

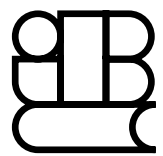
Learner-Centered Teaching

Five Key Changes
to Practice

Maryellen Weimer



JOSSEY-BASS
A Wiley Company
San Francisco



Learner-Centered Teaching

Learner-Centered Teaching

Five Key Changes
to Practice

Maryellen Weimer



JOSSEY-BASS
A Wiley Company
San Francisco

Published by



JOSSEY-BASS

A Wiley Company
989 Market Street
San Francisco, CA 94103-1741

www.josseybass.com

Copyright © 2002 by John Wiley & Sons, Inc.

Jossey-Bass is a registered trademark of John Wiley & Sons, Inc.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, scanning, or otherwise, except as permitted under Sections 107 or 108 of the 1976 United States Copyright Act, without either the prior written permission of the Publisher or authorization through payment of the appropriate per-copy fee to the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400, fax (978) 750-4744. Requests to the Publisher for permission should be addressed to the Permissions Department, John Wiley & Sons, Inc., 605 Third Avenue, New York, NY 10158-0012, (212) 850-6011, fax (212) 850-6008, e-mail: permreq@wiley.com.

Jossey-Bass books and products are available through most bookstores. To contact Jossey-Bass directly, call (888) 378-2537, fax to (800) 605-2665, or visit our website at www.josseybass.com. Substantial discounts on bulk quantities of Jossey-Bass books are available to corporations, professional associations, and other organizations. For details and discount information, contact the special sales department at Jossey-Bass.

We at Jossey-Bass strive to use the most environmentally sensitive paper stocks available to us. Our publications are printed on acid-free recycled stock whenever possible, and our paper always meets or exceeds minimum GPO and EPA requirements.

Jossey-Bass also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Library of Congress Cataloging-in-Publication Data

Weimer, Maryellen, date.

Learner-centered teaching: five key changes to practice / Maryellen

Weimer.—1st ed.

p. cm.—(The Jossey-Bass higher and adult education series)

Includes bibliographical references and index.

ISBN 0-7879-5646-5 (alk. paper)

1. College teaching. 2. Learning, Psychology of. I. Title II.

Series.

LB2331 .W39 2002

378.1'2—dc21

2002005662

FIRST EDITION

HB Printing 10 9 8 7 6 5 4 3 2 1

The Jossey-Bass
Higher and Adult Education Series

Contents

Preface	xi
The Author	xxv
1 Lessons on Learning	1
Part One: What Changes When Teaching Is Learner-Centered?	21
2 The Balance of Power	23
3 The Function of Content	46
4 The Role of the Teacher	72
5 The Responsibility for Learning	95
6 The Purpose and Processes of Evaluation	119
Part Two: Implementing the Learner-Centered Approach	147
7 Responding to Resistance	149
8 Taking a Developmental Approach	167
9 Making Learner-Centered Teaching Work	184
Appendixes	
A Syllabus and Learning Log	203
B Handouts That Develop Learning Skills	213
C Reading Lists	224
References	233
Index	243

*For my aunt Barbara R. Friz,
in celebration of our splendid friendship
and in honor of her ninth decade*

Preface

With more books on instruction than most faculty members have time to read and few professional incentives that encourage faculty to read pedagogical material, it seems prudent to begin by asking why. Why do we need yet another book on learning and teaching? It may be that authors lack some objectivity when it comes to answering the question, but it seems to me that there are five reasons that might be offered in support of this particular book. I did not have them this clearly in mind when I started, but as I now see the book in its entirety, I believe they justify yet another book on pedagogy, specifically one that explores how teaching might facilitate more and better learning.

This particular book is needed because after many years, the higher education community has finally discovered learning, and we need resources that further cultivate and capitalize on that interest. That we have so long ignored learning is somewhat difficult to explain. It seems more a case of benign neglect than willful rejection. Most of us just assumed that learning was an automatic, inevitable outcome of good teaching, and so we focused on developing our teaching skills. That we all but exclusively focused on them is a fact documented by even a cursory content review of the pedagogical literature. Its books, journals, magazines, and other publications address every aspect of how to teach, beginning with planning and ending with evaluation. No corresponding cadre of volumes describes learning at this level of detail.

As a result, practicing pedagogues know considerably less about learning than they do about teaching. We need resources that direct attention to learning in the same way they have focused attention on teaching. However, we do need to understand that the previous disconnect between teaching and learning has proved

counterproductive. The learning outcomes of teaching cannot be assumed or taken for granted. This book aims to cultivate our understanding of learning, and it does so by connecting that knowledge to instructional practice. It addresses a simple question—the same question we should have been asking as we considered teaching: What do we know about learning that implicates teaching? That makes this book about learning also a book about teaching.

Second, despite the widespread interest in learning, few resources translate the talk into concrete policies and practices. Few identify the things a teacher should do if instruction is to promote learning. I am regularly perplexed and dismayed at how ideas and issues in higher education become trendy and faddish. Conferences feature them as themes, periodical publications prepare special issues on the topic, and blue ribbon committees write reports on their state within institutions. But does all this attention generate change in instructional practice? I am doubtful, in part because most of the talk occurs at such a high level of abstraction. The discourse advocates for learning, but seldom gets down to the level of detail. We are now all in favor of learning, just as we all aspire to be thin, but we have not changed what we cook and serve students.

To produce change at the level of practice, we need to translate what we know about learning into concrete instructional policies and practices. We need resources that set out to teachers who want to promote learning what to do about attendance, assignments, tests, papers, lecturing, group work, classroom management, content, and grades. I believe that most faculty care about learning and would like to teach in ways that promote it. If resources would deal with the nuts and bolts of instructional practice, I think most faculty would attend and start making some of those changes.

It would be presumptuous and inappropriate to present a definitive set of policies and practices that promote learning, but faculty need ideas and examples, and that is what this book aims to provide. It seeks to answer this question: What should teachers *do* in order to maximize learning outcomes for their students? It aspires to move the talk about learning down to the level of details and to make it more nourishing. I am concerned that if we continue to feed the interest in learning with nothing more than rhetoric, it will not flourish and grow into better instructional practice.

Third, we need resources that propose learner-centered strategies based on what is known about learning. The need to connect practice to what has been discovered empirically is obvious. Behind all the policies, practices, and behaviors used to facilitate learning ought to be some theoretical or empirical rationale. The justification ought to be more substantive than doing something because it has always been done that way. And yet many of us have taught for years, operating from an eclectic, idiosyncratic knowledge base grounded almost exclusively on personal experience. It is as if the two closely related territories of research and practice are separate planets, unknown and seemingly inaccessible to one another.

Who should build the bridges necessary to connect research and practice? Those who do the research tend not to be faculty who daily face passive students who are taking required courses. I once worked with a well-known researcher who studies college students and has multiple books and publications to show for it. We were working on a project in which we conducted focus group interviews with students. My colleague was very excited; I was amazed and appalled when I discovered why. "This is the first time I've done a research project where we actually talked with students," this researcher told me.

After that experience, I thought differently about the propriety of researchers' drawing implications from their findings. But if not researchers, should the task be left to practitioners untrained in the relevant disciplines? As it stands now, the task is the responsibility of no one, and so few in the academy try to connect research and practice. Those of us who do build the bridges with no blueprints to follow and few rewards to honor our work. But we keep building because it seems so clear to us that these territories are beneficially connected in theory and practice.

Looking toward practice from the research side, it is clear that teaching needs to change in some fundamental ways. I have confessed to some of my colleagues that I am glad I am writing this book now and not at the beginning of my career when my skin was thin and optimism unrelenting. Many will find the changes I propose disturbing. They challenge long-held assumptions and traditional ways of thinking about instructional roles and responsibilities. I expect they will spark controversy. My hope is that this disagreement will motivate others to review the research, study the

theory, reflect on practice, and then build better and stronger bridges between research and practice. Much more of what we do in the classroom needs to be based on what we know.

In addition, but in some ways in contrast to resources that build on the empirical knowledge base, we also need books on teaching and learning that treat the wisdom or practice with more intellectual robustness. What little scholarship that practicing pedagogues complete is almost exclusively experientially based. And what we have learned in the school of hard knocks and by the seat of our pants is definitely worth knowing and worth passing on. However, much of that knowledge is idiosyncratic, isolated, unreflective, nonanalytical, and sometimes even anti-intellectual, and it gets lost in the great undifferentiated mass of anecdotal evidence about teaching. This great repository of experiential knowledge—what is justifiably called the wisdom of practice—remains unknown and devalued. Until it becomes characterized by the kind of intellectual rigor that faculty associate with scholarship, it will ineffectively advance instructional causes.

We need books on teaching and learning that treat experiential knowledge more analytically and more objectively. I have aspired to write such a book, one that deeply and honestly traces my own growth and development as a teacher and positions my experience against that of many other pedagogues who are working to make teaching more learner-centered. My efforts do not stand alone; they need to be reported in the context of what is known and what others have experienced.

I have aspired to write a book that is more than just another technique-based, how-to treatment of teaching skills. It includes many techniques, because faculty find instructional details of great interest. But techniques need to be presented in ways that reflect the dynamic, complicated milieu in which they will be used. Having instructional techniques is one thing; being able to manage a repertoire of them is something quite else. Techniques need to be presented cognizant of the process by and through which they can be transformed to fit the content configurations of different disciplines. Techniques should not be presented as isolated ideas but as working parts of a coherent, integrated approach to teaching.

And finally, I have aspired to write a book on teaching and learning that is intellectually robust—one that makes us think,

challenges unexamined assumptions, asks hard questions, and does not offer facile answers. I wanted to write a book that makes us appreciate what hard, mentally stimulating work teaching and learning can be. That kind of book values, indeed honors, the wisdom of practice. We need many more books of that caliber.

Finally, we need this book because it offers a positive way to improve teaching. Despite efforts during the past twenty-five years, instructional improvement has been slow in coming. Little documentation can be summoned that supports overall improvement in the level of instructional quality. Faculty development continues to operate at the margins, thriving in times of supportive administrations and withering when the institutional commitment to the teaching “excellence” center culminates in being able to say that we have one.

