Principle 3

Understands Diverse Learners:

The teacher understands how students differ in their approaches to learning and creates instruction opportunities that are adapted to diverse learners.

Looks like, Feels like, and Sounds like:

Welcomes all students to classroom; identifies the resources that students bring to their educational situation; understands academic abilities, learning styles, personalities, interests, background knowledge and experiences, and levels of motivation for learning; develops a plan of action to develop and enhance each student
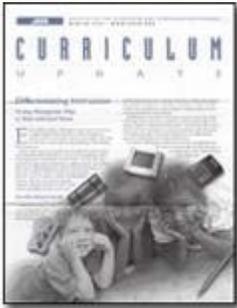
Differentiating Instruction

Finding Manageable Ways to Meet Individual Needs

Scott Willis and Larry Mann

Every child is unique. Although we may rejoice in this fact, it poses a dilemma for educators. When students are diverse, teachers can either "teach to the middle" and hope for the best, or they can face the challenge of diversifying their instruction.

Today, more and more teachers are choosing the second option. Determined to reach all students, teachers are struggling to tailor their instruction to individual student needs. They are striving to provide the right level of challenge for gifted students, for students who lag far behind grade level, and for everyone in between. They are working to deliver instruction in ways that meet the needs of auditory, visual, and kinesthetic learners. And they are trying to tap into students' personal interests. In short, these teachers are differentiating instruction.

One Size Doesn't Fit All

Differentiated instruction is a teaching philosophy based on the premise that teachers should adapt instruction to student differences. Rather than marching students through the curriculum in lockstep, teachers should modify their instruction to meet students' varying readiness levels, learning preferences, and interests.

Differentiated instruction is not a new concept, experts say. Back in the days of the one-room schoolhouse, when students ages 6–16 learned together, differentiated instruction "was how they did school," notes Carol Ann Tomlinson, an associate professor at the University of Virginia and author of the 1999 ASCD book *The Differentiated Classroom: Responding to the Needs of All Learners*.

The need to differentiate instruction is obvious, proponents say. "We want to accommodate the full diversity of academic needs" that students bring to the classroom, says Susan Demirsky Allan, assistant superintendent for curriculum and instruction for the Grosse Pointe, Mich.,

public schools. "We know those differences are out there, and we have to recognize that reality," Allan says. "Teachers can't assume they have 25 clones sitting in front of them." Without differentiated instruction, any child who varies from the norm will suffer, she contends. Traditional schools are "designed for organized, left-brain learners who are book lovers," says Donna Strigari, principal of Frank J. Smith School in East Hanover, N.J., and cofacilitator of ASCD's network on differentiated instruction. This type of learner, however, represents only one-quarter of the population, Strigari says. To meet the needs of all students, educators need to "break the old patterns" of teaching and change perceptions of what school should be like, she asserts.

Living Our Beliefs

Nearly all teachers believe that it's better to differentiate instruction, experts agree—but the challenge lies in translating that belief into action. According to Tomlinson, teachers can differentiate three aspects of the curriculum: content, process, and products.

- *Content* refers to the concepts, principles, and skills that teachers want students to learn. All students should be given access to the same core content, Tomlinson believes. Struggling learners should be taught the same big ideas as their classmates, not given watered-down content.
  "Teachers should address the same concepts with all students but adjust the degree of complexity," Tomlinson emphasizes. "The same concept can be explained in a way that's comprehensible to a very young child or in a way that challenges a Ph.D. candidate." To illustrate this point, she cites the example of a professor whom she observed teaching Shakespearean sonnets—with great success—to 1st graders.
  Content also refers to the means teachers use to give students access to skills and knowledge, such as texts, lectures, demonstrations, and field trips. Teachers can vary these vehicles as well, Tomlinson says. For example, a teacher might direct an advanced learner to complex texts, Web sites, and experts to interview, while providing a student of more modest capacity with reading buddies, videos, demonstrations, and "organizers that distill information and make it more accessible."
- *Process* refers to the activities that help students make sense of, and come to own, the ideas and skills being taught. Teachers can modify these activities, Tomlinson advises, to provide some students with more complexity and others with more scaffolding, depending on their readiness levels. (Examples of scaffolding include step-by-step directions, reteaching, and additional models.) Like content, process can be varied by student interest and learning preferences as well.
- *Products* refers to culminating projects that allow students to demonstrate and extend what they have learned. Products reveal whether students can apply learning beyond the classroom to solve problems and take action. Different students can create different products, Tomlinson suggests, based on their readiness levels, interests, and learning preferences. For example, some students might work alone on a product, while others might work in groups.

