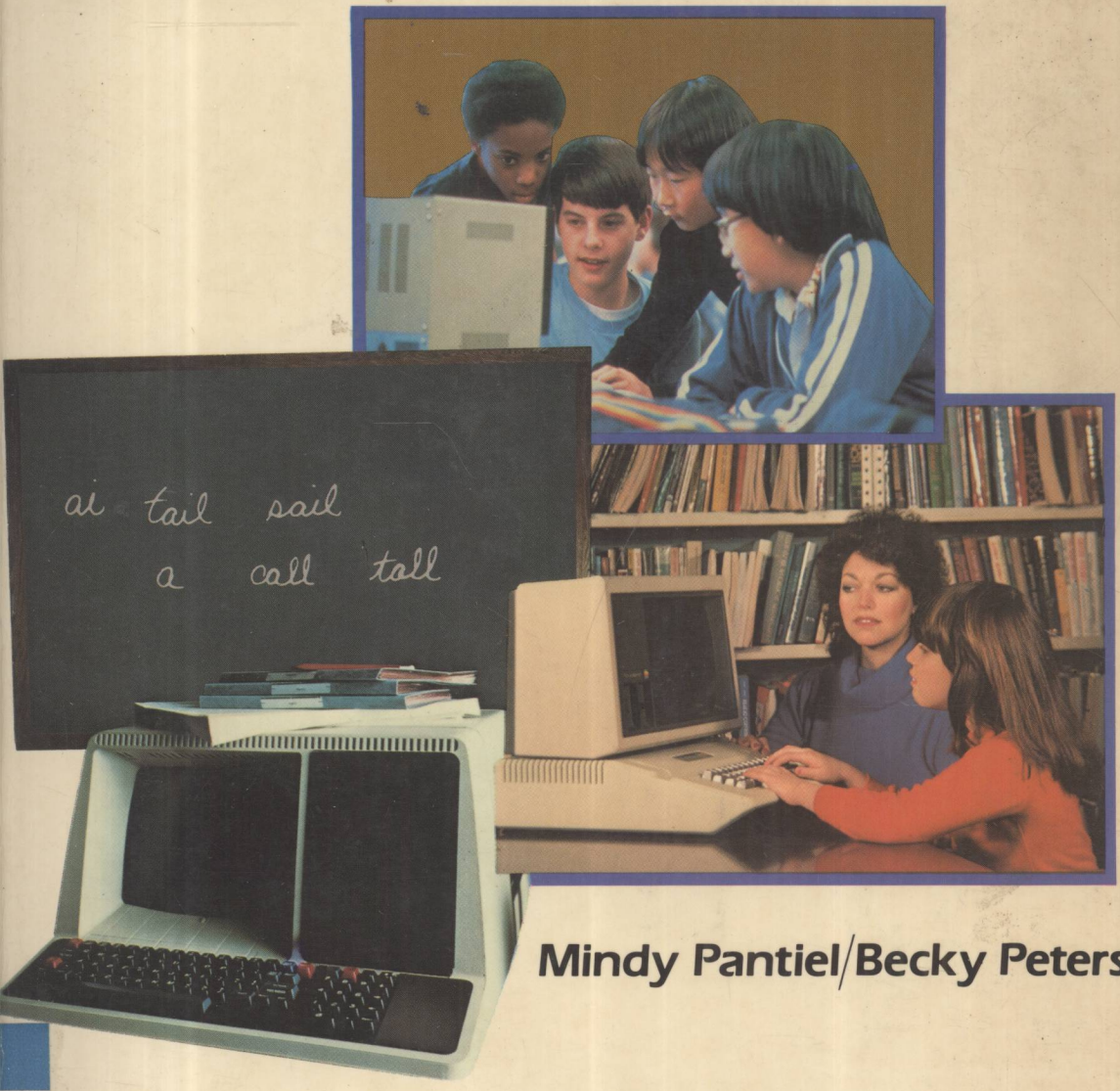
Kids, Teachers, and Computers

A GUIDE TO COMPUTERS IN THE ELEMENTARY SCHOOL



Mindy Pantiel/Becky Petersen

PRENTICE-HALL COMPUTERS IN EDUCATION SERIES

and Computers,
in the Elementary School

Mindy Pantiel

Becky Petersen

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Kids, Teachers,

A Guide to Computers

Preface

The kids come trooping in from the school bus or their homes down the street, a ragtag bunch of enthusiastic, unruly learners-to-be, all abuzz with out-of-school news and playground antics they can't wait to share. The classroom is furnished with 24 pint-sized desks forming pods of four. Scattered about, hinting of some underlying careful organization, but camouflaged by the results of months of classroom creativity, are the tools of elementary school learning.

Bright, colorful tempera paintings, each uniquely inspired, line the perimeter on one side and student writing in all shapes and sizes finds a prominent place on the front bulletin board. Gigantic Ernie and Big Bird oversee the space from a perch high above one corner and an oversized abacus occupies space below. The blackboard topped with perfectly executed alphabet cards boasts a big calendar of the month and schedule of weekly helpers to organize the group about to walk in the door. Between the science learning center filled with an aquarium and several trays of newly planted seedlings, and the art center with bottles of glue, scissors, colored yarns, and papers

galore, sit two microcomputers, which blend inconspicuously into the learning space.

The education process is about to begin as it does every morning of the school year. The desk at the helm is somewhat taller than the other desks in the room and the chair belongs to an adult. The desktop is barely visible beneath the piles of materials that will be the focus of the learning activities for the day: the spelling list, two new worksheets, Cuisinare rods, a plastic body with removable organs, a couple of floppy disks, and *Charlotte's Web* to read aloud.

The eager young faces and the classroom just described could have been our own classrooms in the recent past, but with one very significant difference. A few years ago there would have been no floppy disks sitting on the desk and no microcomputers would have been sandwiched in between the science and art centers. In fact, we wouldn't have even known what a microcomputer was or what it looked like and certainly not what it could be used for.