Faculty development has taught us some important lessons, one of the clearest being that efforts to improve instruction cannot be based on premises of remediation and deficiency. If faculty must admit they have a problem before they get help, most never seek assistance. Ask faculty members if they are interested in improving their teaching, and the response is almost always defensive. “Why? Did somebody tell you I need to?” Or, “Why should I? Teaching doesn’t matter around here anyway.”

But asking the learning question changes the paradigm completely. What self-respecting, even curmudgeonly, faculty member can respond any way other than positively if asked, “Are you interested in how much and how well your students learn?” And once they have said yes, what we know about learning easily and clearly links to teaching. But now we talk about ways of changing teaching that promote more and better learning. It is no longer about what is wrong and ineffective; it is about what best achieves a goal that faculty endorse. This book makes a contribution by basing instructional improvement on a positive and productive paradigm.

Distinctions Worth Noting

A couple of distinctions about this book are worth noting. First, this book is about being learner-centered. Some may associate that with being student-centered and use the two terms interchangeably. I

make a number of significant distinctions between the two phrases and have chosen not to use the student-centered descriptor.

Being student-centered implies a focus on student needs. It is an orientation that gives rise to the idea of education as a product, with the student as the customer and the role of the faculty as one of serving and satisfying the customer. Faculty resist the student-as-customer metaphor for some very good reasons. When the product is education, the customer cannot always be right, there is no money-back guarantee, and tuition dollars do not “buy” the desired grades.

Being learner-centered focuses attention squarely on learning: what the student is learning, how the student is learning, the conditions under which the student is learning, whether the student is retaining and applying the learning, and how current learning positions the student for future learning. The student is still an important part of the equation. In fact, we make the distinction between learner-centered instruction and teacher-centered instruction as a way of indicating that the spotlight has moved from teacher to student. When instruction is learner-centered, the action focuses on what students (not teachers) are doing.

Because the instructional action now features students, this learner-centered orientation accepts, cultivates, and builds on the ultimate responsibility students have for learning. Teachers cannot do it for students. They may set the stage, so to speak, and help out during rehearsals, but then it is up to students to perform, and when they do learn, it is the student, not the teacher, who should receive accolades.

One of this book’s reviewers recommended changing *learner-centered* to *learning-centered*. I opted not to make this change because I want to keep the focus on learners, on students, not as customers to be satisfied but as the direct recipients of efforts aimed at promoting learning. Learning is an abstraction, and much like content, for an audience that by its culture tends to gravitate toward that which is theoretical and abstract, I want to keep us firmly rooted and fixed on the direct object of our teaching: students. We do not want more and better learning at some abstract level; we need it specifically and concretely for the students we face in class. We do not need teaching connected to learning on some concep-

tual plane; we need instructional policies and practices with a direct impact on how much and how well students learn.

Finally, in addition to focusing on learning *and* students (as opposed to an exclusive student- or learning-centered focus), the learner-centered approach orients to the idea of “product quality” constructively. Being learner-centered is not about cowering in the competitive academic marketplace. It is not about kowtowing to student demands for easy options and is not about an ethically irresponsible diminution of academic standards in an attempt to placate “shoppers” who may opt to purchase educational products elsewhere. It is about creating climates in classes and on campus that advance learning outcomes. It is an orientation that advocates for more, not less, learning. It is about offering a better product.

Overview of the Contents

Chapter One recounts the story of how this book came to be and introduces the literature on learning on which it is based. Out of the experiences and literature described there, I have come to believe that in order to be learner-centered, instructional practice needs to change in five areas. Each of those changes is introduced and described in detail in Chapters Two through Six, with each change the focus of one chapter. These chapters are the heart of the book. The last three chapters are devoted to implementation details. Thus, this book is not just about what teachers need to do; it also addresses how they should go about implementing what has been proposed.

Chapter Two explores changes associated with the balance of power in the classrooms. It documents the extent to which faculty control learning processes and how those authoritarian, directive actions diminish student motivation and ultimately result in dependent learners, unwilling and unable to assume responsibility for their own learning. The solution is not an abrogation of legitimate faculty power—that born of content expertise and long experience as learners and teachers. Rather, it outlines some policies and practices with the potential to redress the power imbalance, ways that responsibly share power with students in the interest of positively influencing their motivation and learning.

Chapter Three tackles the function of content when the goal is instruction that promotes more and better learning. Here the problem is “coverage” and all that metaphor has come to imply about the amount and complexity of content necessary to gain credibility for a course and its instructor. But content coverage does not develop the learning skills needed to function effectively on the job and in society. When teaching is learner-centered, content is *used*, not *covered*, and it is used to establish a knowledge foundation, just as it has been. In addition, and just as important, content is used to develop learning skills. These learning skills are not only or mostly basic study skills, even though these are needed; they are the sophisticated skills necessary to sustain learning across a career and a lifetime. And finally, when teaching is learner-centered, it uses encounters with content to create an awareness of the self as a unique, individual learner. The function of content is enlarged and diversified, and this has implications for how much content can be covered in a course.

When teaching is learner-centered, the role of the teacher changes, as detailed in Chapter Four. Learner-centered teachers are guides, facilitators, and designers of learning experiences. They are no longer the main performer, the one with the most lines, or the one working harder than everyone else to make it all happen. The action in the learner-centered classroom features the students. Teaching action expedites learning. This includes the careful design of experiences, activities, and assignments through which the students encounter the content. It also includes being there during the encounter to offer guidance, explanations, wise counsel, critique, and encouragement. It means being there afterward with praise and with the kind of constructive critique that motivates an even better performance next time. It is a very different role for teachers who have sought to improve their teaching by cultivating effective presentation skills and one we are finding difficult to execute, even though we may understand and accept the intellectual rationale on which it rests.

Chapter Five’s contents are inextricably linked to those of Chapter Two. Faculty share power so that students can make more decisions about the terms and conditions of their learning, but with increased freedom comes more responsibility. The responsibility for learning changes when the environment is learner-centered.

Beset with poorly prepared, passive learners who are neither confident nor empowered, faculty have compensated by setting all the rules and conditions for learning. Learner-centered environments are not rule-bound, token economies but places where learners understand and accept the responsibilities that belong to them. They come to class not because an attendance policy requires them but because they see the activities and events of class time as making important contributions to their learning. They see themselves as growing into ever more responsible learners. To develop these kinds of students, faculty must use policies and practices that start students down the road to intellectual maturity.

And finally for the changes, Chapter Six describes how the purpose and processes of evaluation change when teaching is learner-centered. As evaluation activities have come to be used to generate grades, faculty have lost sight of how powerfully these activities can promote learning. Learner-centered teachers still give grades, but they do so in the course of a series of events carefully orchestrated to realize as much of the learning potential as possible. And evaluation processes change as well. No longer do faculty do all the evaluation, although they continue to do the final grading; peers and the learners themselves are involved in evaluation activities. The ability to self-assess accurately and constructively judge the work of peers is an essential learning skill that teachers have the responsibility to develop during their students' college years.

Chapters Seven through Nine deal with implementation issues. Successful implementation of learner-centered teaching depends to no small degree on the faculty members' ability to handle issues in three areas. Chapter Seven addresses a common response to learner-centered teaching: resistance from students and colleagues. Once faculty move to an approach to teaching that emphasizes learning, they tend to do so with considerable enthusiasm and are often surprised and dismayed when the reaction of others is quite the opposite. Students make clear, sometimes passively and sometimes openly, their preference for the way things used to be. Colleagues ask pointed questions and make comments about lowering standards and pandering to students. The chapter explores the sources of that resistance, what it looks like when it is expressed, and ways that teachers can respond so that students and colleagues can be helped to move beyond this initial response.

Along with resistance, a second key implementation issue involves the developmental processes associated with the movement of students from being passive, dependent learners to becoming autonomous, intrinsically motivated, and self-regulating. It is a growth process that does not happen automatically or all at once. Faculty who aspire to be learner-centered teachers must be able to intervene productively in the process. Chapter Eight discusses what is known about the development of students as learners and proposes ways to sequence and organize learning experiences so that they positively influence the developmental process.

And finally, for a variety of reasons, faculty often assume instructional improvement tasks alone and unaided. Imagining that this book is the colleague alongside a faculty member's efforts to become learner-centered, Chapter Nine offers general advice on instructional improvement and specific counsel when the change agenda is learner-centered teaching.

Structure of the Change Chapters

Chapters Two through Six, each devoted to one of the five changes proposed to make teaching learner-centered, use the same organizational structure. This content is the heart of the book, and considering each area of change in terms of a shared set of chapter sections makes it easier to see how they are different but very much interdependent.

All begin by making the case against current instructional practice. The tone in these sections tends to be argumentative in order to make clear those aspects of current practice that I believe research has shown negatively affect learning outcomes. These sections then provide the rationale for change. I also use them for comparative purposes. The change can be seen and understood more clearly when it is benchmarked against current instructional practice.

The second section in these chapters defines, describes, and otherwise delineates the nature of the change. After exploring the change in detail, I identify what benefits it accrues. Sometimes these benefits turn out to be solutions to the problems identified in the first section. Other times the benefits accrue in areas unre-

lated to the problems. But in both cases, they are about improved learning outcomes.

The third section moves to the details, examples, and illustrations of the change operationalized as policies, practices, behaviors, assignments, and activities. For each of the changes, this is the section that answers the how-would-you-do-it question. It proposes a set of instructional practices that promote more and better learning. Not everything possible can be included in these sections, and certainly the examples themselves can be debated in terms of whether they effectively translate the relevant learning principles.

Each of these chapters ends with a section that raises the questions that have emerged out of my own efforts to implement learner-centered teaching. They are not questions I have found answered in the literature and yet seem central to the advancement of this approach to teaching. I deliberated at length about including a section like this. It seems risky to be writing a book before having all the answers. But I include them because I believe raising the hard, complicated questions and refusing to answer them in trite, simplistic ways demonstrates the intellectual richness that is part of critical reflective practice. Like many others, I am still in the process of learning to teach in this way. Moreover, as we tell students, sometimes we learn more from the questions than from the answers.

Although each of the five changes is discussed in a separate chapter, they are interconnected and overlapping. Some activities, assignments, and practices done to advance one may help to accomplish one of the others at the same time. Some of the changes are inseparably linked. For example, giving students more voice in the learning decisions that affect them (Chapter Two) should not occur unless those students accept the increased responsibility (Chapter Six) that is inherently a part of individual decision making.

