

# Teaching Tools:

## Diverse Populations and Learning Styles

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# INTRODUCTION

The typical classroom consists of students with different abilities and different styles of learning. The No Child Left Behind Act of 2001\* increases the accountability of schools to help all students achieve to their potential. Accommodating individual student differences often requires an adjustment in teaching style or presentation. This book presents some basic strategies for teaching a diverse population and addressing diverse learning styles. In addition, information on collaborative and contextual learning is included.

The discussion on teaching a diverse population focuses on the following:

- ❑ Gifted students
- ❑ Students with specific learning disabilities
- ❑ Students who are visually or hearing impaired
- ❑ Students who are at risk for dropping out of school
- ❑ Students with dyslexia
- ❑ Students with attention deficit disorder

The discussion of learning styles focuses on the following:

- ❑ Print learners
- ❑ Visual learners
- ❑ Auditory learners
- ❑ Tactile learners
- ❑ Kinesthetic learners

\*As of the date of this publication, the No Child Left Behind Act was still in effect. However, it is anticipated that Congress will make significant changes to the law following the 2008 elections.

# TEACHING A DIVERSE POPULATION

## GIFTED STUDENTS

The typical classroom has students with a wide variation of ability, intelligence, and motivation. Although the teacher must direct a majority of the instruction to the mass audience, optimal learning will occur only when the curriculum is modified to meet the needs of each individual. With the No Child Left Behind Act, schools will be held accountable for their performance. That means teachers and administrators must work together to meet the needs of all its students.

The first and greatest challenge facing the teacher is identifying the special abilities of each student. Whereas physical disabilities are usually relatively easy to identify, learning disabilities can be very difficult to detect and classify. Classifying students solely on assessment scores and prior classroom performance may be misleading and should be avoided. For example, poor subject assessment scores and short attention spans may be symptoms of either a student with a specific learning disability or a gifted student who is bored.

The correct evaluation of students should be a combined effort of the teacher, the school counselor or special education teacher, and the student. Together, this team can design an individualized program that will challenge the student while providing adequate opportunity to achieve attainable goals. In some cases, parents or guardians should also be involved in setting achievable goals.

One objective of programs for gifted students should be the development of leadership skills. Current literature suggests that four skill areas are involved in the development of effective leadership.

1. **Cognition:** The ability to identify, research, and learn factual knowledge.
2. **Problem Solving:** The ability to identify problems and develop creative solutions.
3. **Interpersonal Communication:** The ability to work with other people.
4. **Decision Making:** The ability to develop and implement realistic goals and evaluate performance of the goals.

## **LIMITED- ENGLISH- PROFICIENCY STUDENTS**

Using gifted students as tutors for other students can be an effective way of teaching topics students find difficult. Encourage gifted students to work ahead. They can then assist you in presenting the concepts and examples to the class. Encourage the students to use visual aids and develop methods to assess student learning.

Limited-English-Proficiency (LEP) students are individuals whose native or dominant language is a language other than English. Although these students may be involved in special English-as-a-Second-Language (ESL) classes, any teacher can significantly improve learning by adopting several strategies.

1. Provide students with translations of key terms prior to presenting each chapter. Encourage students to use dictionaries.
2. Use simple words in oral presentations and testing materials. Avoid polysyllabic words. Simplify the non-technical vocabulary.
3. Stress key terms so that LEP students learn specialized language.
4. Create visual instructional methods, such as posters and bulletin boards that reinforce concepts in both English and the other dominant language(s).
5. At early levels, LEP students have limited comprehension of English and can respond with one- or two-word answers. Assess understanding by having students match, choose, move, draw, or point. Students at this level can respond to directions that require them to name, list, categorize, label, or reply with one or two words.
6. LEP students, like visual learners, require a variety of visual clues to support the lesson and help them understand abstract ideas. Use transparencies, textbook illustrations, and software demonstrations to provide these clues.
7. Allow for longer pauses when you ask questions. Non-native speakers need more time to formulate their answers.
8. Speak directly. Avoid negative constructions, such as "Don't forget...." Instead, use a more positive phrase such as "Remember to...."
9. Avoid passive constructions, such as "Partners will be chosen to...." Instead, use active constructions, such as "Choose a partner to...."
10. Rather than asking students whether they understand what you have said, ask them to restate what you have said in their own words.
11. Make accommodations such as adjusting the length of time allotted to complete assignments and tests. Remember that the primary objective is to assess knowledge rather than the students' ability to translate and comprehend the question or problem.

**SPECIFIC  
LEARNING  
DISABILITY  
(SLD)  
STUDENTS**

12. Avoid misinterpreting a nod as understanding. The nod may instead mean that the listener did not understand. In some cultures, “Yes” is the response to every question. It may mean, “I heard your question” rather than “I understand.”
13. Be cautious if there are no interruptions or questions. It may mean that very little has been understood.

