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Communication Strategies to Support Preservice Mathematics Teachers from Diverse Backgrounds

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MANY educators agree that schools in a diverse culture are strengthened by a diverse teaching force (Orlikow and Young 1993; Gollnick 1992; Grant and Secada 1990). Yet data show that the teaching force of the next century is expected to be homogeneous—in fact, increasingly white and female (Grant and Secada 1990). If this prediction is to be altered, teacher education programs need to identify ways to recruit and support candidates from a variety of backgrounds. (See Gollnick [1992] for promising recruitment practices.) Nelson-Barber and Mitchell (1992) reviewed five programs that address these concerns and found that they shared several important elements:

- Practical field experience in multicultural communities (not just in schools)
- Guided reflection about those experiences done with professors, veteran teachers, and cohorts of varying backgrounds
- Attention to, and support of, the personal as well as professional growth of student teachers
- Learning experiences related to communication

The last, communication, is the focus of this article.

There is strong agreement that effective teaching is a human-relations and communicative activity (Irvine 1992). Current thinking about effective learning and teaching, including attention to varied intelligences (Gardner 1983), the roles of contextualization and applications, constructivist views of learning (Davis, Maher, and Noddings 1991), and the

recommendations of the National Council of Teachers of Mathematics (1989, 1991), recognizes the central role of communication in the teaching-learning process. This insight is of particular importance for student-teachers for whom English is not the first language. Often these teacher-candidates have chosen to teach mathematics because they perceive it as less language based than other subjects. Moreover, their university coursework in mathematics typically requires less writing and speaking than many other majors, which further limits their opportunities to use language in their own learning.

CONTEXT

At the University of Windsor in Windsor, Ontario, I have had the opportunity to work with student-teachers from eastern Europe, the Middle East, south Asia, the Far East, and Africa, all of whom spoke first languages other than English. These students were in a one-year postbaccalaureate preservice program that included nine practice-teaching weeks spread over the year in four two- or three-week placements. In addition, during most non-practice-teaching weeks, the students spent two days in one school, observing and doing teaching-related field activities. My students were preparing to teach youngsters from grades 4 through 10. Even though their area of specialization was mathematics, their most probable future job would be as a seventh- or eighth-grade teacher in a general classroom because many Ontario elementary schools encompass grades K–8 in self-contained classrooms. They were all Canadian citizens, had lived and worked in Canada for a number of years, and were generally fluent in English.

TWO STORIES AND FIRST SUGGESTIONS

Let me begin with experiences with my first international student-teachers—experiences that stirred my interest in identifying supportive strategies. The first experience took place in my office very early in the term in a conversation with Sal. (Pseudonyms are used throughout.) As his advisor for student teaching, I asked one of my typical questions, “What do you feel most confident about?” He responded, as many students do, that he was interested in youngsters, mathematics, and helping people learn. Then I asked what he was most concerned about. He said, “I will pronounce words wrong and the students will laugh at me.” I suggested that Sal consider one of my favorites of life’s remedies, “If you can’t fix it, feature it.” I suggested that he consider telling the students that he and they were both learning, but learning different things. He would appreciate their helping him with his pronunciation while he helped them with their mathematics. He was relieved and pleased by this idea.

The second story involves Mel, whom I first observed teaching in a fourth-grade classroom early in his October placement. He was going through the motions of teaching, but in a totally perfunctory way. For example, he read the children a story but was nearly inaudible and used no expression or introduction. He followed the story with questions that I was amazed to hear the students answer. I learned later that the story was a movie they had all seen! He seemed like a stranger in the room, giving directions that students followed, but only because they knew the routines and their “real” teacher was watching. He made little eye contact with the students, spoke very timidly, and seemed to be in a daze about what was happening.

In November, when I observed Mel in an eighth-grade class, he greeted the students warmly at the door before class, chatted with several informally, and seemed generally relaxed. I was amazed by the difference and very pleased. I spoke to the associate (cooperating teacher) and learned, among other things, that the school had a tradition of holding class lunches on Fridays. When she learned of Mel’s background, she invited him the week before his student teaching began to share Middle Eastern foods with the students at their Friday lunch. The students liked the hummus, baba ghanoush, and pita bread, and Mel had an opportunity to talk with them about his heritage. I remarked to the associate about the tremendous difference I saw in Mel. She told me that she herself had immigrated to Canada from Sweden when she was a school-aged child. She remembered the wonderful things people had done for her, and she enjoyed doing the same for others.

One can glean many lessons from these two stories. Here are two things I learned: pronunciation, although certainly a concern, is not the most important issue in working with international student-teachers. Getting to know people and building human relationships is.