As with most persons deeply involved in the education of young people, we joined the ranks of teachers in the early 1970s because we felt that we wanted to be involved in the active and rewarding process of educating children. We had energy and enthusiasm and a special devotion to kids and, of course, we were armed with all of the methods courses and educational theories that every teacher-training institution imparts.

We still have that same energy, enthusiasm, and devotion, but instead of just book learning to back up our exuberance, we are armed with over 12 years of firsthand experience teaching and learning about kids. It is this experience that gave us the confidence to meet the challenge of microcomputers. It was just a short time ago that we were introduced to the idea of computing in the classroom and we have come a very long way in a very short time. We believe that teachers who have trust in their own abilities can do the same.

Our main purpose for writing this book was in response to the lack of resources on computers in education available to teachers. When we first encountered micros, we searched for a guidebook to help us, but met with little success. The books occupying bookstore and library shelves were not only highly technical and difficult to understand, but gave little thought to education. We decided to write this book to fill that gap, addressing those computer issues that directly concern the classroom.

It has taken some hard work, but we have reached a point where we feel

at ease with microcomputers and have attempted to share what we have discovered. It's now all in a day's work to sit down behind the display screen and keyboard to use a word-processing package, or to teach a computer lab filled with fourth-graders who are computer-programming using Logo. Leading a discussion of elementary school teachers in how best to manage one or two microcomputers in a regular classroom setting or conducting a courseware evaluation session has become second nature.

We are clearly a society moving toward computer literacy. We can see it all around us as 75% of all jobs—and that includes teaching—will require the use of computers in the near future. Teachers need to get involved: both as a responsibility to the young people they teach, who in a few short years must be prepared to join the work force, and also as a responsibility to themselves if they hope to be active participants in the twenty-first century.