Additional ideas that may help LEP students include:

1. Recruiting businesspersons willing to act as mentors for LEP students. These mentors should be invited to speak to the class and periodically meet with LEP students to assist with assignments. The teacher should be actively involved in any meetings with LEP students to show support for both the mentor and the students. The ideal mentors are adults who have learned English as a second language. They can share their experiences with students.
2. Helping LEP students recognize the benefits of knowing two languages. Although LEP students may face challenges in the classroom, their knowledge of two languages provides them with excellent career opportunities in today’s global business environment. LEP students should identify what unique career opportunities exist for them in various types of organizations, such as international businesses and government. Students could create a poster, display, or bulletin board to inform other students of these opportunities.
3. Exploring cultural differences. LEP students often come from different ethnic and cultural backgrounds. As a class activity, students can research how ethnic and cultural differences may affect how people in our society interact. These differences can be identified by reading books and current magazines as well as interacting with people from different ethnic backgrounds. Encourage students to orally present their findings to the class; role playing is an entertaining way to demonstrate how an individual’s ignorance of cultural differences can have disastrous results.

Adolescence is a period of turmoil and adjustment. What many teachers often view as adolescent behavior may, however, be caused by a student’s specific learning disability (SLD). The correct assessment of SLD students is difficult because adolescent behavior is similar to the typical characteristics of SLD students. The following paragraphs define common characteristics found in students with an SLD.

***PASSIVE LEARNERS***

When faced with making a decision, SLD students avoid making a decision in favor of waiting for a teacher to provide specific direction.

***POOR SELF-CONCEPT***

Years of failure cause SLD students to have low self-esteem, thus reducing their confidence that they can achieve academic success.

***INEPT SOCIAL SKILLS***

SLD students often have difficulty making and keeping friends.

***ATTENTION DEFICITS***

SLD students often lack the ability to concentrate on one topic for an extended period.

***LACK OF MOTIVATION***

Years of failure have conditioned SLD students to doubt their abilities and, therefore, view their efforts as being futile.

Once an SLD student is correctly assessed, the teacher should work with the student to develop an individualized program; the basic objective being the development of functional (life) skills. The student should be counseled to establish challenging yet attainable goals. The instructor must provide frequent feedback about the attainment of these goals. The student's academic success should be measured on the demonstrated ability to learn as much as the mastery of a defined body of knowledge.

Several general instructional strategies may be effective with SLD students:

1. When asking questions during class, ask SLD students questions that they can likely answer successfully. Save more difficult or unstructured questions for other students.
2. Rotate instructional materials rather than trying to complete the entire text. Supplemental instructional materials may include additional books, magazines, government publications, audio-visual materials, software, and online resources.
3. Incorporate current readings from magazines and newspapers or online resources to identify contemporary topics of interest to students. When possible, connect the course content to these contemporary topics. This helps students understand why it is important learn the specific topics covered in the course.
4. Encourage students to maintain a daily log or journal that describes their academic progress. This journal may include questions, concerns, and personal impressions about course content and the learning process. Students may share this log, if they desire, with the teacher when updating their individual program.

## AT-RISK STUDENTS

5. When feasible, SLD students could be encouraged to become involved in work-study programs that are consistent with course content. When work-study opportunities are unavailable, simulations can be used to provide a simulated work environment.
6. Expose students to actual work situations as a motivational device. Arrange a field trip to a local business familiar to the students, such as a store, office, or manufacturing facility. Before the field trip, require the students to identify questions to ask the managers of the business during the field trip. After the field trip, lead a class discussion that allows students the opportunity to share what they learned.

Many environmental factors may negatively impact a student's ability and motivation to succeed academically. Any student who is a potential dropout may be classified as an at-risk student. At-risk students typically are deficient in mathematics, reading, and language skills. These students provide a unique challenge since the teacher has little power to correct problems in the home environment or influence the choice of friends.

Effective instructional strategies for at-risk students should be based on the premise that all individuals have a need for achievement and social acceptance. Within the classroom, these needs can be fulfilled by developing a curriculum that promotes academic success and acceptance by the teacher. Techniques for working with at-risk students include the following:

1. Avoid placing too much significance on past academic performance as this may represent a symptom rather than the underlying problem.
2. Together with the student, develop an individualized program that allows the student to attain both short-term and long-term goals. When identifying goals, consider the student's anticipated career goals. Make sure the goals are measurable so that you and students can clearly assess progress.
3. Modify presentation strategies to include more visual displays and supplement explanations with current, realistic examples. Use technology resources available in your school to add variety to your presentations.
4. Organize job shadowing and mentor programs to expose students to real world situations related to course content.

Additional ideas for assisting at-risk students include:

1. Assisting students to understand how this course is related to careers that interest them.



## **VISUALLY IMPAIRED STUDENTS**

2. Motivating at-risk students to begin self-improvement. Guide at-risk students to recognize that they have a need to improve. Then help students develop a plan for timely self-evaluation.

Students with mild visual impairments typically take a full program of courses. The nature and degree of students' visual impairments will vary. A student's visual impairment may include a difficulty in reading print, an inability to distinguish colors, a sensitivity to light, and a limited field of vision. The teacher must identify each student's exact impairment and adapt teaching strategies appropriately.

Many sources exist for providing alternative teaching materials. Most states have schools for the blind and rehabilitation service agencies. Consult these organizations to identify the latest technologies available for helping these students. Technology tools can greatly assist students with visual impairments to have access to learning resources. For example, screen readers make online content more accessible to visually impaired students. Audiobooks and recorded lessons can be very helpful for those with more severe visual impairment.