This approach—differentiating content, process, and products—requires teachers to be "crystal clear" about what they are trying to teach, Tomlinson says. "Often, that's where we miss the boat."

Moreover, the curriculum needs to be based on broad concepts, Allan says. If it's based on "factoids," then differentiation will be very difficult, she cautions.

What Are the Strategies?

Teachers who differentiate instruction rely on a number of strategies to make it feasible, experts say. "There's not one miracle thing that works for every child," says Patricia Woodin- Weaver, an education consultant and counseling psychologist from East Hanover, N.J., who cofacilitates ASCD's network on differentiated instruction. "You need a range of strategies." Network members have used strategies such as cooperative learning, multi-age grouping, and addressing multiple intelligences, Woodin-Weaver says.
Flexible grouping is essentially a must, experts agree. "If you don't use flexible grouping, it's almost impossible to differentiate instruction," Allan says. Trying to vary instruction without grouping students is simply too "unwieldy."
Teachers can vary whole-class instruction by teaching small groups or individual students, Tomlinson suggests. Students can be grouped based on readiness, interest, or learning profile. And, she points out, groups don't necessarily have to be homogeneous. A teacher might group students with a similar readiness level (e.g., for reading instruction) or with a dissimilar one (e.g., to discuss a book they all love).

Another helpful strategy is using "tiered activities," where the teacher keeps the concepts and skills the same for all students but provides "routes of access" that vary in terms of complexity, abstractness, and open-endedness, Tomlinson says. Other strategies include using stations, compacting, and agendas (see box, "Strategies for Differentiating Instruction").

Strategies for Differentiating Instruction

Nearly all educators agree with the goal of differentiating instruction, but teachers may lack strategies for making it happen. Here are some of the many strategies—in addition to flexible grouping and tiered activities—that teachers can use to avoid lockstep instruction:

Stations. Using stations involves setting up different spots in the classroom where students work on various tasks simultaneously. These stations invite flexible grouping because not all students need to go to all stations all the time.
Compacting. This strategy encourages teachers to assess students before beginning a unit of study or development of a skill. Students who do well on the preassessment do not continue work on what they already know.
Agendas. These are personalized lists of tasks that a student must complete in a specified time, usually two to three weeks. Student agendas throughout a class will have similar and dissimilar elements.
Complex Instruction. This strategy uses challenging materials, open-ended tasks, and small instructional groups. Teachers move among the groups as they work, asking students questions and probing their thinking.
Orbital Studies. These independent investigations, generally lasting three to six weeks, revolve around some facet of the curriculum. Students select their own topics, and they work with guidance and coaching from the teacher.

Entry Points. This strategy from Howard Gardner proposes student exploration of a given topic through as many as five avenues: narrational (presenting a story), logical-quantitative (using numbers or deduction), foundational (examining philosophy and vocabulary), aesthetic (focusing on sensory features), and experiential (hands-on).

Problem-Based Learning. This strategy places students in the active role of solving problems in much the same way adult professionals perform their jobs.

Choice Boards. With this strategy, work assignments are written on cards that are placed in hanging pockets. By asking a student to select a card from a particular row of pockets, the teacher targets work toward student needs yet allows student choice.