As a result, my first suggestion for everyone involved in preservice programs—university professors, student teachers, associates, pupils—is to build human relationships, to get to know one another and appreciate one another’s uniqueness. Of course, this is a long-term goal, but it must be actively worked toward. This concept is confirmed by Nelson-Barber and Mitchell (1992), who note the value of professor-student relationships and heterogeneous student cohorts in effective programs for student-teachers from diverse cultures.

The second suggestion is to recognize that students not native to North America may be unfamiliar with North American schools and their structures, organization, and culture. As future teachers, students need to visit schools, observe, and reflect on their observations in a guided way (Nelson-Barber and Mitchell 1992). Professors, associates, and majority-culture teacher-candidates benefit when they reflect together on what was observed, what is expected, and how these observations and expectations compare with students’ personal experiences and expectations. Such conversations promote cultural understanding in more than one direction and provide further opportunities for personal and professional growth and communication.

PERSPECTIVES ON SUGGESTIONS

Since I was operating at a naive level of language concerns when I first met Sal, my initial suggestions (fig. 24.1) were simplistic. When I visited Mel in the second school and I realized the value of sharing oneself with others, I decided that this strategy needed to be communicated to the other student-teachers, so I began to identify suggestions based on relationships (fig. 24.2).

TEACHING SUGGESTIONS

As I continued coaching all my student-teachers and reflecting on good teaching, I also thought about the changing paradigms in teaching. Irvine (1992) noted that although all effective teachers structure learning activities to promote meaningful learning, effective teachers of minority students more often use interactive rather than didactic methods. They give frequent feedback and use demonstrations, questions, and rephrasings. In

General Suggestions for Teachers Teaching in a Nonnative Language

1. Socialize with native speakers.
2. Work together with language majors. They may have suggestions for language support and resources for you.
3. Ask friends to identify and assist you with pronunciation, idioms, and unfamiliar expressions.
4. Continue to use all the strategies you've developed for learning a second language.
5. Use the local language as much as possible each day .
6. Read literature, magazines, comics, and other sources your pupils read.
7. Keep a journal with new words and expressions. Underline one or two language structures that you want to learn and talk about them with a "buddy."
8. Get and use a good dictionary of the local language.
9. Make a list for yourself of essential teaching and content words, phrases, and expressions and practice pronouncing them, for example, *assignment, example, ratio, angle, decimal, geometry, please give me your attention*. Rehearse these with a native speaker. Keep a card file of important phrases and sentences. Record the pronunciation in the way that works best for you.
10. Check the way mathematics symbols are read. It may vary in different parts of the world or in different parts of mathematics.
11. Speak clearly and slowly. Project your voice. Maintain eye contact with students.

Fig. 24.1. A list of general suggestions for teachers teaching in a language other than their native one

Suggestions for Building Rapport with Pupils

Get to know your students.

1. Talk to several students individually at recess or before or after school.
2. Learn your students' names.
 - a. When they are sitting quietly, study the seating plan and their faces.
 - b. Have each one tell you something special about her or him and note what is said.
 - c. Take photographs or make sketches or descriptions of the students.
 - d. Quiz yourself daily on students' names when they enter the classroom.
 - e. After a few days, identify pupils whose names you still don't know. Look closely at them and learn their names.
3. Talk with associates, other teachers in the school, and teaching partners to learn what students are interested in and to share your observations about them.
4. If possible, get involved in some out-of-school activity with youth.
5. Share with students your enthusiasm about knowing them better.

Help your students get to know you.

1. Share things about yourself, your culture, your heritage, your language; use your international experience to increase your pupils' global awareness.
2. Find ways to share food, art, writing, photographs, and other cultural materials.
3. Build into the mathematics instruction opportunities to learn about your culture and others. For example, use international data as sources for statistics work; use jewelry, flags, architecture, or other significant items as sources for geometry work; use maps and scale drawings related to your background as sources for work in ratio and proportion. (See Rubenstein [1993] and other chapters in this yearbook for more suggestions.)

Build an environment in which everyone is learning together.

Remind students that they are all learning together and that you expect them to assist one another in class. Tell students that you will help them learn mathematics and other subjects but they can help you with English. If they hear you say something that sounds funny, ask them to help you instead of laughing at you. Thank them when they help you and invite them to thank one another for assistance with their studies.

Fig. 24.2. A list of suggestions for building a rapport with pupils

mathematics education in particular, these strategies have been translated into an emphasis on tasks and discourse in classrooms (NCTM 1991) and include group work, the use of manipulatives, multiple modes of representation, and open-ended questions. I realized that although these changes, with their focus on communication, may create increased challenges for

those for whom English is not the first language, they may also present increased opportunities. Indeed, many of the reform suggestions for effective classroom interactions need only slight modification and more emphasis for teachers who are second-language speakers. Figure 24.3 identifies several of these strategies.