Throughout our travels in preparation for writing the book, we met with many elementary school teachers and administrators, some of whom were already using computers with kids and others about to get started. Many of these educators shared their apprehensions about getting involved with this new technology, but their fears were tempered by curiosity and a determination to learn more. Throughout the book we share some of their stories with you in "Scenes from the Classroom." The situations described are based on actual classroom happenings, but the names and schools have been changed.

These teachers found, as you soon will, that learning about kids and computers is not necessarily one of those easy-to-understand subjects that can be incorporated into lesson plans tomorrow. Computers come with a whole new language and some fairly complex operations and applications to understand. It takes time to make sense out of the new terminology and learn how to use the equipment, but most important, it requires a good knowledge base and hands-on experience before you can determine how computers can best be integrated into your school program.

Remember as you read the book that microcomputers are just machines, although admittedly powerful ones which have amazing memories and can elevate children to the world of problem solving and critical thinking—but they are not human. A computer cannot smile or dry tears or give a child a big hug. The computer is terrific for assisting with the process of learning and for teaching skills in many areas, but it takes an understanding and caring teacher to meet the emotional, social, and intellectual needs of children.

This book will give you a composite knowledge and an understanding of

microcomputers and their uses in education. After that, it is up to you to take this information and make it part of your everyday teaching life. The implementation of a sound computer education program will require knowledgeable, sensitive, and well-trained teachers. As the single most important person in the education of your students, it will be your job to make computer education happen.

Mindy Pantiel
Becky Petersen

To Brian and Lyle . . .
who taught us what user-friendly really means

Acknowledgments

No undertaking as demanding and complex as writing a book could ever be completed without support and encouragement from the sidelines. We were fortunate to have several people who answered our questions, listened to our laments, and gave of their time to offer us assistance, especially Kimberly Petersen, Randy Wallace, Joyce Duncan, and Terri Eyden.

Special thanks go to the teachers in our photos: Mildred Gamble, Janette Janske, Steve Payne, and Michelle Small. And to the pint-size smiling students: Franco D'Orazio, Jayme Janske, Dede Pazour, Aaron Schmohe, and Jason Small.

And a round of applause to the brains behind the Osborne I, the IBM PC, and Verbatim diskettes. These trusty tools burned the midnight oil with us more times than we care to count.

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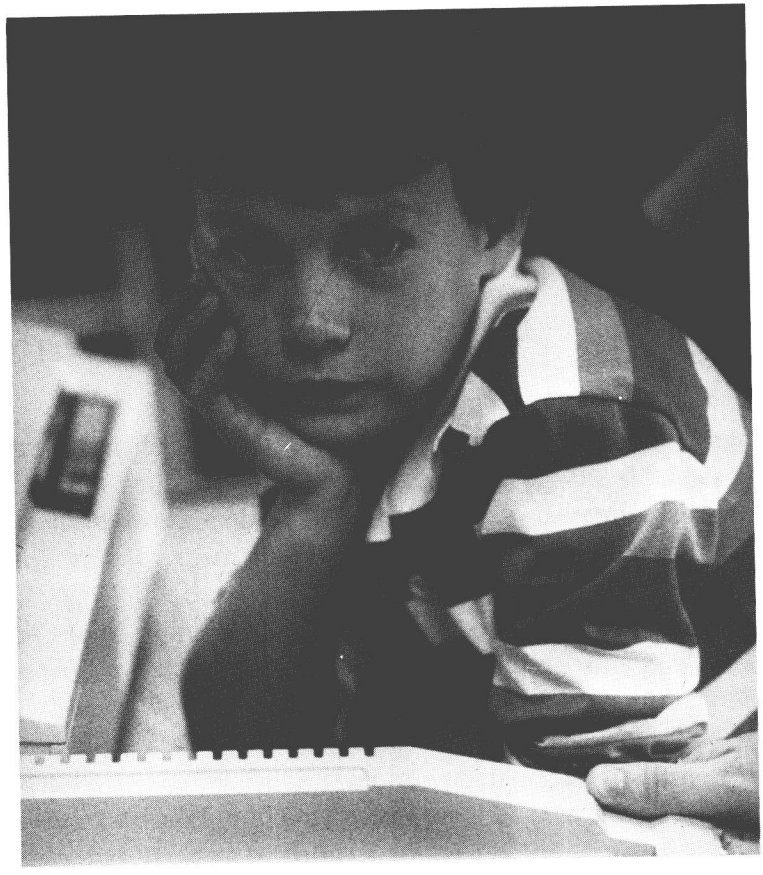

