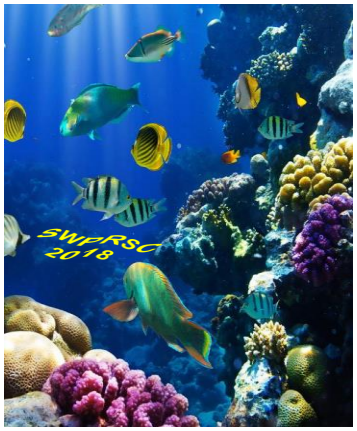

Differentiated Instruction: Myth-Busting, Principles, and Practicalities

SWPRSC 2018

For further conversation about any of these topics:

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What if you were asked to prove your instruction, including assessment, is developmentally appropriate for age and nature of the students you teach.

What would be your response?

Unique Needs of Young Adolescents

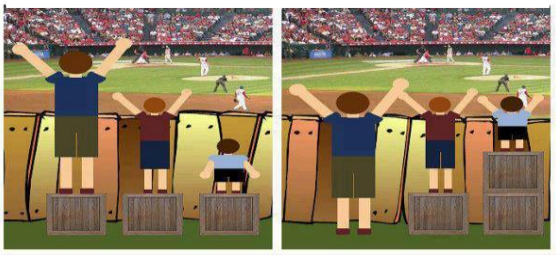
1. Structure and clear limits
2. Physical activity every single day
3. Frequent and meaningful experiences with fine and performing arts
4. Opportunities for self-definition
5. Safe and inviting emotional atmosphere
6. Experiences in with real competence
7. Meaningful participation in families, school, and communities
8. Basics: food, water, rest, good health, physical presence.
9. To belong

Schools aren't meant to meet the needs of diverse students.

'Anyone out there know me?

It is counter-cultural, subversive thing To do the middle concept in full.

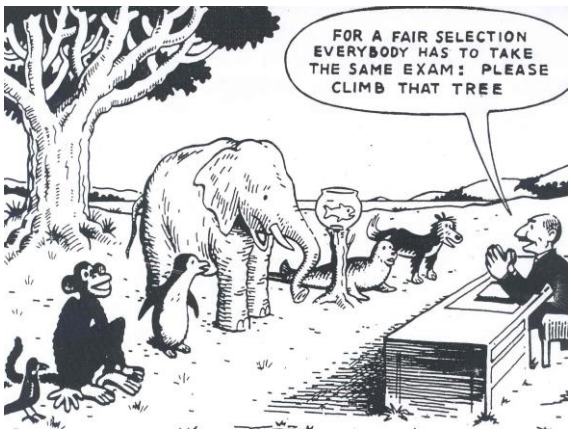
Equal **Fair**



When working with disenfranchised, struggling, disadvantaged, or under-resourced students, spend time with enfranchised, thriving, advantaged, and well-resourced students.

Huffington Post, Posted on 08/25/2016 09:55 am ET

Never sacrifice sound pedagogy because someone above you isn't there yet.



Equity

"Equity efforts…provide supports to give every young person and all groups of young people a full chance to develop their vast human talents. Equity efforts treat all young people as equally and infinitely valuable….[T]hey seek to remedy any situation where opportunities for some are insufficient or expectations low, particularly when young people have long been underserved by schools."

- Pollock, p. 7, 2017

Time is a variable, not an absolute.

"Nobody knows ahead of time how long it takes anyone to learn anything."

Dr. Yung Tae Kim, "Dr. Tae," Physics Professor, Skateboarding Champion

Fair Isn't Always Equal

"They don't differentiate instruction and assessment at the high school level, in university, or on the provincial exams, so we shouldn't differentiate in elementary, grammar, or middle levels."

Let me get this straight…

Are we responsive teachers?

1. Are we willing to teach in whatever way is necessary for students to learn best, even if that approach doesn't match our own preferences?
2. Do we have the courage to do what works, not just what's easiest?
3. Do we actively seek to understand our students' knowledge, skills, and talents so we can provide an appropriate match for their learning needs? And once we discover their strengths and weaknesses, do we actually adapt our instruction to respond to their needs?
4. Do we continually build a large and diverse repertoire of instructional strategies so we have more than one way to teach?
5. Do we organize our classrooms for students' learning or for our teaching?