The teacher and student should develop an individualized program that establishes a time frame for achieving specific learning objectives. The learning objectives should be consistent with the student's anticipated academic and career goals.

The time frame should consider the student's impairment and the availability of technical assistance, such as enlarged materials and oversized monitors.

Additional ideas for assisting visually impaired students include:

1. Creating confidence in the student's ability to participate fully within the classroom and the work world. Encourage students to prepare an oral or written report that profiles a successful person who is visually impaired.
2. Using government agencies as a resource, ask students to prepare a report about new technologies that are continually being developed to assist visually impaired students to participate fully in both school and business. Section 508 of the Americans with Disabilities Act provides specific accommodations for technology tools such as the Internet. This research will help students become aware of these technologies.

## **HEARING IMPAIRED STUDENTS**

Hearing impaired not only means those who are deaf but also those who are hard of hearing. The sense of hearing for deaf students is nonfunctional for ordinary day-to-day life. However, those who are hard of hearing have a functional sense of hearing and may use a hearing aid or a cochlear implant.

Teachers with hearing impaired students should always be certain that they are facing those students when speaking so that lip reading will be possible. Keep instructions simple and clear and use as many printed materials or other visual materials as possible to convey the lesson. Use technology resources for hearing impaired students where possible. One example is assistive listening systems, which employ a microphone/transmitter used by the instructor and a receiver used by the student.

## **STUDENTS WITH ATTENTION DEFICIT DISORDER**

Attention deficit disorder (ADD) is distinguished by critical and persistent difficulties with attention span, impulse control, and sometimes hyperactivity. The two types of ADD are attention deficit hyperactivity disorder (ADHD) and undifferentiated ADD. Students with ADHD must display, for six months or more, at least eight of the following characteristics prior to age seven:

1. Fidgets, squirms, or seems restless.
2. Has difficulty remaining seated.
3. Is easily distracted.
4. Has difficulty waiting a turn.
5. Blurts out answers.
6. Has difficulty following instructions.
7. Has difficulty sustaining attention.
8. Shifts from one uncompleted task to another.
9. Has difficulty playing quietly.
10. Talks excessively.
11. Interrupts or intrudes on others.
12. Does not seem to listen.
13. Often loses things necessary for tasks.
14. Frequently engages in dangerous actions

Students with undifferentiated ADD primarily exhibit inattentiveness without hyperactivity. These students may have problems with organization and distractibility and may seem quiet or passive. The following instructional strategies may be helpful with students with ADD:

1. Seat students with ADD near the teacher's desk, but include them as part of the regular class seating.
2. Surround students with ADD with good role models. Encourage peer tutoring and collaborative learning.
3. Avoid distracting stimuli. Try not to place students with ADD near air conditioners, heaters, high traffic areas, or doors or windows.
4. Maintain eye contact during verbal instruction.
5. Make directions clear and concise. Be consistent with daily instructions.
6. Repeat instructions in a calm, positive manner, if needed.
7. Require a daily assignment notebook in which the student writes down all assignments. The student and parents or guardian should sign the notebook to indicate that assignments have been completed.
8. Modify assignments as needed. Consult with special-education personnel to determine specific strengths and weaknesses of each student. Develop an individualized education program.
9. Make sure you are testing knowledge and not attention span.
10. Keep in mind that students with ADD are easily frustrated. Stress, pressure, and fatigue can break down their self-control and lead to poor behavior.
11. Praise immediately any and all good behavior and performance.
12. Teach the student to reward himself or herself. Encourage positive self-talk (e.g., "You did very well in class discussion today. How do you feel about that?"). This encourages the student to think positively about himself or herself.

## **STUDENTS WITH DYSLEXIA**

There is not a widely accepted definition for dyslexia. For most experts, dyslexia exists when normally intelligent children who are exposed to suitable educational opportunities in school and at home experience a great difficulty in learning to read and write. Be alert, however, to the fact that not all individuals who have problems with reading are dyslexic. Only a qualified reading professional should make the diagnosis of dyslexia.

The following instructional strategies may be helpful with dyslexic students:

1. Assign shorter reading assignments for a given time period. Instead of assigning an entire lesson for one class period, assign a portion of the lesson.
2. Pair a dyslexic student with a more capable reader who can help emphasize the major points of a reading assignment.
3. Use a variety of reading strategies, including pre-reading strategies, such as anticipation guides and graphic organizers to help students organize what they will read. Follow up with post-reading strategies that assess the level of comprehension of what has been read.
4. Emphasize the organization of a lesson before the student begins to read. Point out the relationship among the objectives, major headings, and key ideas. Graphic organizers are effective in helping students understand a lesson's organization.
5. Encourage dyslexic students to create mental pictures of the words.
6. Model a positive attitude. Self-esteem is critical to a dyslexic student's success.

# DIVERSE LEARNING STYLES

How students learn influences what they learn, how well they learn it, and how much they enjoy the learning experience. Just as no two students are exactly alike; no two students learn in exactly the same way.

Psychologists and educators have developed many theories of learning and identified an array of learning styles. Some learning style theories concentrate on the sensory pathways that students use to learn. Other theories focus on the physical environment in which learning takes place. Still others emphasize social interaction as it relates to learning.