PHOTOS BY ROB STUEHRK

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A Look At Computer Education Today

Scenes from a Third-Grade Classroom

As Mark Glazer walks by Ms. Kelley's classroom, he cannot help but notice the excited voices of her third-graders as they crowd around the microcomputer which recently arrived at the school. Beth Kelley is the only one on the staff who has even dared to show the complex, new-fangled equipment to her students.

As Mr. Glazer's curiosity gets the best of him, he peeks in the door, hoping that no one notices as he watches this animated teacher interact with her students and the computer. The kids seem to be captivated by her demonstration and eager to try their own hands at the TV-like machine sitting on the desk.

What are these kids learning? More important, what on earth will they be expecting next year when some of them arrive in Mr. Glazer's fourth-grade classroom? He admittedly doesn't know anything about microcomputers. It seems to him that he's gotten

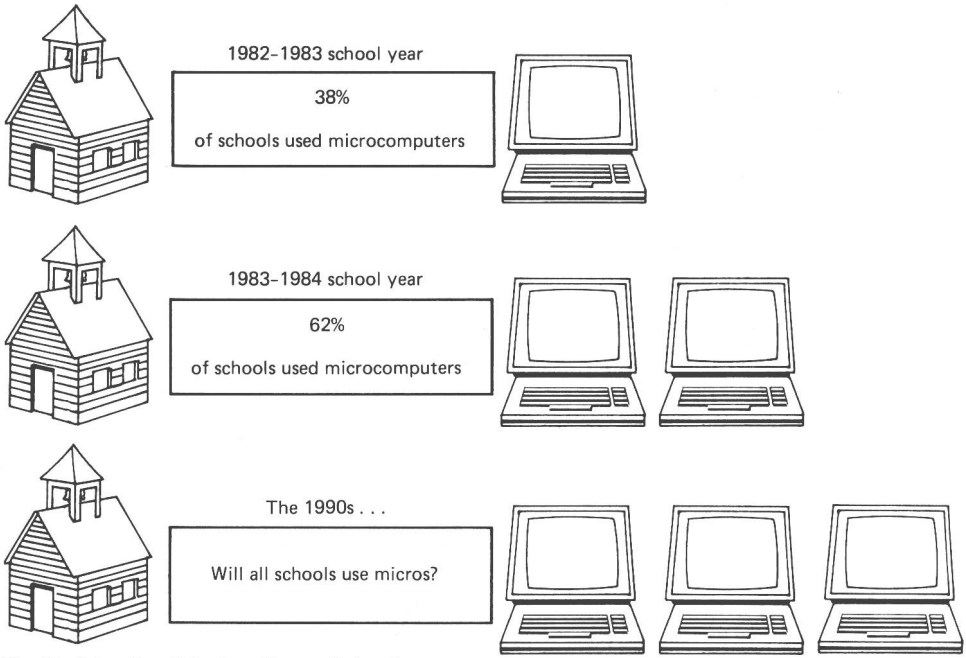
along just fine using the same teaching strategies that he has worked so hard over the years to perfect. Who has the time to fit computers into an already jam-packed elementary curriculum? Mr. Glazer is somewhat startled by the fact that Beth Kelley's "computer aces" are already talking a foreign language. He always thought a logo was the symbol business people designed to go at the top of their stationery; apples used to come in Jonathan, Winesap, and Granny Smith varieties; chips were the mainstay of chocolate chip cookies; and when something needed debugging, he called in the exterminator.