Making teaching learner-centered requires nontrivial changes in instructional practices, even though all can (and probably should) be implemented incrementally. These changes are fundamental and far reaching. Most of us tend to improve our teaching by fussing around the edges, adding a new technique here and a different assignment there. Learner-centered teaching, in contrast,

represents an entirely new way of thinking about teaching and learning tasks and responsibilities. It is transformational. As you start down this road, you need to realize that it will take you to a very different instructional place. Sometimes I hardly recognize the teacher I have become.

Yet as comprehensive as these changes are, they do not constitute some radical departure from instructional sanity. This is not about giving away all instructor authority. It is not about content-free courses. It is not about some greatly diminished instructional role for the teacher. It is not about giving students more responsibility than they are prepared to handle. And it is not about students' assigning grades. Learner-centered teaching is responsible instruction. Best of all, it is about teaching in ways that promote more and better learning.

Acknowledgments

No book happens without the support of many people. Among the people to thank are a number of colleagues at the campus where I teach: David Bender (who also reviewed the manuscript), Maureen Bokansky, Henry Patterson, Sheila Ridley, Ike Shibley, Lisa Shibley, and Blaine Steensland. I work with many wonderful people, but these folks have supported me in some very special ways. I am indebted to my friend and the former dean and CEO of the Berks Lehigh Valley College, Fred Gaige, who supported my request for a leave, when I wrote most of this book. As the years of one's career stretch out, colleagues come and go, but some stay, and those productive professional associations grow into firm friendships. Those colleagues are special, and I am lucky to have Chris Knapper as one of mine.

My original book proposal benefited enormously from feedback offered by long-time Jossey-Bass higher education editor Gale Erlandson. The higher education literature, especially that on teaching and learning, is much richer because of the strong, consistent editorial leadership she provided for many years. The manuscript was strengthened by insights of three external reviewers, and I received wise editorial counsel from David Brightman at Jossey-Bass.

I am blessed to have had the love and support of my parents and brother, John and Margaret Robertson and Mark Robertson, throughout my career. I had four aunts, all extremely important persons in my life; two remain: Ellen P. Bump and Barbara R. Friz. I dedicated my first book to Ellen, and this one is for Barbara. And finally there is my husband, Michael. He lets me work on weekends. He fixes supper and feeds the pets. He builds boats, beds, and birdfeeders. He puts racing decals on my truck. He is the love of my life.

April 2002

MARYELLEN WEIMER
Marsh Creek, Pennsylvania

The Author

In 1994, Maryellen Weimer returned to the classroom as a full-time faculty member after thirteen years in administrative and research positions. She teaches communication courses at the Berks Lehigh Valley College of The Pennsylvania State University and is an associate professor of teaching and learning. Between 1998 and 2000, she served as one of the college's academic officers on an interim appointment.

Previously she was an associate director of the National Center on Postsecondary Teaching, Learning and Assessment, a five-year U.S. Department of Education research and development center. This center was part of the Center for the Study of Higher Education at Penn State, where she was a senior research associate.

Weimer has a Ph.D. in speech communication from Penn State, which she received in 1981. For the next ten years, she directed Penn State's Instructional Development Program.

She has consulted with over 175 colleges and universities on instructional issues and has delivered keynote addresses at national meetings and regional conferences. Recently, she conducted faculty development work in Singapore and Hong Kong.

Weimer has published widely and has served on the editorial boards of four journals. Since 1987, she has edited *Teaching Professor*, a monthly newsletter on college teaching. She has edited or authored eight books, including one on faculty development, one on teaching for new faculty, and an anthology edited with Robert Menges, *Teaching on Solid Ground*. Most recently, she was primary author of *Teaching Tools*, a collection of collaborative, active, and inquiry-based approaches to be used in conjunction with *Biological Perspectives*, an introductory biology textbook funded by the National Science Foundation and created by Biological Sciences Curriculum Studies.

Learner-Centered Teaching

Chapter One

| **Lessons on Learning**

What I have come to believe about learner-centered teaching grew out of a serendipitous confluence of events and experiences. I will highlight three of the most important, roughly in the order in which they occurred, although all three overlap and are so intertwined that a stream-of-consciousness recounting would more accurately reflect the nonorder of their occurrence.

In 1994, after almost fifteen years of working in faculty development, disseminating educational materials, a variety of administrative assignments, and teaching the occasional upper-division and graduate courses, I returned to the classroom to teach entry-level required courses to beginning students. It was a sort of a midlife career move. As I took stock in midcareer, I realized that the most important and personally satisfying work I had done, the work with the greatest chance of making a difference, was work I completed in the classroom. I decided to return, finishing out my career as it had started, by teaching undergraduates.

At that time, I was motivated not to teach as I had during the first years of my career. Students had changed, and much more was known about their learning needs. As I thought about the beginning communication course I was to teach, it seemed to me that what prevented students from doing well was a lack of confidence. They needed to find their way past self-doubt, awkwardness, and the fear of failure to a place where they could ask a question in class, make a contribution in a group, and speak coherently in front of peers. It came to me that I might address the problem by making the students feel more in control. Would it help if I

presented them with some choices and let them make some of the decisions about their learning?

That first semester back, I tried this approach. I designed a beginning public speaking course that had only one required assignment: students had to give one speech. The rest of the syllabus presented a cafeteria of assignment options: a learning log, group projects of various sorts, credit for participation and the analysis of it, critiques of peers, conducting an interview or being interviewed or both, and conventional multiple-choice exams. Each assignment had a designated point value and evaluation criteria. Students could opt for as many or as few assignments as they wished, given the course grade they desired. Each assignment had a due date, and once past, that assignment could not be completed.

Initially, students were totally confused. I remember arguing with one about whether the exams were required. Here is how the conversation went:

“They must be required,” the student insisted. “If the test is optional, no one will take it.”

“Sure they will,” I replied. “Students need points to pass the class.”

“But what if I don’t take it?”

“Fine. Do other assignments, and get your points that way.”

“But what do I do on exam day?”

“Don’t come to class if you aren’t taking the exam.”

Several students asked me to identify the assignments they should do, and virtually everyone wanted some sort of approval once they finally decided.

But what happened the rest of that first semester took my breath away. I had no attendance policy, but better attendance than in any class I could remember. More (not all, but most) students started to work hard early in the course, and some students determinedly announced that they would do every assignment if that was what it took to get enough points for an A. I was stunned by how willing they were to work, and with no complaints. Less concrete but no less real was the change in atmosphere and energy in the class. These students were committed to the class; they appeared genuinely interested in the content. They asked more questions, sustained discussion longer, and in the end disagreed with

me and other students far more than I remembered my former beginning students doing. It was not instructional nirvana, but it was a decided improvement, and I was motivated to continue refining this approach.

Early in my experimentation with the course, I was asked to review a manuscript under contract with Jossey-Bass and subsequently published as *Becoming a Critically Reflective Teacher* (Brookfield, 1995). Few other publications I read before or since have so dramatically influenced my pedagogical thinking. The book took me in two different directions. (I describe the second later in this chapter when I get to the third major event that motivated me to write this book.)

Through Brookfield's book, I discovered how much about teaching can be learned by and through critical reflective practice. Brookfield describes methods that allow one to take a common instructional practice and through a process of analysis see the assumptions about teachers, students, and learning embedded in that particular practice. It was as if someone had held a mirror up to my teaching. In that reflection, I saw a different, and not very flattering, instructional image: an authoritarian, controlling teacher who directed the action, often totally unaware of and blissfully oblivious to the impact of those policies, practices, and behaviors on student learning and motivation. Displays of instructor power were present everywhere. I came to realize that the classroom environment I created ended up being a place where *I* could succeed and do well. Student learning just happened, an assumed outcome of instructional action that featured me.

Before reading Brookfield's book, I had redesigned my course; afterward, I attempted to redesign the teacher. Getting the course reshaped turned out to be much easier than fixing my very teacher-centered instruction. Flachmann (1994, p. 2) captures exactly how I felt then and now:

I'm a little embarrassed to tell you that I used to want credit for having all the intelligent insights in my classroom. I worked hard to learn these facts. . . . I secretly wanted my students to look at me with reverence. I now believe that the opposite effect should occur—that the oracle, the locus and ownership of knowledge, should reside in each student and our principal goal as teachers

must be to help our students discover the most important and enduring answers to life's problems within themselves. Only then can they truly possess the knowledge that we are paid to teach them [p. 2].

A second event strongly influenced my thinking about learning and ultimately became another reason for writing this book. For years, my husband, Michael, aspired to build a wooden boat. He collected books, bought plans, subscribed to *Wooden Boat* magazine, and faithfully watched "Classic Boat" on Speed Vision (a cable TV channel devoted to racing). Then we bought property on an island, and it was time to build the wooden boat. We planned to build a house on the island and needed a boat big enough to haul supplies to the site. Armed with a set of blueprints (selected after having reviewed hundreds), he started on the hull. First, it was the frame and battens. His vocabulary changed; he talked of chines, sheer clamps, the keelson, and garboard. Then it was covering the hull with marine plywood, not something easily obtained in land-locked central Pennsylvania. The whole neighborhood showed up to help turn the hull. Next came the floor, designing the cabin, and finally the motor. At every step, there was a whole new set of tasks to learn. In our video collection, we have several tapes demonstrating fiberglassing techniques. We still get catalogues from more marine supply companies than I ever imagined existed.

From nothing but hours of work and an unwavering confidence that he could figure out what he needed to know emerged *Noah's Lark*, a twenty-four-foot, lobster-style, wooden boat. She has a sleek white hull and dashing yellow stripe and a beautifully finished ash cabin, and she's powered by a fully rebuilt but not terribly fuel-efficient Merc Cruiser. She sits gracefully in the water, rises to a stylish plane, and cuts steady and stable through whitecaps and waves. She reliably tows barge loads of micro lam beams, bags of concrete, and sheets of plywood. Dockside, *Noah's Lark* turns heads. The bold inquire, "Where did you get that boat?" "Built her," my husband replies, unable to hide the pride in his voice.

It takes much more time and money to build a wooden boat than I had imagined. But after dealing with those realities, what amazed me most was the confidence my husband brought to the

task. Where did it come from? On what was it based? He had never built a boat before—houses yes, furniture yes, but not a boat. As the bills kept coming in, I felt it financially prudent to keep asking, “Do you know what you’re doing? Is this really going to turn out?” His answer was always the same, “No, I don’t know what I’m doing, but I’m learning. Of course, it will turn out. We need a boat, don’t we?”

