Table of Contents

Table of Contents *(cont.)*

Table of Contents *(cont.)*

Table of Contents *(cont.)*

Introduction

Jump back in time to 1992. What was your personal technology experience as a student or a teacher? Were there computers in your school? Maybe your school had a few Apple II computers in a small lab or in the library. Students probably had limited access to them and most likely no access to the Internet or high-quality software programs.

Now jump forward to 2006. Most schools have fast graphic-laden computers with Internet access. Maybe you have a few computers in your classroom. Certainly you have a television or access to one. You may also have access to a computer projector and other tools of technology. What you may not have access to, however, are the knowledge and experience to use these wonderful tools of technology to further student learning.

Across the United States and around the globe for the past decade, teachers at all grade levels have faced a common dilemma: how to teach and apply technology effectively in the classroom. The solution is not as simple as placing a computer in a classroom and allowing students to

use it. In fact, there is a more exciting prospect: teachers can harness the computer and other forms of technology as tools for learning. Moreover, this learning can develop the higher-order thinking and problem-solving skills that students will need to succeed in our fast-paced, information-saturated world.

As a teacher, the dilemma is threefold. Not only are teachers expected to teach students how to use technology, but teachers must also find ways for students to use technology to learn. Furthermore, teachers are faced with the task of utilizing technology for their own organizational and administrative purposes. Not surprisingly, the technological learning curve for most teachers is steep. Teachers, experienced and new, often feel overwhelmed by the challenges that technology brings to their classrooms. To compound the problem, teachers must often learn how to integrate technology into their classrooms on their own time.

In this book, we hope you will find practical ideas and resources to help you integrate technology into your classroom. The ideas and exercises we share in this book are based on solid research and proven methodology. There is no need to reinvent the wheel. Many teachers and administrators have faced this challenge before you. We hope to draw upon their experiences to enable you to harness technology for yourself and your students.

Organization of the Book

As you proceed through the book, you will find it to be different from most. Most notably, it is interactive. Each chapter begins with a pre-reading review designed to check the reader's knowledge, which will give you some insight as to what the chapter will cover. At the end of each chapter, there are chapter reflections to help you integrate the addressed aspect of technology into

your classroom. The organization and elements of the book make it highly valuable and accessible for collegial professional development activities. Teachers gain even further insight by discussing the material together and collaborating on the interactive activities.

Each chapter of this book addresses a different component of classroom technology integration. **Chapter One** provides the overall methodology and vision for how to best integrate technology into your classroom. It discusses the teacher as a coach and the computer as a tool for learning. **Chapter Two** focuses on the ISTE NETS for Teachers and the ISTE NETS for Students. These are the national technology standards for teachers and students that were developed by the International Society for Technology in Education. **Chapter Three** focuses on software programs. It presents a variety of different ways in which to incorporate word processing, spreadsheets, databases, desktop publishing, and multimedia into classroom lessons and activities. **Chapter Four** addresses the Internet and all it has to offer. It covers everything from effectively searching and evaluating Internet Web pages and creating Hotlists, WebQuests, and Internet Projects to communicating through email, chat rooms, and instant messaging. **Chapter Five** focuses on using technology for assessments and evaluation. **Chapter Six** concentrates on using technology to assist with classroom management and administration. It explores online and electronic grade book programs, computer scheduling, classroom layout, and technological gadgets, with an emphasis on rubrics, online testing, and ePortfolios. **Chapter Seven** covers the basics of computer troubleshooting. This chapter outlines the minor problems that teachers run into when dealing with input and output devices, printers, viruses, spyware, and malware. **Chapter Eight** addresses technology and professional development. It showcases the vast number of online courses and tutorials that are available to educators,

as well as a number of technology-based publications. **Chapter Nine** covers the topic of technology funding. It addresses what a grant is and how to write an effective proposal. Finally, appendices at the end of the book neatly organize some useful online student and teacher resources for quick reference.

A specific example of a project that incorporates spreadsheet software is described below.

Student Project: How Healthy Is Fast Food? (Grades 6–8 and 9–12)

In this activity, the students compare and evaluate the nutritional information of different foods from multiple fast-food restaurants. Before the students start this project, you or the students should obtain nutritional information from fast-food restaurants or from their websites. Also, find the United States Department of Agriculture (USDA) recommended calorie intake appropriate for the genders, ages, and heights of the students in your classroom.

To start the activity, tell students that they will be on vacation for a week and will only have access to fast-food restaurants. Using either their prior knowledge of fast-food restaurants and menus, actual menus brought in for the assignment, or Internet-researched menus as a resource, they must write down what they would eat for three daily meals for the entire week. Older students should record actual sizes in ounces; younger students should record sizes in small, medium, or large and record data for a shorter period of time than that of the older students. Direct students to then create a spreadsheet that will display the nutritional information for different fast foods. The spreadsheet should list the type of food, the restaurant from which it came, and its nutritional information. Figure 3.4 shows a possible setup of one lunch meal for students in grades 6–8. Figure 3.5 shows an expanded example that would be appropriate for students in grades 9–12. The assignment can be adapted for whatever analytical use the teacher has planned for the learning experience. Using the nutritional information from the fast-food restaurants, students should insert the appropriate information for each column. Teach the students how to use automatic sum feature in order to compile the total for each column.

Figure 3.4: Fast Food Spreadsheet Sample (Grades 6–8)

	A	B	C	D	E
1		Calories	Fat Calories	Non-fat Calories	Percentage of Fat
2	Cheeseburger				
3	Large Fries				
4	Apple Pie				
5	Diet Coke				
6	Total				
7					

Figure 3.5: Fast Food Spreadsheet Sample (Grades 9–12)

	A	B	C	D	E	F	G	H
1	**Restaurant 1**	**Size**	**Calories**	**Calories from fat**	**Total Fat (g)**	**Sodium**	**Carbs**	**Dietary Fiber**
2	Cheeseburger							
3	French Fries							
4	Diet Coke							
5	Apple Pie							
6	**Total:**							
7								

As an extension activity, instruct the students to create another spreadsheet. On this worksheet, the students need to compute and transfer each day's fast-food calorie intake and compare it to the USDA recommended calorie intake. Figure 3.6 shows how this spreadsheet might look.

Figure 3.6: Calorie Intake Spreadsheet

	A	B	C
1	**Day:**	**My Calorie Intake**	**Recommended Calorie Intake**
2	Sunday		
3	Monday		
4	Tuesday		
5	Wednesday		
6	Thursday		
7	Friday		
8	Saturday		
9			