Are we responsive teachers?

6. Do we keep up to date on the latest research about learning, students' developmental growth, and our content specialty areas?
7. Do we ceaselessly self-analyze and reflect on our lessons — including our assessments — searching for ways to improve?
8. Are we open to critique?
9. Do we push students to become their own education advocates and give them the tools to do so?
10. Do we regularly close the gap between knowing what to do and really doing it?

Universal Design for Learning

Principle I: Provide Multiple Means of Representation (the "what" of learning), multiple ways for students to perceive and comprehend information

Principle II: Provide Multiple Means of Action and Expression (the "how" of learning), multiple ways for students to interact and process content and skills, including how to express what they know

Principle III: Provide Multiple Means of Engagement (the "why" of learning), multiple ways to build and sustain motivation and perseverance

- www.udlcenter.org/aboutudl/whatisudl/3principles

Definition

Responsive teaching, i.e. differentiating instruction, is doing what's fair for students. It's a collection of best practices strategically employed to maximize students' learning at every turn, including giving them the tools to handle anything that is undifferentiated. It requires us to do different things for different students some, or a lot, of the time. It's whatever works to advance the student if the regular classroom approach doesn't meet students' needs. It's highly effective teaching.

Tomlinson: "If I laid out on my kitchen counter raw hamburger meat still in its Styrofoam container, cans of tomatoes and beans, jars of spices, an onion, and a bulb of garlic *[and told guests to eat heartily]*….My error would be that I confused ingredients for dinner with dinner itself."

Tomlinson: “One can make many different dishes with the same ingredients, by changing proportions, adding new ingredients, using the same ingredients in different ways, and so on.”

Clarify Thinking through Realistic Hypotheticals

- **Some students [get] more work to do, and others less. For example, a teacher might assign two book reports to advanced readers and only one to struggling readers. Or a struggling math student might have to do only the computation problems while advanced math students do the word problems as well.” (Tomlinson, p. 7)**
- **Teachers have more control in the classroom.**
- **Teacher uses many different group structures over time.**

A science and math teacher, Mr. Blackstone, teaches a large concept (Inertia) to the whole class. Based on “exit cards” in which students summarize what they learned after the whole class instruction, and observation of students over time, he assigns students to one of two labs: one more open-ended and one more structured. Those that demonstrate mastery of content in a post-lab assessment, move to an independent project (rocketry), while those that do not demonstrate mastery, move to an alternative rocketry project, guided by the teacher, that re-visits the important content. (Tomlinson, p. 24)

Quick Reference: Differentiated Lesson Planning Sequence

A. Steps to take before designing the learning experiences:

1. Identify your essential understandings, questions, benchmarks, objectives, skills, standards, and/or learner outcomes.
2. Identify your students with unique needs, and get an early look at what they will need in order to learn and achieve.
3. Design your formative and summative assessments.
4. Design and deliver your pre-assessments based on the summative assessments and identified objectives.
5. Adjust assessments or objectives based on your further thinking discovered while designing the assessments.

Learner Profile: Any Factor that might Influence Learning

Family dynamics (if influential)	Transiency rate
SES	IEP
504	ELL
LD	Gifted/Advanced
Physical health	Emotional health
Speech and Language Issues	Behavior/Discipline concerns
Nationality (if influential)	Diet (if influential)
Religious affiliation (if influential)	Technology access/comfort
Multiple Intelligences	Arts – comfort/profiency
Personal background/experiences	Leadership qualities
Ethics	Collaboration
Personal interests: sports, music, television, movies, books, hobbies, other	Weekly schedule
	Politics (if influential)
	Anthony Gregorc Scale
Myers-Briggs Personality Inventory	Home responsibilities
Bernice McCarthy's 4MAT	ADHD
Tourette's Syndrome	Asperger's Syndrome
Down's Syndrome	Hearing Impaired
Visually Impaired	Auditory Processing issues

Quick Reference: Differentiated Lesson Planning Sequence

B. Steps to take while designing the learning experiences:

1. Design the learning experiences for students based on pre-assessments, your knowledge of your students, and your expertise with the curriculum, cognitive theory, and students at this stage of human development.
2. Run a mental tape of each step in the lesson sequence to make sure things make sense for your diverse group of students and that the lesson will run smoothly.
3. Review your plans with a colleague.
4. Obtain/Create materials needed for the lesson.
5. Conduct the lesson.
6. Adjust formative and summative assessments and objectives as necessary based on observations and data collected while teaching.