At some level, I was really asking myself if I would tackle a project this complicated, this expensive, and this time-consuming if I knew as little as he did about it. And at another level, I knew the answer: I would not. Furthermore, I could not imagine any of my students doing it. Neither they nor I had faith that we could figure out this or many other complicated learning tasks that came to mind once I started thinking about them.

There was an irony here that stuck in my craw: Michael’s confidence as a learner did not come from his experience of obtaining a degree in industrial engineering. In fact, quite the opposite had occurred. He graduated from college feeling that he had just squeaked by, keenly disappointed with what he had learned, and stressed by the conditions under which he was expected to learn it. He credits experiences with his father for developing his confidence. It irritated me that rather than reinforcing his confidence, his college experience had undermined it.

College should be the time when and the place where students develop prowess as learners. I started thinking about what kind of college experiences would result in learning skills as sophisticated and confidence as heart-felt as his. I came to accept that one of my tasks as a teacher was developing lifelong learning skills and the confidence to use them. What kind of teaching, assignments, and classroom environment would accomplish that? How would those kinds of learning experiences be evaluated?

Having accepted that goal, I saw course content in a whole new light. It moved from being the end to being the means. It went from being something I covered to something I used to develop learning skills and an awareness of learning processes. I saw evaluation as something much more meaningful than the mechanism whereby grades are generated. It became a potent venue for promoting learning and developing self- and peer assessment skills.

Although both of these experiences were instrumental in my early and continuing development as a learner-centered teacher, they are by no means the only events of consequence. Across the years and lessons learned, I have been informed, inspired, provoked, and encouraged by the occasional article and book, most of them personally reflective, that describe the attempts of others to move teaching to a different and more learner-centered place. My favorites are in the reading lists in Appendix C. If you learn more about yourself as a teacher by reading thoughtful reflections of other teachers, I recommend that reading list.

The Literature on Learning

In addition to these firsthand experiences, there was a third significant force in my development as a learner-centered teacher. Brookfield's book took me in two directions. In addition to introducing me to critical reflective practice, it was the starting point for a lengthy and still not completed trip around and through the literature on learning. After reviewing that manuscript, I realized how little I knew of and about learning, and so I started reading some of the radical and critical pedagogy referenced in that book, which led me to work on constructivism. Next, I got into self-directed learning and from there into the work in cognitive and educational psychology on deep and surface learning, motivation, perceived control, help-seeking behavior, and a host of other topics. Somewhere along the way, I explored feminist scholarship on pedagogy. I could not believe the trove of literature on learning that exists.

Before I knew it, I was imagining summarizing all this work, condensing and integrating it, and writing about it with clarity. Then I would extrapolate instructional implications from the findings, finally closing the gap between theory and practice. Had I been twenty years younger, I can see myself pursuing this noble and needed objective. But being older and wiser, I saw the folly of trying to corral a literature this vast. Understanding even a bit about the nature of this literature makes it obvious why that task is not easily accomplished. Three features in particular show how difficult it is to summarize what we know about learning.

First, the literature is vast. Interest in learning may be recent, but the study of it is not. It spans decades, starting in modern times with the work of Dewey. It crosses disciplines with work being done in education and various subfields like educational psychology, higher education, and adult education. Other relevant work is underway in women's studies and psychology. Still more work has been completed in fields with content totally unrelated to learning, like engineering and math. And finally there are interdisciplinary initiatives, like practitioner-oriented work on active learning, group work and inquiry-based approaches, the writing across the curriculum movement, and multicultural curricular reforms. Besides occurring across the decades and in multiple disciplinary contexts, the research and theory on learning is literally being completed around the world. It is a body of literature that would take a lifetime to read and another one to summarize and integrate.

Second, add to the vastness of the literature on learning the fact that this body of knowledge remains largely unassembled. It resembles a giant jigsaw puzzle that has a whole community working on it. A few sections are more or less finished. Collections of related but not yet connected pieces lie close together in other sections. And there are still a lot of individual pieces, definitely part of the puzzle but currently just spread out on the table. I do not mean to convey the impression that what is known about learning exists in some exceptional state of disarray. Like all other puzzles, this one comes with the picture on the box: we know what learning looks like when it happens. And what is still not known about how it all fits together could be said of the state of knowledge in many other fields. We push forward the horizons of knowledge faster than we map the newly discovered lands. But the disparate state of this vast knowledge base makes it more difficult to say how findings in one field and on one topic relate to what has been discovered in other fields and on different topics.

Finally, the task of extrapolating principles from the learning literature is made difficult by the ongoing separation of research and practice. For the most part, research results are presented with implications identified for future research. You can read many research studies, even the theoretical postulations that inform

research, and rarely encounter advice for the practitioner. Some books and articles are exceptions, but recommendations for applying in the classroom what is being advanced as knowledge about learning are not regularly offered.

Despite the difficulty of corralling and making applicable this unwieldy knowledge base, we have missed much by remaining ignorant of so much of it. I return to my own practice and see how much it has been influenced (and I hope improved) by even this not very systematic, decidedly eclectic, meandering journey through the literature on learning. If more faculty encountered the literature, it would not only nourish and sustain the current interest in learning; it would also change practice.

Five Key Changes to Practice

As a consequence of my review of the literature, I believe that in order to be learner-centered, instructional practice needs to change in the five ways introduced in the Preface and elaborated in the next five chapters. Those changes are consistent with and supported by the literature on learning.

The Balance of Power

The influences of power on the motivation to learn and on learning outcomes themselves are a major theme in the writings of the radical and critical (the terms are used interchangeably) pedagogues and in feminist pedagogy. Freire (1993) first and most definitively articulated what has become the central tenet of critical pedagogy: education can be a vehicle for social change. Stage, Muller, Kinzie, and Simmons (1998, p. 57) elaborate: "Education's role is to challenge inequality and dominant myths rather than socialize students into the status quo. Learning is directed toward social change and transforming the world, and 'true' learning empowers students to challenge oppression in their lives."

As an educator in Brazil, Freire developed his theories of education and social change as he taught illiterate peasants to read and empowered them to challenge corrupt political regimes. Many object to the political agenda attached to education by this philosophy, especially those who see the advance and acquisition of

knowledge as an objective, rational process. The critical pedagogues counter that all “forms of education are contextual and political whether or not teachers and students are consciously aware of these processes” (Stage, Muller, Kinzie, and Simmons 1998, p. 57). Tompkins (1991, p. 26) illustrates the thinking of critical pedagogy when she describes the classroom:

We tell ourselves we need to teach our students to think critically so that they can detect the manipulations of advertising, analyze the fallacious rhetoric of politicians and expose the ideology of popular TV shows, resist the stereotypes of class, race and gender. . . . But I have come to think more and more that what really matters . . . is not so much what we talk about in class as what we do. . . . The classroom is a microcosm of the world; it is the chance we have to practice whatever ideals we cherish. The kind of classroom situation one creates is the acid test of what it is one really stands for [p. 26].

In the same vein, feminist bell hooks (1994, p. 12) characterizes classrooms as “radical spaces of possibility.”

In the classrooms of the critical pedagogues, teacher authority figures do not dispense knowledge. My ideas about how to redistribute power in the classroom were most strongly influenced by a masterfully edited conversation between Horton and Freire (1990; Horton’s theories of education emerged out of his work preparing blacks to pass voting tests). Another scholar writing about Freire (Aronowitz, 1993, pp. 8–9) operationalizes what Tompkins describes and what Freire did when he taught: “He means to offer a system in which the locus of the learning process is shifted from the teacher to the students. And this shift overtly signifies an altered *power* relationship, not only in the classroom but in the broader social canvas as well.” Very persuasive to me was the fact that both Freire and Horton shifted power and control to cohorts of students most faculty would consider unprepared to assume responsibility for learning.

With feminist pedagogy, the frame of reference is more focused and the issues gendered, but the critique of existing educational theory and practice is no less comprehensive. On issues of power, feminist pedagogy finds that teaching is too authoritarian, power in the classroom is not equitably distributed, and the

imbalance negatively affects learning outcomes, especially for women. Higher education has long been male dominated, and the forms of patriarchy so entrenched in society have also found root in the academy and its classrooms. As a result, students (usually females, especially in male-dominated fields) are often treated differentially. Learning is limited and inhibited when power structures protect and preserve the powerful.

Also inherent in the work of feminist pedagogues is a critique of the competitive aspects of education. They believe that historically, education has done a good job of teaching students to be competitive. It has much less successfully taught the lessons of cooperation. (For an interesting and compelling case against the competitive aspects of various educational practices, see Kohn, 1986. Grading on a curve does not make much sense from the evidence presented in this book.)

Because the messages of both radical and feminist pedagogy are confrontational and the agenda political, discussion of this work is often cantankerous. Moreover, the work done by radical pedagogues uses highly specialized jargon that makes it difficult to read. Although I have treated work done by radical and feminist pedagogues together in this brief discussion, there are distinctions and disagreements despite the fact that both deal with many of the same issues. This work calls into question traditional power structures and the role of authority in the classroom. Alternatively, it proposes more democratic and egalitarian views of education that open it to the possibility of different kinds of learning. These shifts have dramatic effects on student motivation and engagement.

The Function of Content

What content contributes to and in the learning process is addressed in empirical work carried out in cognitive and educational psychology. Some of the most important was launched with a seminal study by Marton and Saljo (1976, updated and analyzed in Marton, Hounsell, and Entwistle, 1997), who had students read material from an academic textbook and then asked them to describe what they had been reading. Ramsden (1988, p. 18), another important scholar working in this area, has succinctly summarized their findings: “They found evidence of *qualitative* differ-

ences in the outcome of students' reading. The differences were not about how much the students could remember, but about the meaning the author had tried to convey. Some students fully understood the argument being advanced and could relate it to the evidence being used to support it; others partly understood the author's message; others could only mention some of the remembered details."

