

Posamentier, Alfred S.; Hartman, Hope J.; Kaiser, Constanze:

Tips for the Mathematics Teacher: Research-Based Strategies to Help Students Learn

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The authors contend that this book *should* serve as a resource for mathematics teachers. It should provide these teachers with a way to assess the many worthwhile findings resulting from educational, psychological, and sociological research studies done in Europe and the United States. The book is designed to provide an easy way for the classroom teacher to benefit from the many ideas embedded in these otherwise academic exercises. Generally, classroom teachers have not tapped into findings from research studies in order to plan for instruction partly because of the amount of time it would take to find research studies germane to their instruction.

Formatted in an easy to read user-friendly way, the book presents Tips for teaching for an easy read by anyone who is interested in how to improve the processes in class management and in involving all students in the acquisition of concepts. A reader simply finds a topic and consequently gains information about some issue that may arise in the classroom whether it be behavioral, psychological or curriculum-oriented, and read about some research study pertaining to the topic under consideration. Furthermore, in each of the four chapters a collection of teaching Tips, Research evidence, Classroom Application, Precautions and Possible Pitfalls are available to the reader. Suggested bibliographical references appear at the end of each Tip.

It is without doubt that these three authors are fully qualified and have adequate credentials for producing a book of this type. Posamentier served as a classroom mathematics teacher and has been involved in mathematics and mathematics education at Humboldt University in Berlin and is now on the faculty of CCNY, City College of New York, where he apparently enjoys a great deal of respect from his colleagues in his chosen field. Hartman is a Professor of Education at CCNY and has been engaged in a variety of activities during her extensive work in student acquisition of knowledge. Her work with skill development in students along with the development of effective learning strategies in listening and tutoring is highly praised for its relevance to education. Kaiser hails from Berlin, Germany, and has taught in Germany as well as America and brings to education a broad background in teaching and research. From her biographical sketch it is noted that one of her interests is educational research designed to seek helpful practical tips in the classroom. It is suspected that Posamentier's and Kaiser's German experiences at Humboldt Univer-

sity account for the heavy emphasis on contributions by German-conducted researchers in teaching and learning.

Four chapters make up this book. Chapter One on *Instructional Techniques* is by far the longest chapter and is comprised of about 100 pages devoted to forty-five Tips. The meaning of Instructional Techniques is taken broadly to mean practically anything that relates to teaching. Included herein are two or three Tips for teaching mathematics with the other 43 Tips appropriate to *any* field of education whether it be mathematics or whatever. On reading this section, my first impression was that the title of the book may be misleading by the inclusion of the word *mathematics* in the title. In fact, there is very little to do with teaching mathematics in these 212 pages. (The three or so examples relating to mathematics education that are included may seem non-representative where, even stretching one's imagination, it is difficult to fathom why the authors chose these examples.) The Classroom Applications section for each Tip borders on common sense solutions to educational problems. Many of the limited suggestions are supported by a paucity of research studies. By and large, these applications provide *nothing new or exciting* for teaching strategies with absolutely no mention of incorporating the *even newer issues* brought about by the use of hand-held calculators in the classroom. Bibliographical references cover a wide range of dates including studies of the sixties up to present day. Tips on how teachers may encourage critical thinking, how to develop instructional materials to foster logical thinking and understanding, as well as coping with behavior change resulting from use of innovative technology in the classroom seem to have been overlooked. The authors included 'inquiry learning' as a theme; yet, for this reviewer, too little attention was given to this important topic and especially to the crucial topic of how does an educator control the student's acquisition. Two of the most important crucial issues for the middle grades are those of proportional reasoning and non-algorithmic methods for solving problems; these concerns should have had a more prominent place in this book on Tips in teaching.

Chapter Two focuses on *Social Aspects* of the classroom. It is certainly true that teaching mathematics or whatever is decidedly different from what it was even fifteen years ago when classroom teachers expected rational behavior and, quite often, got it. In today's classroom, a teacher is expected to take on a variety of roles in coping with attitudinal problems, in presenting content appropriate for different sexes and, as often the case, be a surrogate parent. Chapter Two presents a variety of Tips that are in answer to these demands brought about by diverse societal problems in teaching today's students. Beginning teachers and teacher educators may find this chapter worthwhile reading.

Chapter Three takes one beyond the classroom and poses questions about *parental involvement* and other *out-of-classroom issues* which may lead to improvements in student interest and success in understanding content taught in the classroom. I found these Tips to be of some interest especially for long-term teacher survival in the classroom.

Chapter Four centers on development of *Positive Attitudes* about mathematics. Issues relating to sex differences, math anxiety, motivation and making learning in the classroom more palatable for students are interesting reading. Although many of these issues were fads at one time or another, many are still of vital concern for educators at all levels in the educational process and should be addressed in a book of this type.

In each chapter for each Tip, at least one research study is cited. Findings of these studies are pivotal for the authors' prescriptions for dealing with the question or topic proposed in the Tip. As the authors contend, this book is a *beginning* for directly applied research based on decision making in answer to a Tip; the authors are stingy in reporting research studies – almost all supportive research is comprised of one, and only one, citation. More than ninety bibliographical references are listed. Most of the European studies have German titles as if to imply that the worthwhile research in Europe is conducted only in Germany. Other European bibliographical references are for the most part translated into English. Any classroom teacher should be aware of varieties of studies geared to different sexes, different levels of ability, different ages, different ethnic groups and would be well-advised to have within reach findings of several studies and not only one or two. The research section is perhaps the weakest section of this book. (This reviewer is well aware of the monumental task of pulling together representative research studies for any question a classroom teacher may have about teaching and learning, yet, even for a book of this type, too little research detracts from the importance of this useful book.) If this book is advertized as translating “the latest research results from US and European educational, psychological, sociological studies into tips for practical applications” then it would seem reasonable to find references from a wide selection of countries in the European area.

In conclusion, it is fair to say that this paper-back is very easy reading and well-intended for anyone interested in education especially for the beginning teacher. I find it rather general for mathematics teachers, yet appropriate for those who desire to know about curriculum issues directly applied to the entirety of classroom operations. The authors' intentions to provide research supported ideas for classroom teachers is noteworthy and, indeed, a good beginning by the publication of this book.

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