Section One

Understanding Differentiated Instruction

In this section, the lists offer teachers insight into understanding how differentiated instruction differs from traditional classroom instruction. Teachers will discover that teaching to the individual is methodical yet open for an infinite number of ideas and creativity.

List 1.1. A Vision for the Differentiated Instruction Classroom

Here are some characteristics of a differentiated instruction classroom:

- Students are engaged in learning; they are focused and on task 80 percent of the time.
- Teachers have a clear plan for the time spent in class. There is little wasted time or confusion over materials and protocols; instead, there is a sense of shared purpose.
- Students ask many questions and feel safe questioning.
- Everyone belongs. There is evidence of diverse personalities in the classroom through personalized materials, spaces, or use of nicknames.
- Time is divided into small learning chunks with checks for understanding in between concepts.
- Students hold one another accountable for rules and respect. The class agreements are posted on the wall and there are visual reminders of the class and school values.
- Quality work is valued and displayed in the classroom.
- Students know what is expected of their work by viewing examples of excellence and using rubrics to guide them toward mastery.
- Teachers are not at the front of the class all the time; they are learning alongside the students. When students write poetry, teachers do too and share their work with students.
- Students move from whole class discussion to group work with ease because training was provided and they understand the roles they take on during the group work.

List 1.2. One-Size-Fits-All Teaching Versus Differentiated Teaching

Differentiated instruction (DI) offers students a more responsive and personalized learning experience, and can be an alternative to the frustration and failure many students experience when learning is presented and assessed in the same way for each student. This list compares DI with the one-size-fits-all approach to teaching by providing examples so teachers can begin to see some key differences.

One-Size-Fits-All Teaching	Differentiated Instruction
Teachers answer all the questions.	Teachers redirect questions to students.
Every student writes on the same topic.	Students choose from a variety of topics.
Tests are all multiple-choice questions.	Tests have different sections that offer multiple ways to demonstrate learning.
Everyone reads the same book.	Students choose books according to their interests and reading levels.
For most class time, teachers are at the front of the room directly teaching all students the same materials.	Teachers guide students through activities rather than spend most of the time delivering content.
Teachers give only verbal directions.	Teachers give both oral and written directions; teachers may provide a sample of a project so students can see an expected outcome.
Class time is spent doing one kind of activity the entire time.	Class is broken down into seven- to ten-minute chunks with new activities for each chunk.
Teachers are viewed as the authority on all knowledge.	Teachers ask for student input on lessons, topics, and projects.
Students read in class and work on projects outside of class.	Students work with others in class and do things they can do on their own when they are not in class.
Students have one opportunity to perform, usually in the form of some kind of cumulative test at the end of a unit.	Students are provided examples of what quality work looks like, and their work is checked along the way with many opportunities for revision.

List 1.3. Small Things That Make a Big Difference

Differentiating instruction can seem like an overwhelming task. Teachers worry that given all the roles and responsibilities they must take on, the call to differentiate is simply too difficult. This list gives examples of small things teachers can do that will make a big difference in their classrooms.

- **When deciding where to begin, start with broad categories in mind and then work backward to the actual lesson plan.** As in "reverse engineering," take the big idea or point of the unit and lesson and start working backward to design a pathway toward that goal, including all the steps students will need to take to reach it. Start thinking about differentiating at the following four points: content (what is taught); process (how it's taught); product (how students demonstrate knowledge); and environment (where students learn). See List 3.1 for more help on backward design.

- **By making minor adjustments, such as supplementing oral instructions with written instructions or using diagrams to explain complex points, you can better reach a variety of learners and augment the learning of every student.** Teachers do not have to differentiate to meet the needs of every student, all the time. A common frustration occurs when teachers believe they have to provide more than twenty styles of assignments or assessments in every class. This would be impossible and create chaos. Instead, simple adjustments such as providing instructions in several formats—oral, written, diagram—helps students, regardless of learning style, have a better idea of what the teacher wants them to do and why.