When students concentrated on memorizing the facts, focused on the discrete elements of the reading, failed to differentiate between evidence and information, were unreflective, and saw the task as an external imposition, Marton and Saljo characterized their approach as surface learning. When students focused on what the author meant, related new information to what they already knew and had experienced, worked to organize and structure the content, and saw the reading as an important source of learning, Marton and Saljo characterized the approach as deep. Ramsden says of students using surface approaches, "Texts were a flat landscape of facts to be remembered, rather than an area dotted with salient features representing principles or arguments around which stretched plains of evidence" (p. 23). Findings like these challenge the conventional push to "cover" and otherwise convey ever more content. Ramsden notes that "learning should be seen as a qualitative change in a person's way of seeing, experiencing, understanding, conceptualizing something in the real world—rather than as a quantitative change in the amount of knowledge someone possesses" (p. 271). In order to facilitate learning that changes how students think and understand, teachers must begin by discovering students' existing conceptions and then design instruction that changes those conceptions. That most certainly has implications for how much content can be covered.

Some work in cognitive psychology is directly tied to constructivism, a currently prominent educational theory. At its core, this theory is about the relationship between learners and content: "Constructivist approaches emphasize learners' actively constructing their own knowledge rather than passively receiving information transmitted to them from teachers and textbooks. From a constructivist perspective, knowledge cannot simply be given to students: Students must construct their own meanings" (Stage, Muller, Kinzie, and Simmons, 1998, p. 35). This view of education and

learning rests on the work of a variety of psychologists and philosophers, most notably Jean Piaget, Jerome Bruner, Ernst von Glasersfeld, and Lev Vygotsky.

Constructivism has had an impact on instructional practice. For example, that learning occurs in social contexts like communities and builds on the experiences, background, and cultures of community members finds voice in the seminal work of Bruffee (1993), whose notions of group work from the constructivist perspective helped to spawn the collaborative learning movement. In this approach to group work, the teacher functions as a master learner and resource. Group members function as a community and jointly create their own unique solutions to problems. Sometimes these learning communities become formalized structures that tackle the integration of content across disciplines and around themes.

These ideas of the collective construction of knowledge fit in humanities fields where content supports more tentative and less definitive conclusions. It is more difficult to see how knowledge can be socially constructed in science, math, and engineering fields where there are more “right” answers and much less disagreement about the status of knowledge. Although this view of knowledge and learning has been resisted, there are some notable exceptions. The idea that students need to be told less and to discover more is realized in another collection of strategies that we might loosely group here as problem-based learning. Students start with a problem, usually a scenario or case, and must find the content in the fields that explains, answers, or resolves the problem. Typically, they do this work in groups. Some attempts have been made to realign whole curricula, course sequences, and individual courses based on the assumptions and principles of constructivism. For example, Ege, Coppola, and Lawton (1996) used constructivist theories to redesign the introductory organic chemistry taken by all chemistry, biology, and pre-med majors at the University of Michigan.

Constructivism prescribes a whole new level of student involvement with content. It makes content much more the means to knowledge than the end of it. It and the empirical work in psychology change the function of content so it is less about covering it and more about using it to develop unique and individual ways of un-

derstanding. Consider how Fosnot (1996) describes the interaction between content and students from the constructivist perspective. Learning, she notes, “requires invention and self-organization on the part of the learner. Thus teachers need to allow learners to raise their own questions, generate their own hypotheses and models as possibilities and test them for validity” (p. 29). A bit later she writes, “Challenging, open-ended investigations in realistic, meaningful contexts need to be offered, thus allowing learners to explore and generate many possibilities, both affirming and contradictory” (p. 29).

The Role of the Teacher

Work in all three of these areas (critical and feminist pedagogy, cognitive and educational psychology, and constructivist theory) has large implications for the role of the teacher. Critical and feminist pedagogy challenge long-standing assumptions about power, authority, and teachers. The critique is damning, asserting that the exercise of power in the classroom often benefits teachers more than it promotes student learning.

Constructivism challenges faculty expertise, not so much arguing against its validity as objecting to its exclusivity, opening and legitimizing students’ interaction with the content. According to constructivist theories, students need not wait until they have developed expertise before they interact with content. They are encouraged to explore it, handle it, relate it to their own experience, and challenge it whatever their level of expertise. Obviously, less knowledgeable and experienced learners will interact with content in less intellectually robust ways, but the goal is to involve students in the process of acquiring and retaining information.

Feminist pedagogy builds on constructivist theory when it raises questions about the nature of knowing and identifies different ways of knowing, as it did most notably in the now-classic, *Women’s Ways of Knowing* (Belenky, Clinchy, Goldberger, and Tarule, 1986). Challenging the nature of knowledge and raising questions about the role of expertise require that faculty revisit and reassess long-held traditional views of the teacher as the exclusive content and classroom authority.

Work in educational psychology most clearly shifts our focus from the teacher to the learner. What teachers do is important only

in terms of how those actions address learning. The action always features students and what they are doing. This view deemphasizes teaching techniques and methods if they are considered separate from the subject matter and learning structures of the discipline. How faculty teach is intrinsically a function of what they teach and how students learn in that discipline.

Like learners, teachers move through developmental stages that reflect how much they focus on students and learning. Biggs (1999a, 1999b) outlines this developmental “route map,” which is discussed in detail in Chapter Eight, where a variety of developmental issues are considered. At this juncture, it is worth mentioning work like that of Kember and Gow (1994), who developed a questionnaire for faculty that measures orientation toward one of two approaches to teaching: knowledge transmission or learning facilitation. They tabulated the data for both individual faculty and departments and then, using an instrument developed by Biggs (and recently updated by Biggs, Kember, and Leung, 2001) to measure the extent to which students report using surface or deep approaches to learning, correlated the teaching and learning approaches. Kember and Gow’s (1994) results suggest that

the methods of teaching adopted, the learning tasks set, the assessment demands made, and the workload specified are strongly influenced by the orientation to teaching. In departments where the knowledge transmission orientation predominates, the curriculum design and teaching methods are more likely to have undesirable influences on the learning approaches of students. . . .

. . . Meaningful approaches to learning are discouraged when lecturers believe that their role is restricted to transferring the accumulated knowledge of their discipline to the minds of their students [pp. 69, 71].

If the goal of teaching is to promote learning, then the role the teacher takes to accomplish that goal changes considerably. Teachers no longer function as exclusive content expert or authoritarian classroom managers and no longer work to improve teaching by developing sophisticated presentation skills. They will lecture less and be much more around the classroom than in front of it. There is no sense in any of the literature that I read that this is a dimin-

ished, less essential role. Learner-centered teachers make essential contributions to the learning process. However, they are significantly different from those contributions most teachers currently make.

The Responsibility for Learning

Some years before my current interest in learning I encountered the ideas of self-regulated, self-monitored, independent learners in the work of Boud (1981), whose edited anthology describes how education makes students dependent learners. They depend on the teacher to identify what needs to be learned, to prescribe the learning methods, and finally to assess what and how well they have learned. In recent years, work on self-regulated learning has advanced, with Boud and others now proposing that the goal of education ought to be the creation of independent, autonomous learners who assume responsibility for their own learning. Learners take this stance during formal educational encounters and on their own as learning occurs across their lifetimes.

Because we so seldom see independent, autonomous learners and function in mostly teacher-centered environments, we forget how effectively some individuals assume responsibility for their own learning. Most of us can summon an example—the self-taught gardener, trekker, knitter, or my spouse’s boat-building adventure—where the learner takes an avocation to high levels of knowledge and skill. But we often disconnect these examples of informal learning from the formal experiences that happen in school. Researchers who study self-directed learners do not. They often start with these models of independence, self-motivation, and individual responsibility.

The book that most effectively summarizes work in this area is Candy’s *Self-Direction for Lifelong Learning* (1991). His “Profile of the Autonomous Learner” is an apt summary of his book and the research in this area. In it he lists over one hundred of the “attributes, characteristics, qualities, and competencies” (p. 459) used by and in research to describe the autonomous learner. I think of it as a description of the “perfect” student, the one I dream of teaching. But this work on self-directed learning challenges us to do more than dream. It establishes that students can and should be

made responsible for their own learning. This work provides the justification for that approach.

Learning skills as sophisticated as those needed by autonomous self-regulating learners do not develop simply through exposure to the content of disciplines. They must be taught, and so it is this literature on self-directed learning that makes the strongest case for skill instruction, especially for students who arrive in college without even the most basic skills. The point is made almost relentlessly: our students will be lifelong learners. The skills they acquire and the awareness of themselves as learners that they develop during their formal educational experiences will be used throughout the course of their professional and personal lives.

This literature is very good at describing where students should end up. The authors delineate all that characterizes independent, autonomous learners. They address much less frequently how it is one begins with students who are at the other end of the continuum (dependent, passive, and not self-confident) and starts moving them in the direction of intellectual maturity and autonomy. This is a nontrivial omission; development as an independent learner is not the inevitable outcome of formal educational experiences.

Evaluation Purpose and Processes

Work in educational psychology extensively documents a finding we all know but do not always act on: What do students learn in a course? They learn whatever it is they are tested or evaluated on. Tests and assignments are a course's most potent impetus to learning. Nights before a test in my courses, I savor knowing that a significant percentage of my students are having what I hope is an extended encounter with the course's content. They are finally getting around to learning all this important stuff.

Assessment promotes learning, but the question is, What kind of learning does it promote? If you examine honestly and reflectively what most faculty test students on and the assessment mechanisms they employ, the results create dissonance. And there is a simple way to make that clear. Think about how you would respond to this query: You're at the mall and run into a student who took your course five years ago. As the student looks at you and remem-

bers the course, what would you like to have running through the student's mind at that moment? Now examine your tests and assignments, and see what you can find there that contributes to those desired learning outcomes. The point cannot be made more clearly than Biggs (1999a) did: "What and how students learn depends to a major extent on how they think they will be assessed. Assessment practices must send the right signals" (p. 141).

The literature on assessing learning does not deal with the instructional realities of large classes, heavy teaching loads, no clerical support for teachers, pressure to publish, and required service to the institution. Those realities necessitate some compromises, but all of us need to reconnect with the fundamental fact reiterated over and over in this literature: what students are most likely to learn in a course is directly related to what they are evaluated on. Evaluation is not just something used to generate grades; it is the most effective tool a teacher has to promote learning. So how can it be used to its maximum potential, given instructional realities and the strong motivation students have to get grades?