When Designing your Actual Lessons….

1. ***Brainstorm*** **multiple strategies**
2. ***Cluster*** **into introductory, advanced, and strategies that fit between these two**
3. ***Sequence*** **activities in plan book**
4. ***Correlate*** **Class Profile descriptors, expertise in students at this age, Differentiation Strategies, and Cognitive Science Principles to lessons – What do you need to change in order to maximize instruction for all students?**

Moving Content into Long-term Memory

Students have to do both,

Access ⟹ Sense-Making

Process ⟹ Meaning-Making

Quick Reference: Differentiated Lesson Planning Sequence

C. Steps to take after providing the learning experiences:

1. Evaluate the lesson's success with students. What evidence do you have that the lesson was successful? What worked and what didn't, and why?
2. Record advice on lesson changes for yourself for when you do this lesson in future years.

Elements of Responsive Teaching (Differentiated Instruction)

q | p

c | d

Which letter does not belong, and why?

<u>Teachers can differentiate</u>:

Content

Process

Product

Affect

Learning Environment

-- Tomlinson, Eidson, 2003

According to:

Readiness

Interest

Learning Profile

Flexible Grouping: Questions to Consider

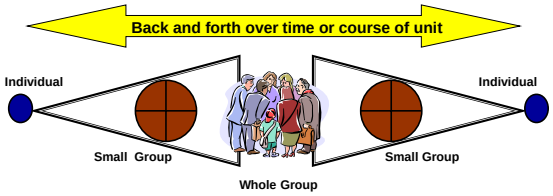
- Is this the only way to organize students for learning?
- Where in the lesson could I create opportunities for students to work in small groups?
- Would this part of the lesson be more effective as an independent activity?
- Why do I have the whole class involved in the same activity at this point in the lesson?
- Will I be able to meet the needs of all students with this grouping?
- I've been using a lot of *[insert type of grouping here – whole class, small group, or independent work]* lately. Which type of grouping should I add to the mix?

There's a range of flexible groupings:

- Whole class or half class
- Teams
- Small groups led by students
- Partners and triads
- Individual study
- One-on-one mentoring with an adult
- On-line communities
- Temporary pull-out groups to teach specific mini-lessons
- Anchor activities to which students return after working in small groups
- Learning centers or learning stations through which students rotate in small groups or individually.

Ebb and Flow of Experiences

[Tomlinson]



Basic Principles:

- **Assessment informs instruction – Diagnosis and action taken as a result of diagnosis are paramount.**
- **Assessment and instruction are inseparable.**
- **Change complexity, not difficulty. Change the quality/nature, not the quantity. Structured or open-ended?**

Basic Principles:

(Continued)

- **Use respectful tasks.**
- **Use tiered lessons**
- **Compact the curriculum.**
- **Scaffold instruction.**
- **Organization and planning enable flexibility.**

Basic Principles:
(Continued)

- **Teachers have more control in the classroom, not less.**
- **Frequently uses flexible grouping.**
- **Teachers and students collaborate to deliver instruction.**

Models of Instruction That Work

Dimension of Learning:
[Robert Marzano]

- **Positive Attitudes and Perceptions about Learning**
- **Acquiring and Integrating Knowledge**
- **Extending and Refining Knowledge**
- **Using Knowledge Meaningfully**
- **Productive Habits of Mind**

1/3 Model:
[Canaday and Rettig]

- **1/3 Presentation of content**
- **1/3 Application of knowledge and skills learned**
- **1/3 Synthesis of the information**

Concept Attainment Model:
[Summarized from Canaday and Rettig]

- **Teacher presents examples, students work with them, noting attributes**
- **Teacher has students define the concept to be learned**
- **More examples are critiqued in light of newly discovered concept**
- **Students are given practice activities in which they apply their understanding of the lesson concept**
- **Students are evaluated through additional applications**

Direct Instruction Model
[Summarized from Canaday and Rettig]