- **Frequent simple knowledge checks—such as "thumbs up/thumbs down"—help ensure students are not left confused or lost in the middle of a lesson.** A teacher who realizes in the moment that students don't quite grasp certain points will save time from having to reteach material and diagnose students' misunderstandings in a subsequent class period.

- **Get to know all the students' names as quickly as possible.** When teachers know all the students' names, and one personal fact about each of them, students feel valued for the unique individual they are. Feeling known and valued is a key ingredient to success in school. Students perform better for teachers with whom they have a relationship than if they feel like they are a mere cog in the educational machine, just as teachers perform better when they feel valued by administrators rather than as someone sent to keep a desk or seat warm.

- **Partner with other teachers to share information and ideas.** Not all teachers have to do interest inventories on students. These can be shared. In fact, DI works best when partnerships occur across content areas and grade levels. When teachers work on teams or with partners to share ideas about what works, the process becomes easier. Likewise, finding areas where content overlaps helps students make concept connections between subject areas, thus making all their learning more meaningful.

List 1.3. (continued)

- **Provide choices to students about how to demonstrate learning rather than creating multiple standard assessments.** Students can demonstrate mastery of learning in many ways beyond a typical multiple-choice, fill-in-the-blank kind of test. In addition, this approach gives teachers a better picture of student mastery and understanding than typical end-of-unit tests. Choice also allows students to take advantage of the best way to present their ideas.

  ***Example**: Culture study*. Students compare and contrast two versions of a fairy tale from different cultures. Students can draw pictures of similarities and differences or discuss and prepare an oral presentation or create thirty-second reenactments representing similarities and differences.

- **Write the class objective on the board and point students' attention toward it.** Each day, and unit by unit, write the objective, big idea, or point of the lesson on the board. Let students know what the class is working toward, and check that the objective is met.

  ***Example**: Fraction to decimal conversion* (*lesson/unit goal*). By the end of the unit, students should be able to convert fractions into decimals; understand decimals and their relationship to percentages; and comprehend how common fractions, decimals, and percentages are related.

- **Prepare questions in advance of discussions and be sure that there are questions that are recall for the struggling students as well as evaluative for those more advanced.** When teachers run discussions with questions at every level of the cognitive hierarchy, students stay engaged and do not experience frustration. Questions might ask not only for factual recall, but also about implications and relevance of the lesson, especially relating to the big ideas or goal of the lesson. (See List 3.3 for more on differentiating questions and Bloom's taxonomy.)

- **Believe the research that supports DI—these methods work.** Teachers are sometimes skeptical of new initiatives in schools. The research supporting student success when DI methods are employed is vast and time tested. (For a complete list of articles and research on differentiated instruction with links, see our website: http://www.differentiatedinstruction.co.) These are not new ideas; they are practices that have worked for years. Think of this as finally translating bench-top science into bedside practice in education.

List 1.4. Common Misconceptions

Despite commonly held misconceptions, differentiated instruction (DI) is actually *not*

- **A fad.** The suggestions in this book are not new. They are time-tested hallmarks of good teaching. With today's students becoming increasingly disengaged with school, it is more important than ever before that teachers adopt these techniques and strategies.

- **Only for struggling students.** The main idea behind differentiated instruction is that all learners need individual attention paid to their learning styles and interests. All students, from those with diagnosed learning disabilities to those in advanced placement courses, will benefit from these strategies.

- **A customized learning plan for each student in every lesson.** There are some simple techniques that can be applied to the entire class for the benefit of all. Teachers do not have to do everything at once. Nor will every student require the same DI strategy for every lesson. As content varies and changes, so will each student's level of interest and individual need for support.

- **A perfect science.** There are hundreds of ways to differentiate instruction. The main point is that teachers are mindful of the individuals who make up their classrooms and work to help each student get the education he or she deserves.

- **Costly.** Implementing these strategies does not involve costly materials, new textbooks, or specialized technology. Often teachers already have all of the necessary teaching tools in place; they only need to alter their presentation, the interactivity of the lesson, and how students demonstrate their mastery of the material.