It is important to realize that the way someone learns is not an indicator of intelligence. Two people of similar levels of intelligence may learn best using two different styles of learning. While there are no indications that one learning style is better than another, it is true that certain teaching methods and modalities favor certain learning styles. While a variety of preferred learning styles is represented in every classroom, it is not nearly as important that you recognize and label each student's preferred learning style as it is that you use a variety of modalities to present and reinforce the concepts and skills you are trying to teach.

Your goal as teacher is to help all of these students learn regardless of their preferred learning style. In order to effectively teach these diverse groups, you need to understand the different learning styles and tailor your teaching to meet the needs of all of your students. Some people learn best from reading, while others need to see a demonstration or touch something. Still others may learn best when they hear the information.

Many people may have a dominant learning style; however, most can adapt their learning style to the demands of the material to be learned. It is also important to note that while students have a preferred learning style, they can benefit from teaching that incorporates a variety of modalities and should be encouraged to explore new options for learning. Given the opportunity and some encouragement, the student may discover a new way of learning.

Today's textbooks offer a wide range of features in an effort to help you accommodate the learning styles of all your students. In some cases

## PRINT LEARNERS

*Give it to me in writing, please. I can understand and respond better to your ideas if I can see them in print.*

—Editor

## VISUAL LEARNERS

*When I cook, I want a recipe—preferably one with pictures. I definitely want to see what the finished product is supposed to look like and I also appreciate those step-by-step illustrations.*

—Lawyer

activities or projects are identified as appropriate for a specific learning style. Although you might not incorporate every feature into your lesson plans, it is well worth your time to review the features and determine which ones might work well for you and your students.

School counselors, school psychologists, and testing specialists are good resources for information about determining an individual student's preferred learning style. Depending on your school system's policies and the individual needs of students, some students' learning styles may already have been evaluated using commercially available inventories.

While this section highlights some of the characteristics of learning styles, the emphasis is on understanding that individual differences and preferences play an important role in learning. Your choice of lectures, activities, projects, and assignments have a significant impact on your students' success. Adding diversity to your teaching will accommodate the learning styles of your students and make your teaching more exciting and enjoyable.

Print learners prefer to see the data in print—preferably printed in words. When introducing course concepts or the steps of a process, print learners like to read about the information and then study an illustration or other visual aid. Visual learners also benefit from seeing assignments in print.

- ❑ When presenting key terms and concepts, refer to the textbook and use the textbook examples. Print learners can later go back and study the material.
- ❑ Consider using handouts and study sheets. Students can also make their own study sheets. Word games can help print learners grasp key terms and concepts.

Visual learners need to “see” the concept. One way for learners to “see” the idea is through visualization. Discuss basic concepts using an overhead transparency or the board. In addition, ask students to make a mental picture before you write a descriptive phrase or idea on the transparency or board.

Visual aids are particularly important to visual learners. Today's textbooks are filled with images. For some students, these images are the key to learning; for others, they offer reinforcement. In addition to the visual images in the textbook, overhead transparencies, videotapes, slides, and presentation graphics can all be used to help students visualize concepts and skills. Web sites with rich multimedia components can be used effectively to demonstrate processes or explore concepts.

## AUDITORY LEARNERS

*Hearing it helps me learn. I like it when the teacher explains things during class. Sometimes I read out loud or make a tape. When my mom helps me study, we talk and I learn.*

—Eighth-Grade Student

## TACTILE LEARNERS

*My son is a tactile learner. I didn't know what a tactile learner was until the teacher explained it. Now that we have some insight my husband and I are able to help him.*

—Graphic Designer

Demonstrations allow visual learners to see what you are doing as you do it. Manipulatives provide visual cues for all learners, but are particularly helpful to visual learners. Visual learners also benefit from seeing assignments in print.

- ❑ Videotape a demonstration and offer the tape as a study aid.
- ❑ Make a point of focusing on charts, diagrams, graphs, illustrations, maps, photographs, and tables while explaining a concept.
- ❑ Write assignments on the board and remind students to write them in their planners.
- ❑ Create graphic organizers the help understand the key content of the lesson.

Auditory learners learn best by hearing. Auditory learners who read a textbook lesson benefit from spoken reinforcement of key ideas. Consider asking other teachers, guest speakers, and family members to address your class. Ask students to summarize their reading as part of discussion activities. Read directions for assignments aloud and be sure to tell auditory learners the steps involved in a new process or procedure.

- ❑ Develop a vocabulary activity patterned after a spelling bee. This kind of activity offers the added benefits of social interaction, competition, and movement.
- ❑ Identify steps through lecture or a taped tutorial.
- ❑ Have students recite steps to each other in pairs or in small groups. In a group of three, for example, each student should get the opportunity to explain the procedure to the other two students. Through this process, each student in the group will explain the procedure once and hear the procedure twice.
- ❑ Use student oral presentations to help summarize or reinforce key, concept understanding.

Tactile learners learn best by touching or handling objects. By fourth grade, tactile learners appreciate learning activities that use fine motor skills including writing. Manipulatives are particularly important to tactile learners. They also benefit from participating in hands-on activities, role playing, and creating displays. Tactile learners remember what they did and how they did it; they do not necessarily remember what they saw others do or what they heard.

- ❑ After demonstrating a procedure to the class, have a student repeat the demonstration. Allow other students to coach the demonstrator.
- ❑ When activities include taking on roles, repeat the activity until each student has a chance to play each role.