The literature on self-directed learning also underscores the importance of assessment, only in this case it is the ability of students to self-assess accurately. Sophisticated learners know when they do or do not understand something. They can review a performance and identify what needs improvement. They know when their lack of objectivity necessitates their soliciting external feedback. They have mechanisms for its collection and methods for evaluating it and acting on it. Do today's college students have these skills? More incriminatingly, do we teach them?

Good Literature on the Lessons

The literature highlighted in this chapter is only some of what is referenced throughout the book. What I have focused on here are the large streams of work that support the changes proposed and explored in the next five chapters. I will support the changes with specific studies and narrower lines of work that belong to these larger streams.

The reading list on learning in Appendix C is by no means comprehensive, but includes the sources that have been most instrumental in developing the approach I advocate in this book.

Particularly “good,” that is, informative, easy-to-read, and well-documented, sources are noted in annotations that accompany each reference. This list is organized around five major areas of work highlighted in this opening review: autonomy and self-directed learning, critical and radical pedagogy, feminist pedagogy, constructivism, and cognitive and educational psychology.

Finally, what I am advocating here as the ways and means of promoting more and better learning is consistent with any number of other reports and articles. The same problems with current instructional approaches keep being identified, and solutions not unlike what ends up being proposed here are advocated. Let me mention four such sources, drawn from a larger pool.

The Wingspread Group on Higher Education (1993) began with the current problems in American higher education, focusing mainly on the mismatch between the needs of society and the preparation of undergraduates. This report documents student failures on many fronts and proposes a solution: put learning at the heart of the educational enterprise. The group sees this as a profound change. Making it a central mission “will mean overhauling the conceptual, procedural, curricular and other architecture of postsecondary education on most campuses” (p. 14).

Widely quoted and perhaps more influential than any other article in setting the current learning agenda, Barr and Tagg (1995) outline the comprehensive changes involved when institutions move from a teaching to a learning paradigm. They identify teaching and learning structures that create climates for learning. They describe learning theory that shapes knowledge individually as mediated by personal experience, makes learning student-centered and controlled, and teaches students how to learn as much as it teaches what to learn. They describe faculty as instructional designers who put together challenging and complex learning experiences and then create environments that empower students to accomplish the goals.

O’Banion (1997), president of the League for Innovation in the Community College, a professional organization for two-year institutions, authored a monograph on creating more learner-centered community colleges. He proposes that “learning colleges” will exemplify six principles:

1) the learning college creates substantive change in individual learners; 2) the learning college engages learners in the learning process as full partners assuming primary responsibility for their own choices; 3) the learning college creates and offers as many options for learning as possible; 4) the learning college assists learners to form and participate in collaborative learning activities; 5) the learning college defines the roles of learning facilitators by the needs of the learners; and 6) the learning college and its learning facilitators succeed only when improved and expanded learning can be documented for its learners [p. 15].

Finally, Gardiner (1998) summons the research evidence that mandates change in educational practice:

In this article, I hope to acquaint readers with important research that has been done over the past three decades on how students learn and what constitutes effective educational experience. . . .

The studies reviewed here, taken together, consistently show that the college experience for most students comprises a loosely organized, unfocused curriculum, with undefined outcomes, classes that emphasize passive listening, lectures that transmit low-level information, and assessments of learning that frequently demand only the recall of memorized material or low-level comprehension of concepts [pp. 71–72].

However, he ends by pointing out that what is known about student development, learning, teaching, and academic organization does lead to methods and approaches that can help students develop to a very high level.

The changes necessary to make teaching learner-centered are not trivial. They get to the bedrock of instructional practice. They have encouraged me to revisit long-held assumptions and widely used approaches. However, it is not possible to sample even a modest amount of the literature on learning and continue teaching as most of us were taught. Very little there justifies traditional approaches, especially given the learning needs of students and society today. At some level, most of us already know this. We have embraced the methods of active learning, cooperative and collaborative learning, and writing across the curriculum, to name but a few of the initiatives that put students in new relationships with

content, their fellow learners, and their teachers. Almost all institutions now offer learning skills instruction. We all know we are teaching too much content and emphasize grades to the detriment of learning. Most faculty do not connect these changes in instructional practice and attitude with the knowledge base on learning, but they do pave the way for the more comprehensive and integrated approach I call learner-centered teaching.

Last week, one of my students told me that he recommended my entry-level communication course to a friend. When I asked why, he said, "It changes the way you think in some really good ways." I wished for a bit more specificity but then decided that I will hope my experiences, the changes I propose in this book, and the literature summoned in support of them will have exactly the same effect on you.

Appendix A

| Syllabus and Learning Log

Welcome to Speech Communications 100A, a course that aims to develop your communications skills. Because everyone communicates all the time, the content of this course is relevant to you today, as well as after you graduate. In this course you will become more aware of how you communicate and better able to communicate effectively. The course combines theory and practice, giving you the opportunity to apply what you have learned.

Text

The course text is *Communicate* by Rudolph F. Verderber. Reading assignments should be done before coming to class. Please bring your text with you to class, as regular discussions of text content will occur during class.

Course Assignments

In this course, assignments are handled differently: you select what work you complete, with one exception: all students must give an informative or persuasive speech. Review the following options bearing these rules in mind:

1. At least 50 percent of the total points possible for each individual assignment must be earned; otherwise, *no points* will be recorded for the assignment.
2. Once the due date for an assignment has passed, that assignment cannot be completed.

Exams

1. Test 1—A multiple-choice and essay exam including material from class and the text. (80 points possible)
2. Test 2—A multiple-choice exam including material from class and the text. (80 points possible)

Presentations

1. An informative or persuasive speech (5–7 minutes long) and a speech preparation sheet. **THIS IS THE ONLY REQUIRED ASSIGNMENT IN THE COURSE.** (speech, 50 points possible; prep sheet, 10 points possible)
2. Interviews (10–12 minutes long) conducted by classmates representing hypothetical corporations and organizations with open positions. You select the positions of interest and are interviewed by the group. See Small Group Experience 3 for more details on the groups. (two interviews, 15 points per interview, each summarized in a short paper, plus 5 bonus points if you get the job)

Small Group Experiences

1. Test 2 study group—be a member of a 5–7-person study group who will jointly prepare for Test 2. After taking the exam individually, the group will convene and complete a group exam. Group exam scoring options will be described on a handout. (? bonus points possible)
2. This assignment also includes a 3-page typed paper which analyzes what happened in the study group in terms of (1) what the group did/didn't do that contributed to its success or lack of it and (2) what the individual group members did that contributed to the group's success or lack of it. **NOTE: THIS PAPER MUST BE COMPLETED IF EXAM BONUS POINTS ARE TO BE AWARDED.** (30 points possible for the paper)
3. Interview group—with 5–7 other classmates be employees of a hypothetical corporation who will write a job description, prepare interview questions, and interview up to 8 candidates for the job. A group grade will be based on a final report, which

includes (1) the job description, (2) interview questions, (3) a summary of interviews conducted and justification for the person hired (30 points possible), and (4) an assessment of how well the group conducted the interview based on feedback from those interviewed (10 points possible). In addition, individual members' contributions to the group will be assessed by other members (20 points possible). (This makes the interviewing part of the assignment worth up to 60 points total.)

Learning Log

This assignment encourages students to explore how the course content relates to their individual communication skills. Each entry is written in response to a series of questions provided by the instructor. Entries may be handwritten or typed and should be about two pages long if handwritten, a double-spaced page if typed. Collections of entries are due on the dates specified in the course calendar. You may prepare all, one, or some of the entries. However, once a due date is past, those entries may not be submitted.

Entries are graded using the following criteria: (1) their completeness (meaning all the questions for a particular entry are addressed); (2) the level of insight and reflection (evidence of thoughtful responses); (3) the support provided for the observations and conclusions; and (4) the extent to which relevant course content (from class and the text) is integrated in the entries. (10 points possible per individual entry)

Speech Critiques

You will provide constructive feedback to eight classmates on their informative speeches. You will use a form provided by the instructor, and after your critiques have been graded, they will be given to the presenter. **NOTE: YOU MUST DO ALL EIGHT CRITIQUES.** (80 points possible)

Participation

Using the class-authored participation policy and a set of individually generated goals, your contributions to class will be assessed.

NOTE: PARTICIPATION CANNOT BE ADDED AS AN ASSIGNMENT OPTION AFTER THE THIRD CLASS SESSION. (50 points possible)

This assignment also includes a 5-page typed participation analysis paper, submitted in installments, due dates indicated on the course calendar. *Installment 1*: one page, which reacts to and assesses the class-generated policy and in which you generate your participation goals for the course; *Installment 2*: three pages, one of which is a letter to your designated partner providing feedback on his or her participation as you have observed it and two pages consisting of a midcourse progress report; *Installment 3*: one page, which contains a final assessment of your participation in the course. A more detailed handout describing this assignment will be distributed subsequently. NOTE: THE PAPER MUST BE COMPLETED IF POINTS FOR PARTICIPATION ARE TO BE EARNED. (50 points possible for the paper)

Bonus Points

1. On several unannounced days, attendance will be taken. Those present will receive 5 bonus points. (up to, but not necessarily 25 points)
2. There will be some additional bonus point options offered at the discretion of the instructor.

And Finally, About Developing a Game Plan for the Course

For the purposes of planning, circle the assignments you are considering, and then total the points possible. Be realistic. It is highly unlikely that you will get all the points possible for the assignments. Check your total with point totals needed for each grade. Be sure that you're planning to do enough assignments to get the grade you desire in the course. Keep track of your points as the course progresses (a points grid sheet will be provided subsequently) so that you will know if you need to add more assignments.

Test 1	80 points
Test 2	80 points

Informative or persuasive speech and preparation sheet	60 points
Interviews	30 points
Study group test bonus	? points
Study group analysis paper	30 points
Interview group experience	60 points
Learning Log, 22 entries at 10 points per entry	220 points
Speech critiques	80 points
Participation	50 points
Participation analysis paper	50 points
Attendance bonus	25 points
	765 points TOTAL

Grades

Grades for this course are assigned according to the following scale:

525 and above	A	378–412	C
499–524	A-	343–377	C-
482–498	B+	309–342	D
465–481	B	292–308	D-
448–464	B-	291 and below	F
413–447	C+		

[A day-by-day calendar of all course meetings follows. It lists content topics, activities scheduled for the class session, reading assignment, and assignment due dates.]