- **Optional.** Teachers today must embrace the fact that students need certain kinds of relationships and instruction to succeed. Any teacher who doesn't want to embrace these strategies, even if it is only a little at a time, is not doing his or her job.

- **Something a teacher does every once in awhile and then is finished.** DI is a philosophy that is backed up by practice and becomes the cornerstone for effective teaching. It is a set of tools and ingredients that can be combined and recombined endlessly to meet the ever-changing needs of students.

List 1.4. (continued)

- **Adding more work to students who finish early.** Students should be able to remain challenged within the normal class time alongside the rest of the students. The message that ''more'' is challenging is wrong. Quality is stressed over quantity. Often this means providing optional challenge assignments and opportunities to explore content more thoroughly for those who have early mastery.

- **One-size-fits-all instruction.** Differentiated instruction takes all students and their learning needs into consideration, but it does not provide a completely individualized lesson each day for each student. We know already that individualized instruction is challenging, so rather than trying to make specialized lessons for each student, a teacher needs to include students with Individualized Education Plans (IEPs) and 504 Plans in the general instruction while making alterations or accommodations as needed. Often the accommodations for students with learning disabilities helps other students in the class better understand and master the material as well, thus helping all students succeed.

- **Difficult.** DI takes planning and a new way of thinking, but there is nothing esoteric or too difficult about it. There are many simple strategies that work with groups of students to allow them to discover success, and we present many of them to you throughout this book.

List 1.5. Differentiate the Materials

Learning materials can be differentiated by student interest or ability level, and also by format, such as incorporating audio and video resources into lessons. Teachers can assign different materials or provide student choice. Many of the lists in this book offer tips on how to do this most effectively. This list provides examples of what it looks like in the classroom.

- In some classes, especially in the arts, the materials are differentiated by nature. For example, in music, students sing different parts according to their abilities or play different instruments according to their abilities and interests.

  Example: Allowing students some choice in choosing instruments or switching instruments each class period exposes students to different experiences while making sure any one student isn't stuck with an instrument that he or she has more difficulty playing.

- In any grade, literature teachers can teach the entire class the same literature concepts and objectives while each student reads a book suited to his or her ability level and interest. For example, when teachers focus on the elements of setting and how they inform the story, students can write about or discuss this concept in terms of the books they chose. The teacher does not have to know each book to determine whether a student has demonstrated understanding.

  Example: Ms. D uses the "Reading Olympics" and Newbery Award book lists as two lists from which students can select books for the unit at hand. There are many reading levels represented, but students have some choice about the book they read.

- In a foreign language class, students can participate in a simulation (such as two old friends meet in a restaurant to discuss their past and dream about the future). Each student is assigned different vocabulary words and different tenses to practice.

  Example: Mr. S has students in small groups write out brief lines of a typical conversation that might take place in a restaurant or in a classroom. While performing these scenarios, Mr. S records the students on audio-video. The recordings are later watched so students can hear themselves and review their own performance as part of the assessment and as a test of fluency.

- A social studies teacher approaches a class about Martin Luther King Jr. with an assignment that every student become familiar with the "I Have a Dream" speech. A copy of the text of the speech, an audio recording, and video are available for students, and the teacher asks that students both read and watch or read and listen to the speech. A worksheet is provided to compare the experiences of reading and seeing or listening.

List 1.5. (continued)

- In an elementary unit on the solar system, the class is arranged with a book station that has three books about the planets (the three books are geared to different reading abilities). Another station has a chart with the planets that students fill in, naming the planets and coloring them; then they cut the planets out and paste them onto another paper. A third station has an experiment about gravity for the students to perform. The teacher is stationed at the experiment because this needs teacher guidance. Students move in groups through the stations.