## **KINESTHETIC LEARNERS**

Kinesthetic learners achieve best by taking an active part in classroom instruction. Motion is an important part of kinesthetic learning—including motion that is not specific to the learning process. Simply allowing students to move about the classroom can be particularly helpful to kinesthetic learners. For example, walking to the board to work a problem involves the motions required to walk and write.

- ❑ Design activities that require students to move from station to station within the room.
- ❑ During some activities, allow students to move about the room to use certain resources—for example, a dictionary, pencil sharpener, or sink.
- ❑ Allow students to use technology tools that are available in the classroom to complete assignments.



# LEARNING IN CONTEXT

Contextual learning is learning that occurs in the context of an actual experience or in close relationship to an actual experience. It links school and work experiences to help students develop career-related behaviors and skills. These skills, while related to work, also include basic skills needed for all aspects of life. Other terms that have been used to convey similar ideas include experiential education, authentic education, and real-world education.

The National Transition Alliance for Youth with Disabilities (now disbanded) developed a framework that emphasizes four areas of contextual learning: employment skills instruction, career and vocational curricula, community-based learning, and structured work experience. The components of each area are listed below.

## **Employment Skills Instruction**

- ❑ Work-related behaviors and skills training
- ❑ Job-seeking training
- ❑ Occupation-specific skill training

## **Career and Vocational Curricula**

- ❑ Career awareness and exploration are included in the curriculum
- ❑ Academic content and performance standards are integrated in the curriculum
- ❑ Both school-based and work-based components are included in the curriculum
- ❑ Applied learning methodologies are used to deliver instruction
- ❑ Innovative teaching methodologies are used to deliver instruction

## **Community-Based Learning**

- ❑ Health, safety, and legal issues are addressed
- ❑ Worksite experience is supported by individual student learning plans

	<b>Structured Work Experience</b> <ul style="list-style-type: none"> <li>❑ Job shadowing</li> <li>❑ Apprenticeships</li> <li>❑ Paid work experiences</li> <li>❑ Work study program</li> <li>❑ Job placement services (prior to school exit)</li> </ul>
<b>WHO CAN BENEFIT</b>	<p>It is easy to see how contextual learning relates to careers that have traditionally included on-the-job training or apprenticeships. But there is growing evidence that all students can benefit from learning in context. For example, it can offer opportunities for enrichment and acceleration for gifted students. For at-risk students, it can provide role models that they might otherwise not encounter. Movement to and from the workplace, coupled with on-the-job activities can provide appropriate stimulation to encourage a kinesthetic learner.</p>
<b>ROLE OF THE TEACHER</b>	<p>Contextual learning requires a large-scale commitment of administrators, teachers, parents, and business and community members. Teachers can, and do, play a significant role in the development and implementation of contextual learning programs.</p> <p>Once a program is implemented, contextual learning takes students and teachers away from the confines of the classroom. While some classroom activity is replaced by learning in the workplace, the teacher's role is not diminished. Instead the teacher's role is enhanced to include collaboration with business and community members, planning learning experiences, and observing students in the workplace.</p>
<b>COMMUNITY RESOURCES</b>	<p>Contextual learning can take place in a variety of real-world settings. Most businesses can provide an authentic experience for a student. Government agencies and non-profit organizations are also appropriate locations for contextual learning. Unions can be a supportive partner for careers that require apprenticeships.</p>
<b>PRACTICAL CONSIDERATIONS</b>	<p>Implementation of contextual learning presents some practical challenges including scheduling and transportation. Meaningful, authentic work experience does not fit comfortably into the traditional class period. Schools must develop alternatives to the traditional school schedule in order to successfully implement contextual learning programs.</p> <p>The basic premise of contextual learning requires students to leave the school campus. In many communities, schools will need to coordinate</p>

## **IN THE CLASSROOM**

transportation to and from the workplace. Safe, timely, and appropriate transportation is a key to a successful program.

Although the underlying premise of contextual learning involves real-world learning, there are some opportunities to make learning in the classroom more authentic. Four traditional learning activities that encourage learning to occur in close relationship to actual experiences are laboratory activities, simulations, field trips, and performance assessment activities. Role playing, enactment, and reenactment activities can also provide contextual learning experiences.

# THE LEARNING ENVIRONMENT

## CLASS ARRANGEMENT

Whether at work, school, or play, our physical surroundings affect us. Shooting baskets in the driveway is a far different experience from playing on a regulation-size court with a high-quality hardwood floor. Staging a theatrical production in a state-of-the-art fine arts facility is not the same as putting on a play in the basement of an old school building. Answering telephones in a makeshift office at a community crisis center is a far cry from being the receptionist in the plush offices of a multimillion-dollar corporation.

In the above examples there are positive and negative aspects to all of the settings depending on what you are trying to accomplish. The same is true of the traditional classroom—a desk for the teacher and rows of desks for students. Although this model may work well for a traditional lecture, it needs to be modified to accommodate the variety of activities of today's classroom.

As you add variety to your teaching to help accommodate students with various learning styles, you may need to alter the physical arrangement of your classroom to make it conducive to demonstrations, small group activities, computer instruction, and individualized instruction. Some teachers may prefer to move furniture to accommodate a particular lesson or activity, while others may want to rearrange the classroom into sections. Whichever method is used, it is important to arrange the room so that it benefits your students.

