Differentiation at the Secondary Level

by Rick Wormeli

Differentiated instruction is a commonly found term in middle and high school improvement plans these days. It's a very effective focus for any school, but many educators claim to be differentiating instruction when they're not actually doing it; and many educators write long, complicated professional development plans outlining how they will learn to differentiate over the next three years— plans that become little more than shelf-liners due to overextended teachers and revolving-door administrators. Of course, some teachers think differentiation is a passing fad that, they hope, will not interfere with their normal classroom routines.

Then there are the rest of us. We recognize differentiation as just good teaching. It's what we've been striving to do since our first day on the job, and the direct, observable results of differentiation provide the meaningful experiences that keep us showing up every day.

So that we have a common frame of reference, let's briefly define differentiation: *Differentiation* means we do whatever it takes to maximize instruction over what could otherwise be achieved through whole-class, one-size-fits-all approaches. It's teaching in ways students learn best, not just presenting material and documenting students' success (or lack thereof) with it. In addition, differentiating teachers spend considerable time preparing students to handle anything in their current and future lives that is not differentiated. It does not mean we make things easier for students; rather, it means we provide appropriate challenges students need in order to grow at each stage of their development, and that varies from student to student. While individualization is occasionally used in differentiated classes, it's more common to find students grouped and regrouped flexibly. At the secondary level, most of us wouldn't last long if we had to do over a 100 IEPs, one for each student. No one is asking us to do this.

Differentiation and standardization are not oxymoronic, nor is differentiation disabling. How will students do well on the standardized state exam? They'll do well if they've learned the curriculum well. How will they do well in high school? They'll do well if they've learned well in middle school. How will they do well in college? They'll do well if they've learned well in high school. Again, differentiation is how we maximize instruction so students learn and retain the material— and so students learn how to be successful no matter what life presents. When teachers *don't* differentiate, that's when we should worry about being ill-prepared for standardized tests, high school, college, and beyond.

We can differentiate formally, such as when we pre-assess and formatively assess students and design specific lesson plans based on those data. We can differentiate informally, such as when we stop by their desks and brainstorm with students how they might revise something done incorrectly, or when we push an advanced student to examine a topic via critical thinking skills the rest of class is not ready to use.

We can differentiate instruction in many ways, but they will all boil down to one or more of the following, first popularized by Dr. Carol Ann Tomlinson at the University of Virginia:

- ***Content.*** The content is your legally mandated curriculum. It's what students are supposed to learn.
- ***Process.*** Process means the way in which your students *learn* the content.
- ***Product.*** Product refers to the way in which your students *prove they learned* the content.
- ***Affect.*** Affect concerns the socio-emotional factors that influence learning. We might need to adjust something in order for students to feel safe and invited.
- ***Learning environment.*** The learning environment is the physical setup of the learning situation, such as whether a class is self-contained, inclusive, small, large, or multiage.

Some of these approaches can be negotiable from time to time with students. For example, when it comes to the product used to demonstrate full understanding of the dual nature of light (as both particle and wave), it doesn't matter how students show us that they understand it as long as they really do understand it. They can take our test, do a project, explain things orally, or use many other products that would generate acceptable evidence of mastery. No matter what they choose, however, we hold them accountable for the same universal factors as we do other students.

Remember, too, that if the assessment format does not allow a student to portray her learning accurately, we have an obligation to change the format so that she can be assessed accurately. Grades must be accurate in a differentiated class, just as in any other class, in order to be useful to everyone involved. Telling a student to toughen up and learn how to deal with our test formats is a cop-out. It's as much a false sense of student accountability as it is a false sense of teaching.

In other situations, some of these approaches cannot be negotiated: "No, Sean, you can't do a diorama of a flying buttress. I asked you to write a formal paper on how building cathedrals during that period of history revealed new scientific principles to the craftsmen of the time. You're being assessed on writing the paper, not just your research. You can provide the diorama if you wish, but evidence of your knowledge via the written essay is paramount."