Further Reading

Online Book Lists

Association for Library Service to Children. Newbery Medal and Honor Books, 1922–Present. http://www.ala.org/ala/mgrps/divs/alsc/awardsgrants/bookmedia/newberymedal/newberyhonors/newberymedal.cfm. Retrieved January 2011.

Association for Library Service to Children. Caldecott Medal and Honor Books, 1938–Present. http://www.ala.org/ala/mgrps/divs/alsc/awardsgrants/bookmedia/caldecottmedal/caldecotthonors/caldecottmedal.cfm. Retrieved January 2011.

Reading Olympics

Book lists for Reading Olympics vary frequently by school district and reading level. Please consult with your district or school librarian for current lists of books. A sample list of Reading Olympics books is included in this book's bonus Web material.

List 1.6. Differentiate the Task

Differentiation happens when students are able to practice learning in ways that allow for their optimal success and mastery. Teachers can differentiate tasks according to learning styles, interests, or readiness. There are lists in later sections of this book that specifically guide teachers on how to differentiate along these lines most effectively. This list is designed to give teachers a feel for what differentiating the task may look like in class.

- In an elementary math class, one student works independently with headphones on to block out noise, while a group of three works together to solve the same problems. At the same time, the teacher is working with a pair of students while some students work at their seats. One boy is sitting on the floor doing the work. This section of working on problems doesn't become chaotic because it only lasts for ten or fifteen minutes, and students are engaged in the task in a way that best suits their individual needs.

- A middle school math teacher partners with a social studies teacher to create a unit on transportation and the economy. The teachers determine which objectives to cover and where they can combine content. The math teacher adds ratios, measurements, and percentages. They create a lesson with five activities for students to determine how products are shipped across the country.

- In a social studies unit, the objective is to demonstrate mastery of the electoral process. Some students create a pamphlet explaining this process to potential voters, while others write a paper about it and another student creates a PowerPoint and classroom presentation to explain the process to the class. Another group of students decides to make an analogy of the steps and stages of the electoral process to other common processes, such as building a house or joining a club. Same objective, different tasks.

- In an arts class, the students are taught about the color wheel and how some colors are complementary whereas others are not. Students have a choice from several different projects to give side-by-side examples of complementary colors versus those that create excitement because of their noncomplementary nature.

- A middle school language arts teacher has students pick a monthly independent reading book. Each week, the teacher asks students to write a paragraph about the book on their classroom blog or their individual wiki, picking from a selection of appropriate writing prompts. Each student performs a similar task, but individual choice from the list of prompts helps students select a level of challenge that is appropriate.

List 1.7. Differentiate the Homework

All homework assignments do not have to be the same for every child. However, differentiation is about more than simply assigning different problems. Some children may work better in groups, and a teacher may suggest they form a study group to review content while suggesting that five other students read an interesting article that evening. In the differentiated classroom, homework can be viewed as an extension of learning. Students can both extend and practice in multiple ways. Here are some examples of how homework can be differentiated.

- When working on projects, students can each have a different task, performing acts that cannot be done in school. For example, one student interviews an elderly person, while another takes photos of the home where the person grew up, or finds or draws pictures of what the home was like based on the person's description.
- Have students practice only as much as they need to practice. In math, if a student has failed to grasp the concepts, doing another twenty problems is not useful. Instead, ask the student to spend time in the evening looking over the process and problems, and write a few sentences about where he or she is getting confused or what is not making sense. This not only helps the teacher and student to better understand what is causing the confusion, but it may also help the teacher enhance his or her teaching of this skill in the future. (See List 9.1: Using Reading and Writing to Differentiate Math Instruction.) Other students may be assigned a book to read about useful math applications, given challenge problems, or asked whether they can find an example from real life where a particular math application is useful.
- Rather than assign the total reading for the whole class, assign small groups different sections to report on in class. This way, students will be responsible for sharing knowledge, as well as listening and cooperating.
- Provide assessments as homework. All homework does not have to be a practice exercise or formative. Some homework can be summative. This is a concept commonly referred to as the "take home test."
- Everyone does not have to do homework every night. You can assign some of the class at-home responsibilities one day and the rest of the class another day.
- Don't use homework as a punishment. All work done at home should be considered a chance for greater learning. Differentiating homework works when the teacher and the students buy into this concept.
- Try to occasionally assign homework about making broader connections of the material to real life. For example, a science unit on taste receptors offers opportunities for students to have friends and family try different condiments, salt, sugar, and more at home by applying them with a Q-tip directly to areas of the tongue to test and demonstrate the formal lesson. This can be fun and also put the student in the role of teacher at home, which almost every student enjoys.
- Make homework interactive. Post an article or question to a classroom blog or wiki, and ask students to comment on the blog, adding additional information and resources in the comment as appropriate. Students will have the opportunity not only to leave their own feedback, but also to review and comment on the information left by others. This also serves as a great launching point for subsequent classroom discussions the next day.