4MAT. Teachers who use 4MAT plan instruction for each of four learning preferences over the course of several days on a given topic. Thus, some lessons focus on mastery, some on understanding, some on personal involvement, and some on synthesis. As a result, each learner has a chance to approach the topic through preferred modes and also to strengthen weaker areas.

Adapted and condensed from the 1999 ASCD book *The Differentiated Classroom: Responding to the Needs of All Learners* by Carol Ann Tomlinson.

In the Elementary Classroom

Teachers from kindergarten to 12th grade are making use of these strategies in their classrooms, experts say. At the elementary level, teachers are using differentiated instruction to ensure that all of their students learn foundational skills.

First grade teachers Gail Canova and Lena Contey at Frank J. Smith School in East Hanover, N.J., use supported reading activities to help young learners of various abilities strengthen reading skills. On Mondays, Canova and Contey read stories to the entire class but break the class into groups according to challenge levels for the next three days. On Fridays, the whole class reviews the story once more to measure improvement and reinforce learning.

To help students of differing abilities improve writing skills, Canova and Contey have established peer tutoring groups. In the groups, children read their work aloud and help one another with spelling and editing as they create their own books. A writing activity that differentiates on the basis of student interest is the monthly class newsletter, for which the children write stories independently on topics of their choice. Students love to see their names in print, both teachers note.

Pat Rutz, a 1st and 2nd grade teacher at Abbot Elementary School in Ann Arbor, Mich., differentiates for advanced learners by using curriculum compacting. If some of her students have mastered the concept of place value, for example, they can pursue higher-level math work independently while she works with the rest of the class, she explains.

To be ready for young learners whose abilities outrun the rest of the class or who need extra help, Rutz has prepared "math boxes" that offer activities aimed above and below grade-level expectations for each math concept. During any lesson, "everybody's doing the same work," she points out, "but at different levels of complexity. Everyone works on something that's going to move them ahead."

At Riverheads Elementary School in Staunton, Va., 4th grade teacher Laurie Biser differentiates math lessons according to processes. Some students work better with paper and pencils, some need manipulatives, and some learn best at the computer. "I have one student who uses a laptop computer all the time because of a writing disability," she says.

Because 4th graders must memorize multiplication facts and Biser knows that not everyone has the same skill at memorizing, she asks her students, "How do you think you could learn this best?" She finds that the activities students prefer are usually a key to how they learn most efficiently, so she often lets them choose whether to draw, write, use flash cards with a partner, or create three-dimensional models.

Biser also uses contracts as a means to differentiate instruction. Creating contracts requires a lot of advance work, she notes, but once the contracts are ready, students like them because they get to make choices according to interest and ability. For learning spelling words, Biser provides her students with contracts that list as many as 40 or 50 different activities, each worth between 10 and 20 points, depending on the level of activity. Students select their own spelling activities and have a week to complete their contracts with their work stapled to them. "This puts them in control of the grade they want to receive for their work," explains Biser.

Teacher Penny Shockley at Ephesus Elementary School in Chapel Hill, N.C., uses tiered assignments to engage her 5th graders at all levels of ability. When she begins the unit on perimeter, area, and volume, Shockley first presents a short, hands-on lesson that defines the whole-class objective and lays the foundation for individual practice. Together, she and the students measure various sizes of cereal boxes so that everyone is clear about definitions and processes.

Then, in groups of two, students receive activity packets. The more concrete learners receive packets with worksheets that direct them to measure their own desks and classroom furniture. In this highly structured activity, students practice calculating the perimeters, areas, and volumes of things they can actually see and touch. Shockley is on hand to offer help and to extend the activity, for those who are ready, by helping students find a way to arrange the desks so that they have the smallest possible perimeter.

Other students with greater abstract reasoning skills receive packets that direct them to design their own bedrooms. In this more complex and independent assignment, students use their creativity to define the dimensions of an imaginary bedroom and to create scale drawings. They also calculate the cost and number of five-yard rolls of wallpaper borders needed to decorate their rooms. From catalogs, they select furniture and rugs that will fit into their model rooms. These details provide extensive practice, beginning with such tasks as determining how many square feet of floor space remain uncovered. This open-ended assignment offers higher-ability students an opportunity to extend their learning as far as they want to take it.