Eighty percent of differentiation is mind-set; the rest is craft. Like so much of education, if we embrace the principles behind the concepts, difficult questions are more readily answered. To learn the practical techniques for differentiating instruction and increasing diverse students' achievement, educators need to answer the following questions affirmatively:

- Are we willing to teach in whatever way students best learn, even if it's not the way we best learn?
- Do we have the courage to do what works, not just what's easiest?
- Do we actively pursue our own awareness of students' knowledge, skills, and talents so that we can provide a match for their learning needs?
- Do we actually make those matches?
- Do we continually build a large and diverse repertoire of teaching strategies so we have more than one way to teach?

- Do we keep up to date on the latest research regarding cognitive science, on students' development in the grade levels we teach, and in our content specialty areas?
- Do we ceaselessly self-analyze and reflect on our lessons, including assessments, searching for ways to improve?
- Are we open to correction by others?
- Do we push students to become their own advocates for how to learn, and do we give them the tools to do so?
- Do we regularly close the gap between knowing what to do and actually doing it?

On a typical secondary student's day, a student must be simultaneously good at everything, at the same performance level as that of his classmates, regardless of his development with any one of them. He must be able to speak a foreign language fluently, discuss current events, build a functioning motor using magnetic coils, design a website, debate others, graph inequalities, sing in the correct key, write the perfect essay, analyze yellow journalism in a political cartoon, adapt to at least seven different teachers' styles, conduct research, run the mile under a certain time, skillfully hit the ball to a teammate, identify literary devices in an old English poem, manage his resource needs for each class, and show up on time to all things during and after school, all while governing his impulses, maintaining "with-it" social banter at the cafeteria table, and navigating societal expectations and hormonal needs.

These are humans in the making, without much life experience and adult-level maturity. It is close to malpractice to demand of them adult-level competencies in all of these areas at the same time. No wonder they occasionally need scaffolding, tiering, and differentiated support. We don't want a teacher's approach to be as education expert Dr. Nancy Doda warns against, "Learn, or I will hurt you." This isn't true learning as we are commissioned to provide by our government.

In order to differentiate well, we must be mini-experts in the greatest teaching tool we have: our expertise on how the mind learns. Here are just a few cognitive science principles that make a dramatic difference in student achievement when successfully employed:

- Whereas our goal is to have students learn and retain as much knowledge as they can, very little goes into long-term memory unless it is attached to something already in storage. Create prior knowledge, then, where there was none prior to teaching something new.
- Our capacity to remember content has a tremendous amount to do with how it was structured for meaning the first time we experienced it, not so much how we studied it later.
- We learn more when the brain is primed for learning. Make sure to explain to students the lesson's objectives and what they can expect to experience along the way (an itinerary). Do this up front and periodically along the way.
- Teach the most important concepts in the very first ten minutes, and make sure to revisit them in the last ten minutes. Don't waste these prime learning times with other tasks.
- The brain requires regular and plentiful hydration. Find a way to get students and you drinking water during class. Lots of it.
- The brain responds to movement. Build kinesthetics into each week's lessons, particularly if the topic is abstract.

- Spiral your lessons. Revisit content repeatedly. Every time a neuron fires, it's more sensitive to firing. Every time it goes a while without firing, it takes more and more to get to fire. It will eventually be pruned, especially in adolescence.
- The brain is innately social. It requires social interaction to clarify learning and move most things into long-term memory. Get students talking in substantive ways about content: think-pair-share, peer critiques, small-group work, Socratic seminars, debates, panel discussions, interviews, dramatic portrayals, skits, and plays.

Most of us at the secondary level are nice people who want our students to learn. We may not have a large background in differentiated approaches nor the resources to be able to provide all that is needed, but we have to start somewhere. To show how practical differentiation can be for teachers, here are several great practices typically found in successfully differentiated classrooms.

Tiering

The term *tiering* in many differentiated instruction books and videos is used to describe how we adjust a learning experience according to a student's readiness, interests, or learner profile. *Readiness* refers to the challenge or complexity of a task: Is the student *ready* for only introductory experiences, or is she *ready* for something more sophisticated? A learning profile is a running record of anything that would affect a student's learning, such as learning styles, multiple intelligences, poverty issues, English as a second language, learning disabilities, and giftedness.

