jane A Stallings Case Study of a Changing Reading Program and the Role of Teacher Effectiveness Research Mark W F Condon and Marilyn B Kapel Effective Use of Instructional Time The Cupertino Project Martha Rapp Haggard and Jennifer Reese Better Changing Teacher Practice A Research Based School Improvement Study Gary A Griffin and Susan Barnes Instructional Decision Making and Reading Teacher Effectiveness Gerald G Duffy and Deborah L Ball Studying Qualitative Dimensions of Instructional Effectiveness Laura R Roehler and Gerald G Duffy Project READ An Inservice Model for Training Classroom Teachers in Effective Reading Instruction Robert Calfee and Marcia K Henry The Madeline Hunter Model of Teacher Effectiveness Renee Weisberg Policy Constraints and Effective Compensatory Reading Instruction A Review Richard L Allington and What We Know and What We Need to Learn About Reading Instruction Rebecca Barr EL **Synthesis of Research on Instructional Effectiveness in Elementary Schools** ,1983 *Effective Teaching* Hersholt C. Waxman, Herbert J. Walberg, 1991 *Quality and Equity in Education* Leonidas Kyriakides, Bert P. M. Creemers, Anastasia Panayiotou, Evi Charalambous, 2022-04 Quality and Equity in Education draws attention to the importance of developing and testing theories of educational effectiveness and using these theories for improvement purposes It makes a major contribution to knowledge and theory building in research on promoting quality and equity in education The book presents an improved version of the dynamic model of educational effectiveness based on the empirical data emerged from studies testing its validity claiming that the proposed theory can be used for establishing links between educational effectiveness research and school improvement Towards that end the book presents the Dynamic Approach to teacher and school improvement demonstrating its impact on quality and equity in education The book not only proposes an agenda for further research on developing and testing the dynamic theory of educational effectiveness but also refers to research methods that can be used to test the assumptions of this theory and search for relevant cause and effect relations The agenda also refers to the need of identifying the conditions under which the dynamic approach to teacher and school improvement can have an effect on student learning outcomes This book will be of great interest for academics researchers and postgraduate students working in education research and the area of quality and equity in education It will also be of interest to policymakers school advisors and other stakeholders in education **How Teaching Happens** Paul Kirschner, Carl Hendrick, Jim Heal, 2022-06-23 Building on their bestselling book How Learning Happens Paul A Kirschner and Carl Hendrick are joined by Jim Heal to explore how teaching happens The book seeks to

closely examine what makes for effective teaching in the classroom and how research on expert teaching can be used in practice Introducing 30 seminal works from the field of education psychology research the learning sciences and teaching effectiveness studies each chapter takes an important work and illustrates clearly and concisely what the research means and how it can be used in daily practice Divided into six sections the book covers Teacher Effectiveness Development and Growth Curriculum Development Instructional Design Teaching Techniques Pedagogical Content Knowledge In the Classroom Assessment The book ends with a final chapter on What s Missing in how teachers learn to teach Written by three leading experts in the field with illustrations by Oliver Caviglioli How Teaching Happens provides a clear roadmap for classroom teachers school leaders and teacher trainers trainees on what effective teaching looks like in practice

Instructional Effectiveness : Two Types of Supplementary Units in Verbal Instruction for Young Children Educational Research Institute of British Columbia, Roger D. Gehlbach, 1975 *Teacher Competence and Teacher Effectiveness* Donald Matthias Medley, 1977

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web for reactions involving acetic acid or ammonia the measured enthalpy change of neutralization is a few kJ less exothermic than with strong acids and bases for example one source which gives the enthalpy change of neutralization of sodium hydroxide solution with hcl as 57.9 kJ mol⁻¹

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