"My job is to determine what each child needs, and it isn't the same for everyone," says Shockley. She notes that all students have the opportunity to earn *A*s within their own level of challenge.

At the Secondary Level

Teachers in middle schools and high schools are also using strategies for differentiating instruction, experts say. Wendy Raymond, 6th grade language arts teacher at Tappan Middle School in Ann Arbor, Mich., asks her students to select one of 30 thematically related books that she introduces. Then she groups students who are interested in the same titles, usually about four or five students per group, and teaches them how to function as a literature circle— students learn the roles of discussion directors, connectors (students who make connections to things in the real world), illustrators, literary luminaries (students who point out great figurative language), and vocabulary enrichers (those who identify words that most students might not know). With each new book, students regroup and jobs rotate, but each group sets its own schedule for discussions and assignments.

When Raymond's students come together for whole-class activities, they explore themes common to all of the books, followed by assignments that might require students to create their own short literary work that typifies the genre they have just studied. "The idea is to get kids to stretch themselves," says Raymond. "They can go as far with this as they want, and there are lots of different opportunities for achievement according to interest."

At Phillips Middle School in Chapel Hill, N.C., some of Rob Frescoln's 7th grade science students read at a 2nd grade level and others can handle college texts. To help all his students succeed with research papers, Frescoln provides science texts at several reading levels and uses mixed-ability groupings.

Each of five students in a mixed-ability group might research a different cell part by gathering information from books at her own reading level. Then groups split up so that all students with the same cell assignment compare notes and teach one another. Finally, students return to their original groups so that every member of each group can report to the others and learn about the other cell parts. "It's the coolest thing in the world to see a lower-ability kid teaching a higher-ability kid what he's learned," says Frescoln. This approach to differentiation helps motivate all students to push themselves just a little further, he says.

At Brownell Middle School in Grosse Pointe Farms, Mich., science teacher Marie DeLuca offers tiered assignments to help her 8th graders understand the concept of density. To start everyone off on the same foot, DeLuca uses an introductory lab activity that allows the whole class to compare the differing weights of identical volumes of sand and oil. The object is to determine whether a ship could carry the same amount of sand as it could oil, and how this manifests the property of density.

From this starting point, DeLuca assigns students an Internet activity that explores the causes of the sinking of the Edmund Fitzgerald—but at different levels of synthesis and analysis, depending on student ability. Homework assignments ask higher-ability students to design cargo boats, grade-level students to float an egg, and below-level students to determine which is more dense: a can of Classic Coke or a can of Diet Coke. They must perform a water displacement experiment to come up with the correct answer.

All students complete lab reports that DeLuca evaluates using a rubric. Analytical writing is the most important element of the rubric, but students can earn an *A* grade as long as they support their conclusions with evidence found in their own particular assignments. The tests DeLuca

gives are also differentiated according to the tiered homework and lab activities. "It wouldn't be fair for everyone to do the same assignment and the same test," says DeLuca, "because everyone has different talents. The important thing is for everyone to have a certain degree of challenge."

At Quince Orchard High School in Gaithersburg, Md., social studies teacher Leon Bushe uses mock trials to differentiate instruction for 10th graders in his national, state, and local government class. Even though this is an honors class, Bushe finds that there is a wide variance in abilities, so he tries to differentiate instruction according to interest, task, and readiness. He finds that mock trials offer opportunities for all three modes of differentiation.

Dividing his class of 30 into three groups of 10, Bushe gives each group a court case involving a legal concept such as *beyond a reasonable doubt.* Students choose whether to be lawyers, witnesses, or defendants—whichever they feel most comfortable with. Every student has at least two roles, because each trial group also serves as the jury for another trial group. To prepare for their roles, students must complete individualized reading and writing assignments, but they all learn the basics of trial by jury.