### **DEMONSTRATIONS**

Effective demonstrations require that all students be able to see each step. Some demonstrations for an entire class can be conducted well with students remaining in their seats or standing around the demonstration area. In other cases it may be appropriate to conduct a series of demonstrations for small groups. You might even consider giving a single demonstration to a small group of students who can then repeat the demonstration for classmates. Making a videotape of the demonstration provides students with a valuable study aid.

## ***VISUAL AIDS FOR LECTURES***

Slides, overhead transparencies, and presentation graphics enhance lectures. In order for students to benefit from these visual aids they need to be able to see them clearly. Proper lighting improves the effectiveness of visual aids. It is better to avoid turning off the lights if you expect students to take notes and remain alert. It may also be necessary to move students' desks close together to accommodate better viewing.

## ***VIDEOTAPES***

Videotapes can be presented to an entire class, small groups, or individuals. You may need more than one monitor if you show a videotape to an entire class. Headphones allow students to use a videotape in the classroom without disturbing others. Relocating your class to a media center, small auditorium, or multipurpose room may be an option. Sometimes a change of environment enhances the learning experience.

## ***SMALL-GROUP ACTIVITIES AND DISCUSSIONS***

Moving desks to form small clusters is appropriate for some activities and discussions. Some situations require a small group to work independently while the rest of the class is involved in another activity. Consider letting the small group move to a separate area within the classroom or another room, such as the library. If small-group activities are regular occurrences, consider setting up an area in the classroom to accommodate these groups. Separate the area from the rest of the classroom with plants, filing cabinets, bookshelves, or other items.

This designated area can also be used for individualized instruction. Although individualized instruction can take place anywhere in the classroom, there may be times when it is important to have more privacy as you work one-on-one with a student.

## ***COMPUTERS***

Having computers in the classroom provides many opportunities for learning, but it also presents some logistical challenges. Whether you have one computer, several computers, or enough computers for every student, you need to figure out where to put them and how to incorporate them into your lessons.

One computer should be set up for demonstrations and presentations. Ideally it should be connected to a large monitor or projection device. All computers should have adequate workspace to accommodate books and notebooks that are needed to complete assignments. If all students have computers, set up the class so that you can circulate easily among students.

## **LIGHTING, TEMPERATURE, AND SOUND**

### **RESOURCE CENTER**

In-class resources are often needed when activities and projects are assigned. Consider setting up a special area in the classroom for resources that will be used regularly. Sometimes this area will have basic items including dictionaries, pencil sharpeners, and staplers. In other classrooms, the resource center may include reference books, videotapes, or manipulatives. This area can also be used for additional resources and supplies needed for specific assignments.

Being comfortable is important to any learning situation. While it is almost impossible to accommodate every student's preferences related to lighting, temperature, and sound, you can make some accommodations without disturbing other members of the class. Temperature and lighting may vary throughout the classroom. Allow students to sit where they are most comfortable. Some students need absolute quiet in order to concentrate, while others not only enjoy listening to music but also insist that it helps them concentrate.

- ❑ Allow students to use headphones to listen to music while studying or completing assignments involving reading, writing, and working problems.
- ❑ Within reason, allow students to wear comfortable clothing.
- ❑ Give window seats to those who prefer them.

# SOCIAL INTERACTION

## COLLABORATIVE LEARNING

Classrooms are full of social interaction. In fact, lectures, demonstrations, discussions, and activities demand various levels of social interaction. Most students enjoy this and benefit from discussion and collaboration. Some actually need it in order to learn.

Collaborative learning provides a framework for using group activities in your classroom. While the ultimate goal of any group activity is for students to learn the content and concepts prescribed by the curriculum, cooperative learning has added benefits. It allows students to work together while sharing responsibility for learning and accepting responsibility for their own performance. It promotes teamwork, communication, and the development of higher-order thinking skills.

It is important for students to understand the collaborative learning process. Students must know that:

- ❑ They must participate and share responsibility for learning.
- ❑ They will be held accountable for their contribution to the group.

Collaborative learning can be implemented through many methods and is appropriate for a wide variety of activities. A common thread in all collaborative learning is teacher commitment to organize, supervise, and assess the learning process. Several approaches to collaborative learning have been formalized including jigsaw and Student Teams Achievement Divisions (STAD). Once you are familiar with these approaches you will undoubtedly have your own ideas of how to incorporate collaborative learning in your classroom.

### **JIGSAW**

Divide the chapter or lesson into smaller sections. Create teams and assign one of the sections to each member of each team. Have all students that are assigned the same section meet as group. These groups will read, discuss, and summarize their assigned section. They will also decide how to report their findings to their original teams. Have the original teams meet and the section experts explain their sections.

### **STUDENT TEAMS ACHIEVEMENT DIVISIONS (STAD)**

After presenting a lesson, divide the class into teams of four. Each team is responsible for making sure that everyone in the group understands the material that was presented. All students take a quiz—students work independently. Each student's quiz score is compared to his or her average score for previous quizzes. Teams earn points based on individuals maintaining or improving quiz averages. Teams can compete against each other or work toward a point goal. New teams should be formed regularly.