- **Review previously learned material/homework**
- **State objectives for today**
- **Present material**
- **Provide guided practice with feedback**
- **Re-teach (as needed)**
- **Assign independent practice with feedback**
- **Review both during and at the end of the lesson**
- **Closure (Summarization)**

Learning Profile Models:

Myers - Briggs Personality Styles, Bernice McCarthy's 4MAT System, Gregorc Scale and Teaching Model, Bramson's Styles of Thinking, Left Brain vs. Right Brain, Multiple Intelligences

Additional Differentiated Instruction Strategies

- **Use Anticipation Guides**
- **Create personal agendas for some students**
- **Use centers/learning stations**
- **Adjust journal prompts and level of questioning to meet challenge levels**
- **Incorporate satellite studies ("Orbitals")**

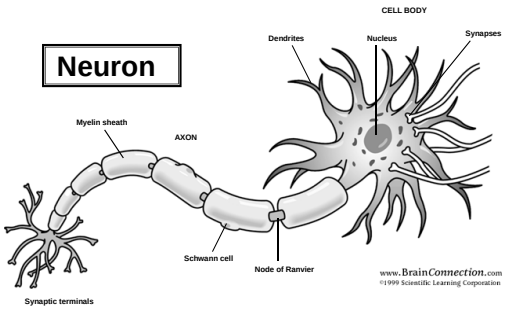
Personal Agenda for Michael R., December 5th, 2008

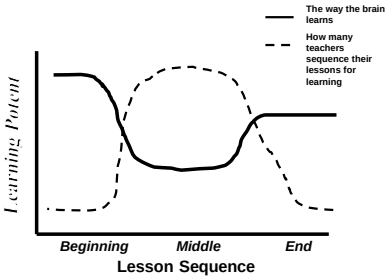
Daily Tasks:

- ___ Place last night's homework at the top right corner of desk.
- ___ Record warm-up activity from chalkboard into learning log.
- ___ Complete warm-up activity.
- ___ Listen to teacher's explanation of the lesson's agenda.
- ___ Record assignments from Homework Board into notebook.

Specific to Today's Lesson:

- ___ Get graphic organizer from teacher and put name/date at top.
- ___ Fill in examples in g.o. while teacher explains it to the class.
- ___ Read both sides of the g.o. so you know what you are looking for.
- ___ Watch the video and fill in the g.o. during the breaks.
- ___ Complete closing activity for the video.
- ___ Ask Ms. Green to sign your assignment notebook.
- ___ Go to math class, but first pick up math book in locker.





The Primacy-Recency Effect

The Gettysburg Address

Four score and seven years ago our fathers brought forth on this continent, a new nation, conceived in Liberty, and dedicated to the proposition that all men are created equal. Now we are engaged in a great civil war, testing whether that nation, or any nation so conceived and so dedicated, can long endure. We are met on a great battle-field of that war. We have come to dedicate a portion of that field, as a final resting place for those who here gave their lives that that nation might live. It is altogether fitting and proper that we should do this. But in a larger sense, we can not dedicate -- we can not consecrate -- we can not hallow -- this ground. The brave men, living and dead, who struggled here, have consecrated it, far above our poor power to add or detract…

Chronological Order

Definition and Key words: This involves putting facts, events, a concepts into sequence using time references to order them. Signal words include on (date), now, before, since, when, not long after, and gradually.

"Astronomy came a long way in the 1500s and 1600s. In 1531, Halley's Comet appeared and caused great panic. Just twelve years later, however, Copernicus realized that the sun was the center of the solar system, not the Earth, and astronomy became a way to understand the natural world, not something to fear. In the early part of the next century, Galileo made the first observations with a new instrument – the telescope. A generation later, Sir Issac Newton invented the reflecting telescope, a close cousin to what we use today. Halley's Comet returned in 1682 and it was treated as a scientific wonder, studied by Edmund Halley."

Compare and Contrast

Defintion and Key words: Explains similarities and differences. Signal words include however, as well as, not only, but, while, unless, yet, on the other hand, either/or, although, similarly, and unlike.

"Middle school gives students more autonomy than elementary school. While students are asked to be responsible for their learning in both levels, middle school students have more pressure to follow through on assignments on their own, rather than rely on adults. In addition, narrative forms are used to teach most literacy skills in elementary school. On the other hand, expository writing is the way most information is given in middle school."