List 1.8. Differentiate Checking for Understanding

To customize learning and differentiate instruction, teachers must continuously check for student understanding throughout the lesson. Does this mean stopping and quizzing students? No, quizzes are a traditional, anxiety-evoking method that usually gets in the way of differentiated instruction. This list provides some examples of what checks for understanding look like in the classroom on a day-to-day basis. Additional lists on designing differentiated assessments are included in subsequent subject-specific sections.

- In math class, instruct students to choose which problem they most enjoy solving, and explain why to a partner. Then with the same partner, have students find a problem they dislike, and explain why. Circulate the room while they are sharing, listening for what challenges students.
- Ask students to repeat back what they just heard.
- When presenting a lesson, ask students for a simple "thumbs up/thumbs down" as to whether they are getting what you are saying. If there are thumbs down, ask students to ask you a question or two to see whether you can identify what might be causing confusion in the moment. Chances are, many students may be having the same difficulty, and it's easier to correct misunderstanding or confusion in the moment rather than feel you have to reteach the lesson later.
- Have students teach each other what they just learned. The classic "see one, do one, teach one" is a great way for students to apply what they've learned and demonstrate mastery.
- In an elementary language arts class where all students are reading different books, have each student explain his or her book to another. Having students give mini–book reviews or even discuss what they think may happen next gives them a great opportunity not only to share, but also to use preview and reflection skills.
- Use these questions:

  Why?
  What do you mean by _____?
  How do you know?
  Could you give an example?
  Do you agree?
  Tell me more.

- Asking open-ended questions allows students to demonstrate their understanding and requires development of critical-thinking skills. Since most open-ended questions don't have a strict right or wrong answer, students gradually lose the fear of pass/fail in participating in class because they learn that their opinions and thought processes are valued.
- Some classrooms are starting to use audience response systems in class, which allow teachers to take small sample quizzes during class to see what percentage of the class understands and what percentage is still struggling. This helps the teacher modify the lesson on the fly, while also testing for common errors or mistakes that might need clarification.

List 1.9. Differentiate the Outcome

Not all students have to demonstrate learning the same way as long as they demonstrate mastery of the class objectives. Here are some examples of class objectives and how they may look with differentiated outcomes.

- **Middle school literature objective:** Understand how plot, conflict, resolution, character, setting, theme, and point of view work within a piece of fiction.

  Differentiated outcomes: Assign the whole class one short story and divide into groups to build poster walk-arounds (see List 11.1: Gallery Walks), one for each literary device. Digital posters may also be created with Glogster (http://edu.glogster.com).

- **Third-grade science objective:** Describe the movement of Earth and the moon and the apparent movement of other bodies through the sky.

  Differentiated outcomes: One student may create a 3-D model, another will draw it on paper, and another will write in a narrative how it works.

- **High school algebra objective:** Use linear functions or inequalities to solve problems from graphs or algebraic properties.

  Differentiated outcomes: Students each take a real-world application of this and show how it works. Provide three levels of problems and let them choose.

- **First- and second-grade writing objective:** Students will be introduced to the mechanics involved in writing sentences.