One factor of Bushe's mock trials that heightens interest is that each jury deliberates in a fishbowl environment—that is, the rest of the class gets to observe the deliberations but may not speak or interfere. "When the jury goes off on a tangent or misinterprets something," says Bushe, "you see the lawyers on the edges of their chairs, almost ready to burst. But of course, they can't say anything."

The mock trials require a good deal of extra preparation because so many students have unique assignments and roles. But Bushe insists that by differentiating, "you're guaranteeing that more kids will understand what you're doing."

Making It Happen

Asking teachers to differentiate instruction raises a host of issues, experts freely admit— time, classroom management, and grading, among others. In the face of these challenges, how can an administrator encourage teachers to move in this direction?

"An administrator has to become knowledgeable about differentiation, both the philosophy and the classroom implications," says Allan. Administrators also need to provide "flexibility of funds" so teachers can use a variety of resources and are not stuck with one textbook. But "the critical factor is [sustained] staff development," Allan emphasizes. "You don't learn to differentiate instruction in a one-afternoon workshop."
At the school or district level, "you really need a person who guides the effort," Allan adds— someone who aligns staff development, curriculum, materials selection, and methodology. "It's a Herculean task administratively, but it's worth it," she says. "It's what we *should* be doing for kids."

In her role as staff development coordinator for the Rockwood, Mo., school district, Sue McAdamis has seen many teachers warm up to differentiated instruction. Three years ago, when she started pitching the idea to elementary teachers, McAdamis met with "terrible

resistance." But when a cadre of interested teachers were trained and began doing peer coaching, "that really put it in place," she says. "Those people became our critical mass." Today, differentiated instruction is "business as usual" in the district's elementary schools, she says.

When McAdamis broached the idea to middle school teachers, "they almost threw me out," she recalls. The teachers objected, saying that they lacked time, that they were dealing with large class sizes, and that differentiation ran counter to the middle school philosophy. "They were worried about tracking," McAdamis explains.

Differentiated instruction is *not* a form of tracking, Tomlinson states; it is "intended to be the exact opposite." Teachers must give every child access to the curriculum and ensure that every child makes progress, she says.

McAdamis notes that some of the middle school teachers who were initially the biggest resisters have become the biggest supporters. One science teacher was dragged into differentiated instruction "kicking and screaming," she says. Then the teacher tried a tiered activity and was stunned by the outcome. "For the first time ever," the teacher said afterward, "all of my kids understood the concept."

Principals are the key to making implementation work, McAdamis says. Principals' attitudes and the amount of support they provide are critical. In her district, principals have found money to hire substitutes, allowing teachers to make school visits and do peer coaching. "It's very helpful if principals attend staff development training," she adds.

Bob Bateman, principal of Riverheads Elementary School in Staunton, Va., took a three-credit university course on differentiating instruction as part of his district's effort to ensure that all students would receive appropriate instruction. Two staff members from each school took the course, then led staff development activities at their respective schools, he says.

At Riverheads, each teacher was asked to create or modify a unit of instruction in keeping with the principles of differentiated instruction. Bateman gave the teachers feedback on their units, then met with them again after they had taught the units. "I tried to stay really involved with it," he says.

Bateman also helped develop two sample units—one on oceans, one on regions of the United States—that were given to teachers as a guide. Through creating these sample units, "we learned a tremendous amount," he says. Similarly, McAdamis has compiled a book of teacher-developed activities and lessons that represent "best practices" in differentiated instruction.

A Challenge Worth Meeting

No one claims that differentiating instruction is easy. "There's no question that it's a big challenge," Woodin-Weaver says, "but there's no bigger challenge than trying to insert kids in a one-size-fits-all [classroom] and then having to deal with the spillover of emotional and behavioral reactions. If kids are not in a place where they can learn, they let us know loud and clear," she says.