Mark Glazer
Fourth-Grade Teacher
Englewood Elementary School

This scenerio is repeating itself over and over again in elementary schools across the country . . . in both rural and urban settings, in poor schools as well as affluent, and in both public and private institutions. Microcomputers are being purchased and placed in elementary classrooms at a terrific rate and it doesn't seem to be slowing down.

Many agencies have conducted surveys of educational computer use in the last few years and have drawn similar conclusions. In a survey of elementary school teachers undertaken by Scholastic, Inc., more than half (53%) of the 8000 teachers who responded said their schools already owned and used computers, and of those that did not, nearly one-third were planning on making purchases in the upcoming year. In a single year the number of elementary schools using microcomputers increased by more than 80% over the year before. In fact, computers are multiplying so fast that they are becoming impossible to count; experts figure the statistics are obsolete even before they can be reported.

The National Commission on Excellence in Education, after studying the status of education in America for 18 months, recommended compulsory instruction in the "new basics," including a half-year of computer science for all students. Ms. Kelley and Mr. Glazer are not the only teachers who are going to be called upon to lead the movement of American elementary schools into computer education. Teachers at all grade levels must be pre-



*Quality Education Data, Inc., Denver, Colorado.

pared for teaching youngsters with and about computers but, through no fault of their own, very few teachers are prepared for this challenge.

The job of educators is to examine carefully both the potential and the limitations of microcomputers as they relate to the learning process and to determine their proper place in educational settings. The goal of this book is to provide elementary school teachers with a step-by-step introduction to microcomputers. It is intended for those who may be approaching the computer revolution with hesitancy, but recognize the crucial need to have a sound basis for responsible decision making about the direction computer education will take in schools, at specific grade levels, and specifically, in individual classrooms.

The task at hand is to help teachers determine how best to tackle computer education—to establish a game plan, if you will. At this point, do you even know if you need a nuts-and-bolts description of the inner workings of the computer or a practical guide to what the computer can do for you as a teacher and for your students? Or do you need help in selecting educational software that blends well with your curriculum or assistance narrowing down computer hardware choices? We assume that you do not have answers to these questions, at least not yet.

As you tackle subsequent chapters in the book, you will soon discover that each one provides a logical next step for building a game plan tailored to individual needs. There is no better place to begin than to recognize that microcomputers are here to stay and to admit that they will have a strong impact on education as we now know it. Chapter 1 focuses on these issues, providing a basis for understanding the differences between computer literacy and computer awareness and challenging teachers to become both.

Chapters 2 and 3 will help you address some potential roadblocks that might get in the way of achieving computer literacy. The first is "computerphobia"—an affliction that many teachers wish they didn't have to admit to. A frank discussion of computerphobia acknowledges even the worst fears that teachers might have as they move into the "high-tech" world of computers, and provides a series of practical suggestions for overcoming such fears.

Another roadblock that can cause problems is a lack of understanding of basic computer terminology and operations. Before you can talk about computer applications in the classroom, a working vocabulary is essential. Chapter 3 takes you into what at first may seem like the land of computer mumbo-jumbo, but will eventually translate into a handy reference guide to computer-related terms and definitions. Each time a new term is introduced, we have used italic type to alert you to the importance of adding it to your new vocabulary.

Next we get down to the nitty-gritty of the many diverse ways in which computers can be used in the process of educating youngsters. Chapter 4 examines from both instructional and management points of view the advantages and disadvantages of placing microcomputers in classroom learning centers, as part of the media center, or in centrally located computer labs. Terms such as drill and practice, tutorial, simulation, programming, and word processing will become second nature by the end of Chapter 5. Selected educational software packages have been used in this chapter to help illustrate classroom computer applications.

On the heels of understanding computer-assisted and computer-managed instruction comes Chapter 6, which delineates a multistep plan for teacher training. Once teachers have become excited about various classroom applications, the way needs to be paved for providing more in-depth computer instruction and hands-on practice. This chapter provides a guide to assist teachers and administrators plan and conduct well-designed computer education training programs.