  Differentiated outcomes: Some students will practice with worksheets, while others write original sentences.

List 1.10. Are You Ready for Differentiated Instruction? A Few More Examples of What Is Expected

Becoming an expert teacher takes many small adjustments, made consistently over time. This doesn't mean that every existing lesson has to be rewritten from scratch, or that every teaching skill or strategy must be relearned and revamped. In fact, there are many things teachers do already that can be considered differentiation and they are not even aware of it. This list of pertinent questions offers examples from various sections of the book of some of the techniques involved in differentiated instruction (DI). When you ask yourself these questions while planning lessons, you will be able to see where DI can begin to fit in with your existing teaching style.

- **Is the lesson plan for tomorrow about me, or is it about the student?** Look at the lesson plan for tomorrow and decide whether it describes what the teacher does or what the students are going to do. DI lessons focus on what *students* do and learn. (See List 3.3: How to Create Differentiated Lesson Plans with Bloom's Taxonomy.)

- **Is there time planned into the lesson to check and see whether students understand the instruction?** It's never effective to ask the whole group whether or not they understand. DI teachers have specific checkpoints mapped into the lesson; these may be as simple as asking individual students to paraphrase what they have heard or understand. (See List 3.4: Differentiated Assessments.)

- **Do I know what the students should take away after the lesson?** Before each lesson, consider exactly what the students are supposed to know at the end. Share this with the students at the start of the lesson. At the end of the lesson, remind them and see whether they accomplished what was asked. (See List 3.1: Where to Begin and What to Do.)

- **Can I make a student feel valued today?** Each day, give special attention to one student. This is a way to get to know students incrementally in a conscious way. It doesn't mean teachers ignore other students; it simply means that each day, they turn their attention, like a laser, on a different student. Find out something new about the student, direct questions to this student, share a fact about yourself, such as your favorite book. This strategy will give you five deeper relationships with students by the end of the week. DI is about knowing students. When students feel known, they want to do better. (See List 2.1: Building Relationships.)

List 1.10. (continued)

- **Can I help students focus without calling them out?** Small, subtle things can help students refocus without formal correction or discipline, and without disrupting the flow of the class. Keep a squeeze ball in the classroom and when a student begins to get fidgety, calmly walk over and without saying anything, hand the student the ball. This acknowledges an individual's attention span and provides a tool to help the student stay focused without devaluing the student. (See List 5.4: Discipline Strategies.)

- **Can I help parents understand the importance of learning over just grades and test scores?** When talking to parents, stress mastery of learning objectives over the importance of grades. This is an ongoing conversation that won't be understood the first time it is raised. (See List 5.7: Classroom Management and Parental Communication Tips.)

- **Do I feel comfortable asking for help and giving help to colleagues?** Working with other teachers in this way can be extremely valuable in helping discover which lessons are working and not working for students. One way to do this and ''test'' whether the lesson is working is to ask a colleague to review a student's finished project and ask whether he or she can tell from the end point what the assignment was and what the process may have been to get there. Ideally, the product should be a reflection of both the assignment and the learning that occurred to produce it. (See List 3.4: Differentiated Assessments.)

List 1.11. Definitions of Concepts Commonly Associated with Differentiated Instruction

The following are definitions that educators and researchers commonly use in conjunction with differentiated instruction (DI). The list is by no means exhaustive, but it offers a general guide to the terms used throughout this book and elsewhere in discussions of differentiation. The concepts listed here are used throughout the book to describe methods and practices.

Authentic assessment. Evaluating student work based on the student's collective abilities rather than one isolated skill tested in a uniform, standardized manner. Simply testing an isolated skill or a retained fact does not effectively measure a student's capabilities. For example, in science class, a test that has every student choosing answers from a list of multiple-choice questions is a traditional assessment method, whereas an authentic assessment may require students to create their own hypothesis and work toward creating a science experiment using the scientific method.