In my own use of the term *tiering*, I focus only on the adjustments in readiness. Tiering to me suggests a vertical adjustment such as we connote when referring to upper and lower tiers. Interests and learning profiles are not higher or lower "tiers"; they're just different. When it comes to the tiers of readiness, some students might be ready only for understanding how to draw a triangle and determine its area, but other students can use partial knowledge of an isosceles triangle's measurements to determine the volume of a three-dimensional solid of which the triangle is one part of its surface. Still other students are ready to "triangulate" when creating a metaphorical connection among three different philosophies in history class.

There are many ways to tier the challenge level of a topic or assignment. Here are just a few:

- Manipulate information, not just echo it ("Once you've understood the motivations and viewpoints of the two historical figures, identify how each one would respond to the three ethical issues provided.")
- Extend the concept to other areas ("How does this idea apply to the expansion of the railroads in the 1800's?" or, "How is this portrayed in the Kingdom Protista?")
- Integrate more than one subject or skill
- Increase the number of variables that must be considered; incorporate more facets
- Use or apply content/skills in situations not yet experienced
- Work with advanced resources ("Using the latest schematics of the Space Shuttle flight deck and real interviews with professionals at Jet Propulsion Laboratories in California, prepare a report that...")
- Add an unexpected element to the process or product ["What could prevent meiosis from creating four haploid nuclei (gametes) from a single haploid cell?"]

- Reframe a topic under a new theme ("Re-write the scene from the point of view of the antagonist," "Re-envision the country's involvement in war in terms of insect behavior," or, "Re-tell Goldilocks and the Three Bears so that it becomes a cautionary tale about McCarthyism.")
- Share the backstory to a concept— how it was developed
- Identify misconceptions within something
- Identify the bias or prejudice in something
- Deal with ambiguity and multiple meanings or steps
- Analyze the action or object
- Argue against something taken for granted or commonly accepted
- Synthesize (bring together) two or more unrelated concepts or objects to create something new ("How are grammar conventions like music?")
- Work with the ethical side of the subject ("At what point is the Federal government justified in subordinating an individual's rights in the pursuit of safe-guarding its citizens?")
- Work with more abstract concepts and models

(Wormeli, 2006, pp. 57-59)

Compacting the Curriculum

If some students demonstrate advanced readiness early in the unit of study, we have an obligation to not waste their time teaching these students skills and content they already understand. Instead, we shorten or compact the regular curriculum for these students into just a few days, making sure they've mastered the basic curriculum and double-checking subtle learnings. Then we do something different with these students, such as teaching them something more in depth, with more breadth, from a unique angle, or more complex than what we're teaching the rest of the class.

The Football and the Anchor: Teaching a Variety of Levels at the Same Time

Two structural sequences that allow teachers to meet a variety of needs in the same class period are the "football" and the "anchor."

The Football

In this three-part sequence, we first teach a general lesson to the whole class for the first ten to fifteen minutes. Everyone is gathered together and doing roughly the same thing. If you think of a side view of a football, this is the narrow point at one end of the ball.

After the general lesson, we divide the class into groups according to readiness, interest, or learning profile and allow them to process the learning at their own pace or in their own way. For example, some students may be discussing one aspect of the general learning while others write or draw, or everyone's doing the same thing such as reading, but with text of differing levels of readability. This lasts for fifteen to thirty minutes. We circulate through the room, clarifying directions, providing feedback, assessing students, and answering questions.

This middle section is wider, everyone expanding on the original learning, and so it is represented by the wider portion of the center of a football, the part of the football under the finger grips.

In the final portion of the lesson, we bring the class back together as a whole group and process what we've learned. This can take the form of a summarization, a question-and-answer session, a quick assessment to see how students are doing, or some other specific task that gets students to debrief with each other about what they learned. Once again, we've brought the whole group back together, finishing the football metaphor as it narrows to the opposite tip from where we started.