When I coach student-teachers, rather than “tell” them what to do, as these lists might suggest, I try to keep suggestions in mind, and I pose questions to get the students to reflect, self-evaluate, and figure out strategies for themselves. In the course of debriefing after a teaching episode, for example, I ask questions like “What strategies did you use today that promoted successful communication?” “What other strategies might you use?” “How can you help the students help one another to learn?” With all student-teachers, the goal is to self-evaluate and find effective strategies for their own teaching.

Textbooks and curriculum guides, too, present challenges. For example, the day I observed Mel in the eighth-grade class, I learned that he assigned problems from the textbook without carefully reading the directions. Consequently, he was confused when students asked how to do the work. This and related observations led to ideas for working with textbooks and other teaching materials (fig. 24.4).

COMMUNICATING WITH ASSOCIATES

Associates, pupils, and student-teachers need to put a priority on getting to know one another. Student-teachers are given many directions and suggestions by associates. Sometimes misunderstandings occur. One method I try to use and encourage others to try is paraphrasing. Listeners repeat what they understand the speaker to have said: “Let me see if I understand you. You want me to help the fifth graders understand what fractions mean by using pictures, bars, and circle models. By the end of the week they should be able to draw and explain when fractions are equivalent for halves, thirds, fourths, sixths, and eighths. Is that correct?”

When associates give comments or an evaluation in writing, it helps for the associate and student-teacher to read the notes together. I found that one student-teacher was tucking away all his associate’s comments and saving them to read at home. This preempted his opportunity to clarify them and risked his misunderstanding what was intended.

CONCLUSION

If we are to celebrate diversity in our communities and schools, we must celebrate it, too, in our teacher-preparation institutions. This article has offered several ideas for supporting such efforts in the area of communication. Foremost is building human relationships among everyone involved in the teaching and teacher-education processes. As with other

Suggestions for Classroom Interactions

1. Use tools to help you communicate with students.
 - a) Use manipulatives, pictures, contexts, stories, and drama.
 - b) Write directions, key questions, terms, or ideas on chart paper, the chalkboard, or the overhead projector.
 - c) Demonstrate (show, don't just tell) what you want students to do.
 - d) If you use handouts, have students read the directions. Have them repeat them in their own words before following them. Check for understanding.
2. Listen to students. Don't assume you know what they will say.
3. Watch for clues that students are understanding.
 - a) Use eye contact.
 - b) Watch their facial expressions and other body language.
 - c) Notice if they are asking one another to explain what you are saying.
 - d) Ask them to say back to you what you have explained (directions, new ideas, etc.).
4. When students respond and you don't understand, try one of the following:
 - a) Ask them to speak slower or use different words.
 - b) Ask another student to explain what the first student said.
 - c) Ask them to show what they mean by coming to the chalkboard, drawing a diagram, or using concrete materials.
 - d) If appropriate, promise to speak personally with them later, then do so.
 - e) Identify what you think you *do* understand and say it back to the student: "What I heard you say was that you have another method you'd like to use. But I'm not following your method. Please explain it again slower or show us at the board."
5. Use lesson openings and closings to your advantage (and your students'!).
 - a) Begin by asking them where you left off yesterday or ask key questions to review what they should have learned. Ask more than one student to say what was learned in a different way. Listen to how they phrase things. Ask other students for corrections or modifications.
 - b) Include a summary at the end of your lesson. Have students tell what they have learned. Listen to how they say it. As above, ask for other ways to express the new ideas.
6. Use guided practice in your lessons, as appropriate, for example, for skill development. "We'll do number 1 together." Then develop it with them. "Now, you do number 2." Give them an item just like the first, monitor them, and see how they do. In this way you get evidence of their learning, and you see which students understand and can be resources for explaining to others. Continue alternating between examples done together and those done by students individually or in pairs.

Fig. 24.3. A list of suggestions for classroom interactions

Suggestions for Working with Textbooks

1. Be sure to read the directions in front of problems. Don't assume from the format of the page that you know what students are being asked to do.
2. Look back to see how the authors developed earlier concepts and skills. Doing so may give you words or visuals to help refresh (or reteach) students on prerequisites.
3. Look ahead to see where the authors are going. You may find that you can teach less because more will be done later with a new idea.
4. Read student textbooks and other learning materials to become more familiar with language constructions.

Fig. 24.4. A list of suggestions for working with textbooks

educational endeavors, individual instructors and institutions need to examine their goals, needs, and resources to design what is appropriate for their own program.

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