Authentic projects, authentic learning. Authentic projects are those in which students take what they've learned in class and use it to do something useful or meaningful. Also known as experiential learning, or learning by doing, authentic learning helps students transfer the knowledge into practical experience. For example, in a kindergarten class, students can play cooking or they can actually cook. In high school, students can learn about the ecology from a textbook (traditional) or they can go out and conduct projects such as cleaning up a polluted estuary.

Backward design. Grant Wiggins, educator and coauthor of *Understanding by Design* (2005), first introduced the concept of backward design, whereby the teacher plans backward from product or assessment to the daily lesson plan. For example, when deciding to read a Shakespeare play, the teacher begins by deciding what the goal of this is and how the students will be assessed to demonstrate if they achieved the goal.

Bloom's Taxonomy. Developed by Benjamin Bloom (1956), the taxonomy is a classification system for cognition. The model guides teachers to develop lesson plans that move students from the simplest forms of thinking to the most complex, as represented by a hierarchy of skills beginning with knowledge and advancing through comprehension, application, analysis, synthesis, and evaluation. At each level, the amount of interaction or application of base knowledge is extended from the previous level, until students are able to apply the learned knowledge in new, novel situations. This taxonomy is important for differentiating learning because it gives teachers ways to teach to multiple cognitive levels at the same time.

Constructivism. An educational philosophy that holds that students learn best and generate the most knowledge when they can use their experiences and ideas to make meaning and solve problems. Constructivist theory was put forth by James Bruner (1961) and states that instruction should be based on four basic principles: (1) a learner

List 1.11. (continued)

should have an interest or a predisposition for learning; (2) the curriculum taught should be structured in a way that is most accessible to the student; (3) there should be an overlying sequence or order to the curriculum; and (4) there should be a nature and pacing of rewards and punishments (largely based on behavioral cognitive theory). Many DI strategies are constructivist, since they call for structuring the curriculum in a way that is accessible to all learners.

Cooperative learning. Also known as collaborative, group, or team learning, it generally refers to small groups of students with different levels of expertise and performance who are working together toward educational objectives. Learners are not only responsible for their own learning, but also for assisting and contributing to the learning of others in the group.

Differentiated assessments. Assessments designed to check students' progress and understanding during learning, in contrast to the usual end-of-unit summary test. By having intermittent, low-stake opportunities for students to demonstrate their learning and understanding, educators can assess students' understanding and mastery of concepts long before a cumulative exam is given. Although these intermittent assessments can take many forms (such as allowing students to choose methods of expression, e.g., multimedia presentations, written papers, or tests), they should give instructors the feedback they need about their students' progress and serve as a guide for further instruction.

Differentiated instruction (DI). An educational practice that provides learners with multiple ways to master the objectives. Students of all ability levels and learning styles gain equal access and opportunities to acquire and demonstrate mastery. All DI strategies are geared toward personalizing the learning experience to reach all students in a classroom.

Executive functions. Executive functions include attention controls, decision making, planning, sequencing, and problem solving, along with regulation of action and self-control. Many students who struggle in school have low executive functioning. This presents as inability to remain organized, on time, or on task for any sustained period. Executive functions are also developmentally linked, with many of the higher-order functions developing during mid to late adolescence.

Homogeneous and heterogeneous groupings. Homogeneous groupings place similarly situated students together, whereas heterogeneous groupings, also known as mixed-ability groupings, allow students of different abilities to work together in the classroom.

Inclusion. Under the Individuals with Disabilities Education Act (IDEA), all students with disabilities are to be taught in the "least restrictive environment" possible, with the regular classroom usually being that least restrictive environment. Inclusion presupposes that every student, regardless of ability, belongs in a normal classroom first, with his or her peer group, and that, to the extent possible, services should be brought to the student rather than removing the student from the classroom.

List 1.11. (continued)

Interdisciplinary learning. Merging content from several traditionally segregated disciplines into one blended content experience. For example, combining art and history in one unit.