The Anchor

This structure doesn't get its metaphor from the physical design of a boat's anchor as the football structure gets from a football. Instead, it uses the *role* of an anchor— to keep something from drifting from its position.

In an anchor lesson, the teacher provides a task on which the whole class works autonomously to the teacher. This is the "anchor" that keeps the class in position, working on something substantive. It is not a babysitting activity. From this general task, the teacher pulls a small group of students to one side for quick mini-lessons, then sends them back into the anchor task and pulls out the next group. For example, while students are conducting lab experiments, the teacher may pull one small group out and review how to write proper lab conclusions. He administers a lab safety exam that another group missed yesterday; and with other students, he critiques their advanced, independent projects.

These mini-lesson pullouts can be as simple and informal as stopping by a student's desk to explain how to use a semicolon, or something as formal as teaching a small group of government students how to Shepardize* their point-of-law papers.

Flexible Grouping

Some students learn primarily through individual study, some learn primarily through small-group interactions, and some learn primarily through whole-class instruction, but many of us use only one or two of these approaches in our classrooms. We have to be good at all three.

To break out of our self-imposed grouping ruts, ask yourself a few questions:

- Is this the only way students can be grouped?
- Why do I have the whole class doing the same thing here?
- Where in the lesson can I have students working in small groups?
- Is this grouping of students the best way to teach this section?
- If I group students this way, whose needs are not being met?
- I've been doing a lot of *[insert type of grouping here]* lately. Which type of grouping can I add to the mix?

Grouping possibilities are quite varied. We can put students in groups such as:

- Whole class
- Half the class and half the class
- Teams
- Small groups led by students
- Partners and triads
- Individual work
- One-on-one mentoring with an adult
- Temporary pullout groups to teach specific mini-lessons
- Centers or learning stations through which students rotate in small groups or individually— these are great for middle and high school classrooms!

There are many more differentiated instruction strategies worth exploring. They include:

- Making abstract concepts vivid, concrete experiences
- Using repetition
- Using temporary, homogeneous grouping
- Conducting error analysis with students
- Explaining the metaphor we use to teach concepts
- Breaking concepts down into smaller pieces
- Anticipating misconceptions and taking steps to prevent them
- Allowing for the fact that not all students will learn at the same pace as their classmates learn, and giving students every chance to demonstrate mastery, not just one chance
- Using graphic organizers
- Identifying exceptions to the rule and nuances in knowledge
- Allowing students to research beyond the topic and beyond the lesson
- Providing ample feedback to students
- Adjusting students' goals
- Working in small increments
- Focusing on specific skills
- Providing opportunities for students to think flexibly
- Asking students to work backward from the final solution to the original problem
- Modeling the processes we're teaching

Again, differentiation is just good teaching. It's way more than a passing fad, too. Read the works of educators from ancient Greece, Egypt, and other cultures; you'll find ample evidence of differentiation in order to maximize students' learning throughout the ages. In fact, it's a passing fad— one that pains all of us each time it happens— when we **don't** differentiate.

Yes, secondary teachers have hundreds of students, not just thirty as elementary teachers do, but they can still differentiate quite well in each class. If you're not already differentiating, begin. Give yourself three years, incorporating just one or two ideas per month. Talk someone else into joining you on the journey. Remember, differentiation is primarily a mind-set, so open yourself to the serious analysis of practice, collaborate with others, and focus on the big questions of education and society to find your motivation.

Will Rogers once said, "Even a man on the right track will get run over if he just stands there." It's true here, too. We have to remain dynamic in teaching, always learning, always trying. There are a whole lot of students counting on us to do the right thing every day.

Students are in these grade levels only once— or so we hope. These years of learning better be the best experiences possible.

Reference

Wormeli, Rick. (2006). *Fair isn't always equal: Assessment and grading in the differentiated classroom.* Portland, ME: Stenhouse.

**Shepardizing* is the term students and legal researchers use to determine the legal history of a court case, such as whether or not it's been cited as precedent in another court case or whether or not the ruling was ever appealed or overturned. *Shepard* refers to Frank Shepard, who first created the compilations of court decisions in the 1870s.

Return to text

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