### **ALTERNATE APPROACHES**

Other less formal approaches to collaborative learning are identified below:

- ❑ **Cases:** Divide the class into groups of four or five students. Using cases presented in the textbook, ask each group to analyze the cases and arrive at agreed-upon solutions. Appoint one member of each group the recorder and instruct him or her to present the group's analysis to the class.
- ❑ **Demonstrations:** Divide the class into small groups or pairs of students. Have the students prepare and conduct a demonstration for the entire class.
- ❑ **Group Writing:** Divide the class into small groups with three or four members. Assign a reading and have students work together to summarize the key points and write a short report.
- ❑ **Homework Partners:** Assign partners to review each other's homework and make suggestions for improvement. Permit students to revise their work based on their partner's input.
- ❑ **Research Project:** Divide the class into small groups or pairs of students. Have students research a topic and deliver a presentation to the entire class. Each member of the group should participate in the research and presentation.
- ❑ **Simulations:** Assign students to roles within the simulation that take advantage of their personal interests, academic strengths, and learning style preferences.
- ❑ **Study Aid:** Divide the class into small groups. Assign a section of the chapter to each group and have them develop an appropriate study aid.



## **IMPLEMENTING COLLABORATIVE LEARNING**

### ***FORMING GROUPS***

Heterogeneous, rather than homogeneous, groups form the cornerstone of collaborative learning. Group composition should include a mixture of genders, ability levels, cultural or ethnic backgrounds, and learning styles. The goal is to get a mix of students, not to create parallel groups. As you select group members, be sure that the groups are heterogeneous and try not to “pigeon hole” students. In some cases random assignment may yield the best mix of students.

Groups should be formed for each new activity or group of related activities. Occasionally it is appropriate for students to form their own groups. This is particularly true for projects that will be completed outside of the classroom. For example, if students are expected to pick their own topic for a particular project, they may prefer to work with other students who have selected the same topic. Some may choose to work with friends, but others will choose to work with those with whom they have worked previously.

### ***SETTING TIME LIMITS***

It is important to set time limits that allow students to complete the activity without wasting precious time. With some experience, you will be able to establish a maximum amount of time for completion of an activity. It is important to provide direction for groups who finish early.

### ***SELECTING ACTIVITIES***

Instructional materials include many features that are specifically designed for the collaborative learning process or that can easily be adapted to the process. Some of these features are:

- ☐ Activities
- ☐ Cases
- ☐ Demonstrations
- ☐ Chapter review questions and/or problems
- ☐ Group investigation
- ☐ Projects
- ☐ Questions for critical thinking
- ☐ Research projects
- ☐ Vocabulary review

Other features may also be appropriate for collaborative learning. Be sure to check out features with these key words or phrases:

- ❑ Cultural diversity
- ❑ Ethics
- ❑ Careers
- ❑ Technology
- ❑ International/global
- ❑ Communications
- ❑ Cross-curricular

### ***IDENTIFYING ROLES***

An activity's structure may require students to assume specific roles. If specific roles are important to an activity, they should be identified when the assignment is made. Once the roles are identified you must decide whether to assign roles or let students volunteer within their groups. You might consider alternating between assigning roles and letting students work out the roles of the group members themselves. Sometimes the groups actually choose someone as the spokesperson and other times a group member assumes the role.

### ***EVALUATION***

The success of collaborative learning is dependent on each student being held accountable for his or her contribution to the activity. Evaluation methods will vary with the activity. For some activities all members of a group will receive the same grade or score. In other situations you will be able to observe and evaluate individual contributions. Some activities do not result in direct evaluation, but the outcomes are reflected in quizzes and tests.

Scoring rubrics that allow groups and teachers to evaluate the work can be effectively used to communicate expectations for the activity and to make students responsible for their work. A good scoring rubric defines the expected outcomes of the activity.

## **WORKING ALONE**

The need for and benefits derived from learning in groups varies among learners. Some students prefer to mix group learning with independent learning. Students need to determine a comfortable mix for their own learning. Providing choices for students is a key to helping them achieve balance. Textbooks and other instructional materials provide many features that accommodate or can be adapted to students' preferences and need to work alone. It is sometimes beneficial to let students choose what suits them best.

## **SUMMARY**

This book provides practical ideas for helping you accommodate the diverse needs of your students. Implementing these ideas as you plan lectures, activities, projects, and assignments can have a significant impact on your students and their ability to maximize their potential in your classroom.

Recent advances in brain research, including brain chemistry, are addressing issues surrounding how learning takes place. One central theme included in all new findings is that there are differences in the ways individuals learn. It is logical to conclude that a variety of teaching methods and modalities are required to successfully teach in today's diverse classroom.

# INTERNET RESOURCES

The Internet is home to many valuable resources related to teaching diverse populations and addressing diverse learning styles. Some or all of the sites below may be of interest to you. Inclusion in this list should not be deemed as an endorsement of the content, ideas, and products offered at any of the sites. Finally, because the Internet is such a dynamic environment, you may find that these sites are no longer active or have been completely redesigned.