Teachers are inspired to persevere with differentiated instruction when they see the results, Allan says. Students are more engaged and make more rapid progress. Bright students are no longer bored, and struggling students are finding learning more accessible—and hence their sense of self-efficacy is rising. In response, "I see veteran teachers becoming energized, and new teachers becoming enormously excited," Allan says. As one veteran teacher told her: "This differentiation is exhausting, frustrating, and time-consuming—and I would never go back to the old way."

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DIFFERENTIATION STRATEGIES

INFORMATION GATHERING
In order to gather needed data for an assignment the students can:
- Listen to books on tape
- Listen to a guest speaker
- Read textbooks in a small group
- Attend to a teacher lecture
- Allow students to preview materials before teacher lectures (map, calculator, literature book, with the inclusion teacher)
- Listen to pre-recorded lecture
- Allow student to compare notes with a peer
- Allow student to type lecture notes
- Highlight/underline prepared notes during lecture
- Teacher reviews lesson with small group/individuals
- Prepare tangibles before the lesson begins
- Write key points on the board/overhead
- Refer to examples of finished products

PROCESS
Each student does not have to explore the information in the same manner. Some adaptations are:
- Instead of reading the literature, student could listen to the book on tape
- Instead of manually completing ALL math problems, student could complete a few of the assigned problems with a calculator
- Instead of writing a rough draft, student could create an outline or checklist
- Student could explore the information on the computer or utilize the school's library
- Allow students to role play, participate in skits, create songs to help solidify content
- Pair students – allowing each student to discover a set of information and teach it to his/her peer

PRODUCT
Each student does not have to produce the same assignment to show mastery of a skill. Some adaptations are:
- Dictate information to a tape recorder/peer/teacher
- Use a computer program to generate product (essay, graphs, science project)
- Draw pictorial representations of knowledge (timeline, cartoons, story boards, etc.)
- Use concrete items to represent data/information (math problems, solar system, etc.)
- Create a portfolio of combined assignments
- Answer tests orally

SIZE/LENGTH OF ASSIGNMENT
Not all students require the same number of repetitions to demonstrate mastery. Here are some adaptations:
- Shorten the number of paragraphs/sentences.

- Reduce the number of math problems assigned.
- Avoid repeating efforts such as re-writing sentences, math problems or data already available to the student.
- Allow pairs of students to "divide and conquer" – each student completing a portion of the assignment.
- Allow students to complete half of a test/assignment at a time, then the other half at another time.

TIME
Depending on the subject matter and product, the amount of time needed to complete a product may be increased or decreased.
- On large, multi-step assignments, give students a timeline – check steps along the way and provide feedback.
- If the assignment requires the student to utilize resources that may be unavailable at home, increase the amount of class time given for completion of the product.
- If the information to be used to complete a product is very complicated, be sure to increase the amount of time in the learning process to be sure that students grasp the subject matter.
- If the assignment is complex and multi-step, allow students to "divide and conquer" – each student completing part and combining them for a final product.
- If the skill requires multiple repetitions to commit to memory, provide opportunities for students to practice when time presents itself (after completing another assignment, before the bell rings, etc.)

EVALUATION
The goal of evaluating students is to document that they have/have not mastered the skill. Accurate data collection is a must – it drives your instruction.
- Progress monitor frequently – using small informal checks to be sure that students are keeping up.
- Use your data to drive your instruction. Translation: If students are not catching on, differentiate the process and product and re-teach the material. Check again.
- Data collection is your lifeline – it guides your instruction and helps you plan your formal evaluations.
- Your data will tell you how students demonstrate knowledge of a skill – that will help you understand how you need to evaluate them.
- Example: If you data tells you that students demonstrate their knowledge of the solar system best by drawing, coloring and labeling it – then that is how you need to evaluate them.
- The goal of evaluation is for students to demonstrate mastery of a skill…How they demonstrate the skill is irrelevant.

NOTE: Always communicate with other teachers! They may already know what works with a particular student – two heads are better than one.