Learning Log Entries

Entry 1

Develop a game plan for the course indicating which assignments you plan to complete. Why have you selected these options? What do you think your choices indicate about your learning preferences? Why do you think a teacher would give students a choice about assignments? How do you think this strategy will affect your performance in the class?

Entry 2

Why does the university require a course in speech communication? If this course wasn't required, would you take it? Why? Why not? Overall, how would you assess your communication skills? Reread pp. 22–23 in the text, and set at least one goal for yourself in this class.

Entry 3

Write about your participation in college courses (or high school if you have no or limited experience with college courses). How much do you participate? Is that as much as you'd like to contribute? If it's not as much, what keeps you from saying more in class? What role should student participation play in the college classroom?

Entry 4

Think about your experiences working in groups. What made those group experiences effective or ineffective? What responsibilities do individuals have when they participate in groups? Can individual members do anything to encourage other members to fulfill these responsibilities?

Entry 5

Take a look at the definition for leadership that appears in the chapter in your textbook on leadership in groups (pp. 241–259). Summarize the definition in your own words, and write about the notion of leadership as exerting influence. Are you comfortable with that? How is it different from telling people what to do? Content from the rest of the chapter should be used in addressing that question. How would you characterize your potential as a leader?

Entry 6

In the light of the material we've discussed in class and that you've read in the text (on roles and leadership, for example), analyze

your small group communication skills. What roles do you typically fill in groups? Are there any skills you'd like to develop further? How often and in what context do you think you will have to work in groups in your professional life?

Entry 7

React to our in-class discussion of sexist remarks and gendered references. Is this “much ado about nothing”? On what terms and in what ways do you think language influences the way you think and act? Provide some examples. So, if you marry, will you or your spouse change your last name?

Entry 8

Where are you in terms of choosing a topic for your informative speech? What sort of feedback did you get from classmates in the class activity Tuesday? Analyze the strengths and weaknesses of the topics you are considering in terms of your qualifications and interest in the topic, the relevance of the topic to the class, and the suitability of the topic given the occasion and setting. (Text material on pp. 265–285 should be used in this entry.)

Entry 9

Write me a letter that answers the questions and/or supplies the additional information requested in my letter to you about your first set of log entries.

Entry 10

You have been asked to address an audience of inner-city high school students on why they should attend college. What things about this audience would you like to know before you plan the content of your speech? What issues do you think might be important to raise? How likely is this audience to believe you speaking on this topic? Any things you might be able to do to enhance your credibility?

Entry 11

Take and score the communication apprehension quiz. How does this feedback compare with how you feel about doing the speech? What ideas in the text (pp. 373–379) might help you overcome the anxiety you associate with speaking?

Entry 12

Take stock of how you are doing in this class so far. How many points do you have now? Revisit your game plan described in Entry 1, and discuss any changes you plan to make. Is this course structure and grading system having any impact on your learning? Include some examples to illustrate the impact you have described.

Entry 13 (write the period after you do your speech)

So, how did it go? Using the critique form, assess your speech. Answer the questions at the bottom of the page. **SUBMIT THE COMPLETED CRITIQUE FORM WITH THIS ENTRY.**

Entry 14

Describe an experience you've had trying to persuade someone to change his or her mind about something. Were you successful? Analyze your success or failure in terms of the eight principles of persuasive speaking, text pp. 417–441.

Entry 15

Take and score the Uncritical Inference Test (I will distribute it in class). Report and comment on your score. What do you think an exercise like this is trying to teach you? Is this an important lesson? Why? Why not?

Entry 16

Compare and contrast your analysis of your speech with the feedback provided by your classmates and the teacher. Any noticeable

differences? Any feedback from others that strikes you as particularly constructive?

Entry 17

Use the ad you brought to class, or pick another one and analyze it in terms of fallacies and propaganda. More important than correctly naming the fallacy or propaganda technique is being able to explain what is wrong with the argument being made. Also write about the ad in terms of the nonverbal messages it portrays. **INCLUDE THE AD WITH THIS ENTRY.**

Entry 18 (write this entry only if you plan to take Test 2)

Develop a study game plan for Test 2. If you took Test 1, think about what you learned from that experience. If you didn't, write about content you expect to see on the exam and how you'll go about preparing yourself. Include in the entry a time line identifying how much time you'll spend and what you'll do each day leading up to the exam.

Entry 19

Return to the text, pp. 327–351, the chapter on organizing speech material. Prepare a 2-page study guide that identifies material from the text that you believe will appear on the exam. Describe how you could or would use the study guide to learn this material.

Entry 20

You have your exam back. Did you do better or worse than you expected? If you developed a game plan, analyze how well it worked, including how closely you did or didn't follow it. If you were in a study group, explain how the group efforts dovetailed with your individual preparation. If you took the exam as an individual, were the group scores posted in class higher or lower than you expected? How do you account for this? Next semester, what one thing could you do that would most improve your performance on multiple-choice exams?

Entry 21 (to be completed only if you've written entry 2)

Return to the assessment of your communication skills offered in entry 2. How would you describe and assess those skills now? Evaluate any progress you made toward reaching the goal you set for yourself.

Entry 22

Submit this entry the last day of class in a sealed envelope with your name on the envelope. I will record 10 points upon receiving the envelope. I will read the contents after I have submitted final grades.

Over the summer a friend e-mails that she has signed up for this class in the fall. She asks you what she needs to do in order to do well in the course. What would you tell her? Telling her to drop the course and get into another section is fine, so long as you tell her why. On the other hand, you might share with her what you would do differently if you were taking the course again. If you've done well in the course, to what would you attribute your success? What important things, if any, have you learned?

Handouts That Develop Learning Skills

The sample handouts in this appendix are useful in developing specific learning skills and learner self-awareness. Here are some brief suggestions for possible use:

“Successful Students: Guidelines and Thought for Academic Success”: A positive and constructive handout that describes good learning behaviors, it might be attached to the course syllabus or distributed when students have demonstrated some less-than-successful behaviors.

“Ten Commandments for Effective Study Skills”: The style captivates, and at the same time, its contents deliver constructive messages about studying.

“Discussion Guidelines for Students”: The author includes these in his syllabus. They offer a detailed description of actions that improve discussion.

“Learning from the Research on Taking Lecture Notes”: This handout highlights a research study and might be an effective prompt to get students to consider their own note-taking behaviors.

“Consider a Study Group”: Here is a strategy that encourages students to form study groups. It offers an incentive for doing so and some help on group process issues.

“Notetaking Types and Characteristics to Help Students Succeed”: This concise matrix can be used to make students aware of some of the different methods of taking notes.

Successful Students: Guidelines and Thoughts for Academic Success

Source: Steven J. Thien and Andy Bulleri, the *Teaching Professor*, 1996, 10(9), 1–2. Reprinted with permission from Magna Publications.

Successful students exhibit a combination of successful attitudes and behaviors as well as intellectual capacity. Successful students. . .

1. *are responsible and active.* Successful students get involved in their studies, accept responsibility for their own education, and are active participants in it!
2. *have educational goals.* Successful students have legitimate goals and are motivated by what those goals represent in terms of career aspirations and life's desires.
3. *ask questions.* Successful students ask questions to provide the quickest route between ignorance and knowledge.
4. *learn that a student and a professor make a team.* Most instructors want exactly what you want: they would like for you to learn the material in their respective classes and earn a good grade.
5. *don't sit in the back.* Successful students minimize classroom distractions that interfere with learning.
6. *take good notes.* Successful students take notes that are understandable and organized, and they review them often.
7. *understand that actions affect learning.* Successful students know their personal behavior affects their feelings and emotions which in turn can affect learning. Act like you're disinterested and you'll become disinterested.
8. *talk about what they're learning.* Successful students get to know something well enough that they can put it into words.
9. *don't cram for exams.* Successful students know that divided periods of study are more effective than cram sessions, and they practice it.
10. *are good time managers.* Successful students do not procrastinate. They have learned that time control is life control and have consciously chosen to be in control of their lives.

Ten Commandments for Effective Study Skills

Source: By Larry M. Ludewig, the *Teaching Professor*, 1992, 6(10), 3–4. Reprinted with permission from Magna Publications.

Thou Shalt Be Responsible and Thou Shalt Be Active—For There Be No Other Passage to Academic Success!

Responsibility means control. Your grade in a class is relatively free of any variables other than your own effort. Sure, you may have a lousy professor. It happens. But remember: you are the one who has to live with your grade. It goes on *your* grade report, not your *instructor's*.

If you are seeking a way of increasing learning and improving grades without increasing your study time, active classroom participation is your answer. Look at it this way: classroom time is something to which you are already committed. So, you can sit there, assume the “bored student position”—arms crossed, slumped in the chair, eyes at half-mast—and allow yourself an “out-of-body” experience. Or, you can maximize your classroom time by actively listening, thinking, questioning, taking notes, and participating totally in the learning experience.

Thou Shalt Know Where Thy “Hot Buttons” Are, and Thou Shalt Push Them Regularly!

The next time you seat yourself in class, ask yourself these questions:

- What am I doing here?
- Why have I chosen to be sitting here now?
- Is there some better place I could be?
- What does my presence here mean to me?

Your responses to these questions represent your educational goals. They are the “hot buttons,” and they are, without a doubt, the most important factors in your success as a college student.

College is not easy. Believe it or not, there will be times when you tire of being a student. And that’s when a press or two on the hot buttons can pull you through!

If Thou Hath Questions, Asketh Them. If Thou Hath No Questions, Maketh Some!

Just as a straight line usually indicates the shortest distance between two points, questions generally provide the quickest route between ignorance and knowledge.

In addition to securing knowledge that you seek, asking questions has at least two other extremely important benefits. The process helps you pay attention to your professor and helps your professor pay attention to you.

Thou Shalt Learn That Thou and Thy Professor Maketh a Team—and Thou Shalt Be a Team Player!

Most instructors want exactly what you want: they would like for you to learn the material in their respective classes and earn a good grade. After all, successful students reflect well on the efforts of any teaching; if you learned your stuff, the instructor takes some justifiable pride in teaching.

Thou Shalt Not Parketh Thy Butt in the Back!