Cause and Effect

Definition and Key words: Shows how something happens through the impact of something else. Signal words include because, therefore, as a result, so that, accordingly, thus, consequently, this led to, and nevertheless.

"Drug abusers often start in upper elementary school. They experiment with a parent's beer and hard liquor and they enjoy the buzz they receive. They keep doing this and it starts taking more and more of the alcohol to get the same level of buzz. As a result, the child turns to other forms of stimulation including marijuana. Since these are the initial steps that usually lead to more hardcore drugs such as Angel Dust (PCP), heroin, and crack cocaine, marijuana and alcohol are known as "gateway drugs." Because of their addictive nature, these gateway drugs lead many youngsters who use them to the world of hardcore drugs."

Problem and Solution

Definition and Key words: Explains how a difficult situation, puzzle, or conflict develops, then what was done to solve it. Signal words are the same as Cause and Effect above.

"The carrying capacity of a habitat refers to the amount of plant and animal life its resources can hold. For example, if there are only 80 pounds of food available and there are animals that together need more than 80 pounds of food to survive, one or more animals will die – the habitat can't "carry" them. Humans have reduced many habitats' carrying capacity by imposing limiting factors that reduce its carrying capacity such as housing developments, road construction, dams, pollution, fires, and acid rain. So that they can maintain full carrying capacity in forest habitats, Congress has enacted legislation that protects endangered habitats from human development or impact. As a result, these areas have high carrying capacities and an abundance of plant and animal life."

Proposition and Support

Defintion and Key words: The author makes a general statement followed by two or more supporting details. Key words include: In addition, also, as well as, first, second, finally, in sum, in support of, therefore, in conclusion.

"There are several reasons that teachers should create prior knowledge in students before teaching important concepts. First, very little goes into long-term memory unless it's attached to something already in storage. Second, new learning doesn't have the meaning necessary for long-term retention unless the student can see the context in which it fits. Finally, the brain likes familiarity. It finds concepts with which it is familiar compelling. In sum, students learn better when the teacher helps students to create personal backgrounds with new topics prior to learning about them.

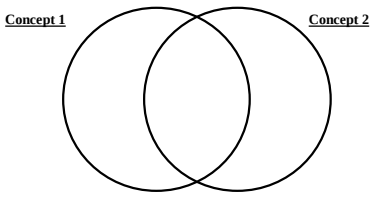
Enumeration

Definition and Key words: Focuses on listing facts, characteristics, or features. Signal words include to begin with, secondly, then, most important, in fact, for example, several, numerous, first, next finally, also, for instance, and in addition.

"The moon is our closest neighbor. It's 250,000 miles away. It's gravity is only 1/6 that of Earth. This means a boy weighing 120 pounds in Virginia would weigh only 20 pounds on the moon. In addition, there is no atmosphere on the moon. The footprints left by astronauts back in 1969 are still there, as crisply formed as they were on the day they were made. The lack of atmosphere also means there is no water on the moon, an important problem when traveling there."

Text Structures

[Taking Notes with Compare/Contrast]



T-List or T-Chart: Wilson's 14 Points

Main Ideas	Details/Examples
Reasons President Wilson Designed the Plan for Peace	1. 2. 3.
Three Immediate Effects on U.S. Allies	1. 2. 3.
Three Structures/Protocols created by the Plans	1. 2. 3

Cornell Note-Taking Format

Reduce	**Record**
[Summarize in short phrases or essential questions next to each block of notes.]	*Write your notes on this side.]*

Review -- *Summarize (paragraph-style) your points or responses to the questions. Reflect and comment on what you learned.*

Somebody Wanted But So

[Fiction]

Somebody ***(characters)…***

wanted ***(plot-motivation)…,***

but ***(conflict)…,***

so ***(resolution)… .***

Something Happened And Then

[Non-fiction]

Components of Blood Content Matrix

	Red Cells	White Cells	Plasma	Platelets
Purpose	Carries 02 and nutrients			
Amount	5,000,000 per cc			
Size & Shape	Small, round,like Cheerios			
Nucleus ?	No			
Where formed	Bone marrow, spleen			

The student's rough draft:

Red blood cells carry oxygen and nutrients around the body. They are small and indented in the middle, like little Cheerios. There are 5 million per cc of blood. There is no nucleus in mature red blood cells. They are formed in the bone marrow and spleen.

