



The Audience: Tending to the Student's Frame of Mind

by Ron Robinson

When the curtain rises on a new term and we go to the first meeting of our Prealgebra classes, we all know what we can expect. The polite description is “diverse student demographics.”

Seated across the front row are four 30-something women, each with a story to tell, and each a profile in courage as she tries to improve her lot in life. Over there to the right is a landscape guy with his baseball cap on backwards, and next to him is a Waffle House waitress who just came off the night shift. Scattered throughout are recent high school graduates who are here for reasons unknown, possibly even to themselves.

Compounding the problem of dealing with such an odd collection of folks is the set of attitudes and expectations that they bring to the mix. Some are terrified and have little confidence in their ability to succeed. Some are embarrassed about needing to take a course in what they know amounts to little more than middle school arithmetic. Some are unhappy about being here at all, and they resent the famous curricular paradigm that even poets and tuba players cannot possibly succeed without knowing how to find the vertical asymptotes of a rational function. Most bring with them a low interest in mathematics, a weak approach to study habits, and a record of experiences with mathematics that is both unpleasant and undistinguished.

Our challenge, as instructors and as authors, is to promote a sense of well-being in our students. They are generally good and decent people who deserve our best efforts in helping them with this second chance. We need to fortify them, believe in them, and, most of all, care about them. Most of the task falls to the instructors because they are the ones who have the daily opportunity to work with the students and their psyches. However, we authors can help.

As long-time classroom instructors, we think that we have heard just about everything. In writing *Prealgebra*, we have tried to anticipate typical mood

swings and mind sets. One of our goals is to convince students that we understand their worries and frustrations and to offer as much encouragement and practical advice as possible.

One of our favorite features is entitled “Some Friendly Advice,” which appears as part of each chapter opener. In a nonjudgmental, sometimes light-hearted manner, we offer some tried and true ideas about how to achieve a positive state of mind, about how to approach the coming material, and about techniques that many have found successful. The following is a brief outline of the content of this feature.

Chapter 1: The purpose and uses of the syllabus and why it's important

Chapter 2: Studying as though the student were going to teach the material the next day

Chapter 3: The need to understand and use the rules of mathematics rather than intuition

Chapter 4: Relating mathematical concepts to familiar things that can be visualized

Chapter 5: The value of making friends and forming small study groups

Chapter 6: The effective use of color in drawing figures and in highlighting text

Chapter 7: How to obtain advice about future courses and instructors

Chapter 8: Suggestions for reviewing and preparing for the final exam

Chapter 9: How this course has prepared the student for a course in algebra

Another similar feature is entitled “Suggestions for Success,” which can be found at the beginning of each section. Although these passages are somewhat more content-specific, we use this opportunity to offer general advice about how to use the textbook, about study skills, and about achieving a proper frame of mind.

Attending class without fail, staying current, keeping good notes, asking questions, and aggressively taking charge of one's own learning are just a few of the

wide-ranging variety of topics contained in this feature. Sometimes we just have some fun.

The second-most exasperating thing to say:
“I missed class yesterday. Did I miss anything?”

The first-most exasperating thing to say:
“I missed class yesterday. Did I miss anything important?”

Students seem to benefit from understanding that mathematics is a human invention. Once they see that a definition or a rule is not arbitrary but follows logically from previous rules or from observable patterns, they tend to be less grumpy. “Oh, now I see!” is the most wonderful thing an instructor can hear a student say, not just because it indicates understanding but because it usually means that the student has developed a new appreciation for the structure and beauty of mathematics. In “Suggestions for Success,” we devote a considerable effort to promoting that view of the discipline.

The most obvious purpose of the feature “Warm-Up Skills,” which appears in each chapter opener, is to review preceding concepts and skills that will be needed in the upcoming chapter. However, a more subtle purpose is to provide a confidence builder. If a student is successful with this small group of exercises, then we can say, “Good for you—you are ready to move ahead!” If the student runs into difficulties, then we can attend to those problems right away. Either way, we are increasing the students’ chances for success and for building momentum in overcoming their anxieties.

Sprinkled throughout *Prealgebra* are two other features that have multiple purposes. As the name implies, many “Learning Tips” are practical suggestions for thinking about a problem and specific techniques for solving it. However, we also take these opportunities to encourage students to branch out and dare to try alternatives. Students are strengthened by realizing that often there are other ways to do things, especially if they can discern the method that is most efficient. Flexibility and courage are hallmarks of a successful student.

The other feature, “Notes,” is designed to help protect students from themselves. Every experienced instructor knows the kinds of errors that students tend to make. Our “Notes” try to anticipate these mistakes and to prevent them in advance. They are cautionary in nature, but we have tried to give them a positive slant by emphasizing the proper rule or

procedure.

All the features described in this article are designed to say to the student that we, the instructors and the authors, are in their corner. Most students thrive on knowing that. They often carry some very tattered baggage into developmental courses, and the motivated students are usually the ones who want to discard that baggage as quickly and as effectively as possible.

Unfortunately, one of their bad habits is not reading the text very thoroughly. Therefore, all our admirable efforts will be in vain unless the instructor vigorously pushes students to avail themselves of our help. This might mean specifically pointing out “Learning Tips” and “Notes” in class. It might involve asking students in class what they think about a particular “Some Friendly Advice” or “Suggestions for Success.” In other words, building these features into the normal classroom presentation will create a greater awareness on the part of students.

At the developmental level, and especially in prealgebra, a good case can be made for believing that the students are at least as important as the subject matter. This is not intuitive because we have all worked hard to arrive at our respective levels of knowledge and experience. It is tempting to expect our developmental students to have the same degree of enthusiasm for mathematics that we have, even though we know deep down that very few of them will enter a mathematics-related field. If we are determined to turn our students into mathematicians, then we have probably failed before we even begin. On the other hand, we can go to the opposite extreme and just impersonally find ways to wedge the students through the requirement.

The middle and most fruitful position, it seems to us, is certainly to assist students in developing the strongest possible background in the concepts and skills that they will need in future courses, while doing all that we can to develop an appreciation for learning, in general, and for mathematics, in particular. A heightened awareness of the students’ morale and confidence is essential to these ends. If we don’t take ourselves too seriously, if we show a genuine interest in the students’ needs, and if we bring understanding and compassion to the effort, their accomplishments will follow naturally. This was our frame of mind as we wrote *Prealgebra*.

Ron Robinson is a co-author of Prealgebra.