Suppose you pay \$50 to buy concert tickets for your favorite musical artist. Do you choose front row seats or the cheap seats at the rear of the auditorium? Why do some students who spend far more money on a college education than on concerts willingly place themselves in the last row of the classroom? In class, the back row gives invisibility and anonymity, both of which are antithetical to efficient and effective learning.

Thou Shalt Not Write in Thy Notes What Thou Faileth to Understand!

Avoid the “whatinthehellisthat” phenomenon experienced by most college students. This unique reaction occurs when students first review their notes for a major examination. Being unable to read, decipher, or comprehend the mess that passes for notes, students are likely to utter the expression that grants this particular phenomenon its name.

If Thine Interest in Class Be Gone, Faketh It!

If you are a good actor, you may even fool yourself into liking the lecture.

How do you fake interest? You simply assume the “interested student position”; lean forward, place your feet flat on the floor in front of you, maintain eye contact with your professor, smile or nod occasionally as though you understand and care about what your instructor is saying, take notes, and ask questions.

Thou Shalt Know That If Silence Be Golden—Recitation Shalt Be Platinum!

Recitation is not only good for checking whether or not you know something; it’s perhaps the best method for learning it in the first place. Reciting unquestionably provides the most direct route between short-term and long-term memory.

Thou Shalt Knoweth That Cram Is a Four-Letter Word!

If there is one thing that study skills specialists agree on, it is that divided periods of study are more efficient and effective than a single period of condensed study. In other words, you will learn more, remember more, and earn a higher grade if you prepare for Friday’s examination by studying one hour a night, Monday through Thursday, rather than studying for four hours straight on Thursday evening.

Thou Shalt Not Procrastinate—and Thou Shalt Beginmeth Not Doing It Right Now!

An elemental truth: you will either control time or be controlled by it! There is no middle ground. It’s your choice: you can lead or be led, establish control or relinquish control, steer your own course or have it dictated to you.

When I ask students which they prefer, choosing their own path or having it chosen for them, they almost uniformly select the first option. In spite of this response, however, failure to take control of their own time is probably the number one study skills problem of college students

So, these are the Ten Commandments for Effective Study Skills. They work, but don’t take my word for it. Try them! Use them! Make them your own. What have you got to lose except poor grades and sleepless study nights?

Discussion Guidelines for Students

Source: By Howard Gabennesch, the *Teaching Professor*, 1992, 6(9), 6. Reprinted with permission from Magna Publications.

- Try to make comments that connect ideas from the course with phenomena outside the classroom, and between ideas in one part of the course and those in a different part.
- Avoid war stories, rambling speeches heavily punctuated with the word “I,” and raw opinions that we could just as easily get from the average patron at the nearest tavern who has never heard of this course and its assigned reading.
- Realize that when our emotions are aroused our brain wants to take orders from them. It is essential, therefore, to be willing to disconnect one’s brain from one’s gut long enough to render due process to ideas, particularly those that are unpopular or personally distasteful. This is an unnatural act, and requires courage. You will probably find it easier to join lynch mobs from time to time.
- Understand that the right to have an opinion does not include the right to have it taken seriously by others. Nor is having an opinion necessarily laudable in itself. An opinion is only as good as the evidence, theory, and logic on which it is based.
- Be careful about basing your opinions uncritically on the testimony of experts. Experts are subject to error and bias. They often disagree with other experts. All of this applies to the authors of your texts and your professors.
- Beware of the tendency to view questions in dichotomous terms, such as either-or, all-or-none. The world is a complex, messy place where absolute answers are hard to find, gray is more common than black and white and contradictory things are often in the same package.
- Appreciate the importance of the distinction between “the truth” and “the truth, the whole truth, and nothing but the truth.”
- Value tentativeness. It’s OK to admit you’re unsure. It’s OK to change your mind.

Learning from the Research on Taking Lecture Notes

Source: Johnston, A. H., and Su, W. Y. "Lectures—A Learning Experience?" *Education in Chemistry*, May 1994, pp. 76–70. Article summary by Maryellen Weimer, the *Teaching Professor*, 1994, 8(9), 2. Reprinted with permission from Magna Publications.

Get this: the average lectures contains about 5,000 spoken words. The average student ends up with about 500 of those words in his or her notes. Key question: How do students pick their 500 words?

To answer that question A. H. Johnston and W. Y. Su analyzed student notes and the lectures they listened to in a first year chemistry class across a three-year period. The total number of subjects in their study was small but the uniqueness and thoroughness of the analysis make the findings noteworthy. In addition to detailed reviews of the student notes, they also recorded faculty lectures, noted their board work and reviewed other visually presented material.

In brief, they found:

- On average, students recorded about 90 percent of the black-board information in terms of both words and information units, defined as the smallest block of knowledge that could stand as a separate assertion. However, the conclusion does not imply that student notes were complete. Rather, it illustrates the commonplace student assumption that all they need is the written material.
- Inaccuracies in the notes occurred most frequently when students were copying diagrams, numerical figures, equations and items on transparencies. Rarely did any faculty corrections end up in student notes.
- What most often did not appear in students' notes was anything related to demonstrations, examples of applications, detailed sequences of arguments, and meanings of technical terms and symbols.

Four basic note-taking styles emerged from this research analysis:

- Students who write down only what appears on the board and have an incomplete record of that.
- Students who write down what appears on the board and have all that material.
- Students who have the board material and other material.
- Students with “elaborated notes” which contained extra or connective material not explicitly given in the lecture.

The researchers found a correlation between note-taking style and test performance. On average 45 percentage points separated students with notes from the first category listed from those in the final category.

As for an overall finding, the researchers concluded, “Only about one third of the students in the sample were leaving the lecture with most of the information units recorded and with substantially complete notes.”

Consider a Study Group

Sources: Study group guidelines adapted from H. J. Robinson, the *Teaching Professor*, 1991, 5(7), 7, and study group bill of rights ideas adapted from D. G. Longman, the *Teaching Professor*, 1992, 6(7), 5. Both reprinted with permission from Magna Publications.

Study groups give students the opportunity to discuss problems raised in the course, to read and comment on the written work of others, to help and tutor each other by working jointly on course materials, to test each other’s knowledge, to share the cost of expensive and optional course texts and to learn how to work cooperatively with peers. Consider organizing one with a group of your colleagues!

If you do decide to form a study group, the following guidelines outline how those groups will work in this class.

- Groups of 4 to 6 students are formed by the mutual agreement of the members.
- To be considered a study group for the class, groups must register with the instructor, providing group member names and student ID numbers.

- Groups may expel a member (say one who is using the group as opposed to contributing to it) by unanimous vote.
- If group membership falls below 4, the group is automatically disbanded unless they vote in a replacement.
- No students may belong to more than one study group and no student is required to belong to any study group.
- Groups organize their own activities, deciding what to do at their meetings. The instructor would be happy to meet with groups to suggest activities and/or to review proposed study plans. This meeting is optional for the groups.
- Registered groups receive bonus points on all assignments according to the following formula. The bonus is based on the average of all individual grades received by the group members. If the group average is A, all members receive three percentage points; if it's B, two percentage points, and if it's a C one percentage point. If an individual member receives an A but the group average is C, the member still receives the one percentage point bonus.

If you would like to participate in a study group, but don't know students in the class well enough to organize one, please let the instructor know. The instructor will be happy to help students organize groups.

Study groups, indeed all groups, are successful if members agree to work together constructively. Groups should spend time at the beginning discussing how they would like the group to work together. They might profitably discuss, revise and agree to accept the "bill of rights" that follows.

Study Groups Bill of Rights for Individual Members

- You have the right and responsibility to select study sites and times that are convenient for all members.
- You have the right to contribute to the formation of group goals that have measurable outcomes and deadlines.
- You have the responsibility to be an active participant, not a passive receiver, in the group process. In addition, you have the right to expect active participation from other group members.

- You have the right to have meetings begin and end promptly and to participation in study sessions without needless interruptions.
- You have the right to participation in a group that works cooperatively and handles disagreements constructively.
- You have the right to expect that the group will stay on task and you have the responsibility for helping the group to do so.
- You have the right to ask group members to limit socialization or discussion of extraneous topics before and after study sessions.
- You have the right to closure. This includes feelings of accomplishment (1) at the end of each study session, by evaluating if the group has met its goals, (2) after each exam and assignment, by debriefing with members to evaluate performances, and (3) at the end of the class by assessing the value of the group experience to you.

Notetaking Types and Characteristics to Help Students Succeed

Source: Lisa Shibley, the *Teaching Professor*, 1999, 13(9), 3. Reprinted with permission from Magna Publications.

See table on opposite page.

<i>Types of Notes</i>	<i>Conventional</i>	<i>Two-Column</i>	<i>Outline</i>	<i>Concept Map</i>	<i>Matrix</i>
<i>Uses</i>	Traditional method.	Summarize key ideas in far left column.	Students use to review and find relationships among topics and subtopics.	Helps define key ideas and relationships.	Helps define key ideas and relationships.
<i>Benefits</i>	Convenient for students.	Helps with factual details. Room for re-organization after class. Good for multiple choice for multiple choice exams.	Students include more key ideas, more details and examples. Great for preparing for multiple choice and short answer exams.	Students discover more relationships. Leads to higher-order thinking. Great for preparing for essay exams.	Students discover more relationships. Leads to higher-order thinking. Great for studying for essay exams.
<i>Attentiveness</i>	Lose valuable information because try to write as much down as possible.	Students may still lose valuable information as write down too much information.	Focus on ideas and relationships during lecture, then writing down notes.	Focus on ideas and relationships during lecture, then writing down notes.	Focus on ideas and relationships during lecture, then writing down notes.
<i>Lecture Rate</i>	Difficult for students to keep up. Ideas get lost.	Summarization in left column during lecture so ideas lost.	Students capture more ideas.	Students capture more ideas.	Students capture more ideas.
<i>Process</i>	Involves listening, large short term memory, writing down information.	Involves listening, large short term memory, writing down information.	Students write down key ideas and indent under topics to add related materials.	Students write down key ideas and connect them.	Write topics across the top row and general characteristics down the first column.
<i>Format</i>	Verbatim notes. No indentations. Full sentences.	Far left column for topics and summaries. Right for details, etc.	Indented topics. Roman numerals, numbers or bullets used.	Key ideas with circles around them connected by lines.	Table, similar to this one.