Learning contracts. An agreement between a teacher and student (and sometimes parents) about the responsibilities for learning. All parties are held, in writing, to their responsibilities, thus helping make them more accountable for their portion of the learning process.

Learning profile. Based on work by both Lev Vygotsky (Moll, 1990) on scaffolding and Howard Gardner's (2006) theory of multiple intelligences, learning profiles delineate how individual students learn best. A learning profile includes a student's learning style (kinesthetic, tactile, visual, or auditory), grouping preferences, and environmental preferences.

Mastery. Achieving a percentage of performance ability that signals success and the ability to move on to new and higher levels of cognition. Based on the work of Madeline Hunter (2004), the concept of mastery includes the ability to repeat performance. Teachers are to repeat instruction until students achieve mastery.

Modeling. Differentiated instruction encourages educators to model successful strategies and endpoints to help students "see" the end point, goal, or pathway toward mastery. As in role modeling, teachers help students visualize what they need to do by providing examples and guidelines.

Outcomes. Outcomes may include a range of skills and knowledge. Generally, outcomes are expected to be measurable in concrete terms, that is, "Student can run fifty meters in less than one minute," instead of "Student enjoys physical education class."

Processing. The ability for a student to take in information and manipulate it so as to make the information useful in future problem solving, also referred to as acquisition of knowledge. Some students may have a naturally faster processing rate, allowing them to acquire and master knowledge, or stated more simply, to "catch on," faster than other students.

Readiness. The point at which a student is ready, willing, and able to learn concepts and curriculum. Readiness is tied in closely with a child's developmental process and ability to grasp concepts. For example, most kindergarteners are not yet developmentally ready to read middle-school-level textbooks. Readiness is also closely tied to Lev Vygotsky's (Moll, 1990) concept of the zone of proximal development, that is, the time or window in which students are most able to grasp information and make leaps in understanding.

Response to intervention (RTI). In the latest version of the Individuals with Disabilities Education Act, RTI was incorporated as a way to try to implement early intervention with research-proven educational strategies and to reduce the number of students requiring

List 1.11. (continued)

special education services, when early intervention and intensive instruction, delivered when necessary, could prevent later academic complications. The goal of RTI is to provide the additional help students may need as early and as often as possible to make sure students master key academic skills before determining that trusted interventions are failing, and more intensive special education services, such as resource rooms, are required. RTI and differentiated instruction work well together, because DI helps teachers identify struggling students and use research-based interventions to help them master material. There will still be students who will need special education services and more intensive interventions outside the classroom, but DI and RTI serve to bridge the achievement gap.

Rubrics. Rubrics are basic scoring tools for what may be traditionally subjective assignments, such as essays, projects, posters, and more. Rubrics delineate the assessment criteria and the number of points assigned to each element, so students have a list of what elements must be included in the final project, along with the grading metrics and standards. Rubrics, when shared with students at the time the assignment is given, make the grading parameters transparent and place more control and responsibility on the students for their final grade. Rubrics help maintain consistent and fair grading while helping students understand the basis and standards for evaluation.

Scaffolding. Introduced in the 1950s by cognitive psychologist James Bruner (1961), instructional scaffolding describes the process in which parents and teachers support a child's learning by assisting them at their instructional level until such a point at which they become independent at the particular skill or task in question. Scaffolding is closely related to Lev Vygotsky's (Moll, 1990) concept of the zone of proximal development, the point at which a student is the most ready and able to learn new skills with adult-mediated support.

Student centered. This term refers to instructional methods and classroom cultures that take individual students and their interests, needs, and experiences into consideration when teaching and testing for understanding.

Zone of proximal development (ZPD). First described by Russian psychologist Lev Vygotsky (Moll, 1990), it is the point at which a student is the most ready and able to learn new skills with adult-mediated support. Students cannot learn when the task is too easy because they become bored. Students need challenge, but not too much challenge, or anxiety prevents optimal learning. The ZPD is the point at which a child is pushed beyond the comfort level but not so far beyond as to feel threatened.