## **GENERAL**

- ❑ Americans with Disabilities Act  
**[www.ada.gov](http://www.ada.gov)**
- ❑ National Centre for Technology in Education  
**[www.ncte.ie/SpecialNeedsICT](http://www.ncte.ie/SpecialNeedsICT)**
- ❑ Adaptive Technology Center for New Jersey Colleges  
**<http://adaptivetechnology.tcnj.edu>**

## **AT-RISK STUDENTS**

- ❑ Bureau for At-Risk Youth  
**[www.at-risk.com](http://www.at-risk.com)**
- ❑ U.S. Department of Education, Office of Educational Research and Improvement  
**[www.ed.gov/offices/OERI/At-Risk](http://www.ed.gov/offices/OERI/At-Risk)**

## **CONTEXTUAL LEARNING**

- ❑ Association for Career and Technical Information  
**[www.acteonline.org](http://www.acteonline.org)**
- ❑ Center for Occupational Research and Development, Inc., Contextual Learning Resources  
**[www.cord.org](http://www.cord.org)**
- ❑ Advanced Technology Environmental Education Center, Teaching for Contextual Learning  
**[www.ateec.org/learning/instructor/contextual.htm](http://www.ateec.org/learning/instructor/contextual.htm)**
- ❑ Texas Collaborative for Teaching Excellence, What is Contextual Learning?  
**[www.texascollaborative.org/whatisCTL.htm](http://www.texascollaborative.org/whatisCTL.htm)**

- ❑ University of Southern California, Teaching & Learning  
**[www.usc.edu/programs/cet/resources/learn/context.html](http://www.usc.edu/programs/cet/resources/learn/context.html)**

### ***HEARING IMPAIRMENT***

- ❑ National Institute on Deafness and Other Communication Disorders; Statistics on Voice, Speech, and Language  
**[www.nidcd.nih.gov/health/statistics/vsl.asp](http://www.nidcd.nih.gov/health/statistics/vsl.asp)**
- ❑ National Association for the Deaf . Search on "education."  
**[www.nad.org](http://www.nad.org)**

### ***LEARNING DISABILITIES***

- ❑ Internet Special Education Resources (ISER)  
**[www.iser.com](http://www.iser.com)**
- ❑ Layered Curriculum, Dr. Kathie Nunley's Site for Educators  
**[www.help4teachers.com](http://www.help4teachers.com)**
- ❑ LD OnLine  
**[www.ldonline.org](http://www.ldonline.org)**
- ❑ National Institute of Mental Health. Search on "learning disabilities."  
**[www.nimh.nih.gov/publicat/learndis.htm](http://www.nimh.nih.gov/publicat/learndis.htm)**
- ❑ Learning Disabilities Association of America  
**[www.ldanatl.org](http://www.ldanatl.org)**
- ❑ National Center for Learning Disabilities, Inc.  
**[www.ncld.org](http://www.ncld.org)**

### ***LEP***

- ❑ Resources on Bilingual Education and ELL  
**[www.4teachers.org/profdev](http://www.4teachers.org/profdev)**
- ❑ Teachers of English to Speakers of Other Languages (TESOL)  
**[www.tesol.org](http://www.tesol.org)**

### ***VISUAL IMPAIRMENT***

- ❑ American Foundation for the Blind  
**[www.afb.org](http://www.afb.org)**
- ❑ Oregon State University, Dept. of Physics, Science Access Project  
**<http://dots.physics.orst.edu>**
- ❑ National Center to Improve Practice in Special Education Through Technology, Media and Materials; Technology for Students Who are Visually Impaired Collection  
**[www2.edc.org/NCIP/library/vi/toc.htm](http://www2.edc.org/NCIP/library/vi/toc.htm)**

## RECOMMENDED READING

Armstrong, Thomas. *The Multiple Intelligences of Reading and Writing*. Alexandria, VA: Association for Supervision & Curriculum Development, 2003.

Armstrong, Thomas. *ADD/ADHD Alternatives in the Classroom*. Alexandria, VA: Association for Supervision & Curriculum Development, 1999.

Campbell, Linda, Bruce Campbell, and Dee Dickinson. *Teaching & Learning Through Multiple Intelligences*. Needham Heights, MA: Pearson Allyn and Bacon, 1998.

Chapman, Carolyn. *If the Shoe Fits: How to Develop Multiple Intelligences in the Classroom*. Thousand Oaks, CA: Corwin Press, 1993\*.

Gardner, Howard. *Multiple Intelligences: New Horizons in Theory and Practice*. New York: Basic Books, 2006.

Gardner, Howard. *Intelligence Reframed: Multiple Intelligences for the 21st Century*. New York: Basic Books, 2000.

Johnson, Elaine B. *Contextual Teaching and Learning: What It Is and Why It's Here to Stay*. Thousand Oaks, CA: Corwin Press, 2001.

Kottler, Jeffrey A. and Ellen Kottler. *Children With Limited English: Teaching Strategies for the Regular Classroom*. Thousand Oaks, CA: Corwin Press, 2001.

Sarasin, Lynne Celli. *Learning Styles Perspectives, 2E*. Madison, WI: Atwood Publishing, 2006.

Warner, Jack, Clyde Bryan, and Diane Warner. *The Unauthorized Teacher's Survival Guide, 2E*. Indianapolis, IN: Park Avenue Productions Publications, 2005.

\*As of the date of this publication, Carolyn Chapman's book was being revised but was not yet in print.