

Foreword to *Math Panic*

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Math Panic. Laurie Buxton. Heinemann Educational Books, 1991



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Terror, frustration, despair, anxiety, anguish,... Words of panic, rarely used by competent adults in ordinary life, stream forth when people are asked to describe feelings evoked by mathematics. Strange it is that mathematics, the epitome of objective rationality, should elicit such emotion-laden language.

Yet however strange it may seem, it is actually quite common for mathematics to carry with it intense emotional baggage. For some, the emotive impact is primarily positive--a "pleasurable obsession" that provides what Bertrand Russell called an "intense delight" in the beauty of reason. But for most adults the emotional baggage of mathematics is an overwhelming burden without apparent redeeming value--a ladder to the past filled with remembrances of mind-numbing boredom and embarrassing frustration.

The subjects in this book are successful adults of varied backgrounds who share a profound anxiety about mathematics. Although these particular individuals are all British, they could as well be American or French--or Russian or Japanese. Their reactions to mathematics--by remembering their educational experiences and working on problems as adults--are authentic reflections of human experience. Listen to their voices, and you hear the genuine emotions of mathematics:

"The thing I remember about math, of course, is a *fantastic* lack of comprehension." "Cachunk, down comes the blanket like a green baize cover over a parrot's cage." "If you are really sure that you cannot do math, there are many ways of refusing to admit that you might."

The theses of this pioneering study is that emotion often blocks the faculty of reason to prevent otherwise capable adults from coping with mathematics. By probing the psychological roots of panic--a sudden mental discontinuity that disables rational thought--Laurie Buxton establishes a credible case that mathematics education must take as much account of emotion as it does of cognition.

Pressure of timed tests and risk of public embarrassment have long been recognized as sources of unproductive tension among many school students. Buxton adds to this a thorough analysis of the special role that authority plays in children's learning of mathematics. These three ingredients--imposed authority, public exposure, time deadlines--combine to create true panic in many adults when they face even very simple mathematical problems. Yet these same ingredients feature prominently in most traditional mathematics classes--which, of course, is precisely why there is so much panic about math in our society.

Even simple strategies that teachers take for granted can contribute in unintended ways to emotions that block rational thought. Asking questions, offering praise, enlisting parents--all generally accepted as good teaching practices--can in some cases provoke an emotional revolt against authority that erases any hope that the mathematics that follows will be engaged or understood.

Alone among subjects children study in school, mathematics is its own ultimate authority. Neither teachers nor answer books are needed to confirm the correctness of a typical school mathematics problem. Yet common teaching strategies too often enhance rather than emancipate pupils' emotional dependence on teachers for approval. Such practices may, according to one of Laurie Buxton's more tantalizing suggestions, account in part for the observed differences between men and women in mathematical achievement--since it is well known that boys and girls are socialized to respond differently to imposed authority.

Although the investigations on which this book is based was conducted in England, they speak directly to the present crises in U.S. mathematics education. The roots of adult panic are planted by American schools just as they are in England. Schooling in both countries leaves many lacking confidence that their efforts at mathematics could ever produce correct results. Many emerge personally diminished from their encounter with school math, as if one of their faculties had been amputated.

Educators have always known that effective teaching must educate the whole child, not just the child's mind. Being of a pragmatic bent, Americans recognize the importance of motivation to success in school, whence so much emphasis on preparation for jobs and future careers. Laurie Buxton adds to this an insight well worth studying--that the response of pupils to mathematics teaching is as much emotional as cognitive. Failure to learn may as easily result from emotional blocks created by school practice itself as from any of the other sources (for example, curriculum, motivation, pedagogy, textbooks, or tests) more commonly found on the agenda of the school reform movement.

This volume's focus on emotions associated with the study of mathematics provides a valuable complement to the current reform agenda in mathematics education. Indeed, the interviews and ideas in this volume open an important new frontier for research in mathematics learning. Laurie Buxton's analysis adds a challenging new voice to the American dialog about mathematics education--the voice of emotion.

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