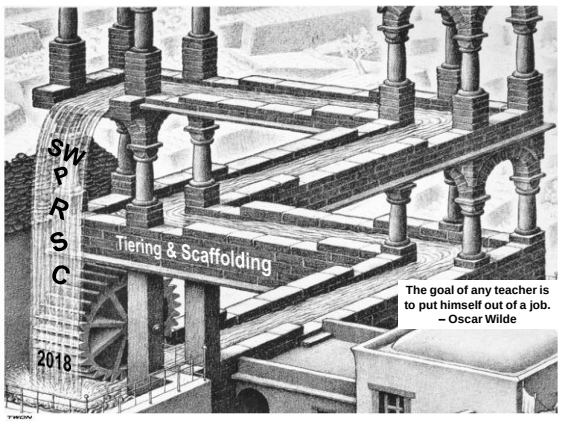
Word Morphology:

Teach Prefixes, Roots, and Suffixes!

Mal – badly, poor
Meta – beyond, after, change
Mis – incorrect, bad
Mono – one
Multi – many
Neo – new
Non – not
Ob, of, op, oc – toward, against
Oct – eight
Paleo – ancient
Para – beside, almost
Penta – five
Per – throughout, completely
Peri – around
Poly – many
Post – after
Pre – before
Pseudo – false

Rick Lavoie
From F.A.T. City Workshop: How Difficult Can This Be?

Visual Perception



The goal of any teacher is to put himself out of a job. – Oscar Wilde

Tiering

Common Definition -- Adjusting the following to maximize learning:

- Readiness
- Interest
- Learning Profile

Tier in gradations

Rick's Preferred Definition:

-- Changing the level of complexity or required readiness of a task or unit of study in order to meet the developmental needs of the students involved (Similar to Tomlinson's "Ratcheting").

Tiering Assignments and Assessments

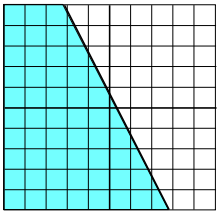
Example -- Graph the solution set of each of the following:

1. $y > 2$ 2. $6x + 3y \leq 2$ 3. $-y < 3x - 7$

2. $6x + 3y \leq 2$
$3y \leq -6x + 2$
$y \leq -2x + 2/3$

x	y
0	2/3
3	-5 1/3

Given these two ordered pairs, students would then graph the line and shade above or below it, as warranted.



Tiering Assignments and Assessments

For *early* readiness students:

- **Limit the number of variables for which student must account to one in all problems. (y > 2)**
- **Limit the inequality symbols to, "greater than" or, "less than," not, "greater then or equal to" or, "less than or equal to"**
- **Provide an already set-up 4-quadrant graph on which to graph the inequality**
- **Suggest some values for x such that when solving for y, its value is not a fraction.**

Tiering Assignments and Assessments

For *advanced* readiness students:

- **Require students to generate the 4-quadrant graph themselves**
- **Increase the parameters for graphing with equations such as: $-1 \leq y \leq 6$**
- **Ask students what happens on the graph when a variable is given in absolute value, such as: $/y/ > 1$**
- **Ask students to graph two inequalities and shade or color only the solution set (where the shaded areas overlap)**

Primary Reading Example

Track eye movement across the line – Lines presented with lots of space in between each one:

1. Follow pattern of rotating shapes:

2. Follow pattern of alternating letters and similar patterns:

A B A B A B A B A B A B A B A B A B A B

C F C C F F C C C F F F C C C C C F F F F

3. Follow increasingly complex letter patterns:

- B B D J D B B D J D B B E E R X R E E R X R
- W N M P O U I P L K G P A B N P Q V T P

4. Repeat with lines closer to together and with smaller fonts, making sure students focus doesn't stray higher or lower than the line:

eeiiaabbxxrruuwwxxyyzziittooppqqrrssaagg

ffff rrrr ttss ppii uuoo aaoo eeoo iioo oooo ffff rrrr

fop pof rip pir tap pat lot tol tab bat sir ris lip pil bor rob kep pek moo oom

5. Track along the line with simple words, adding simple punctuation:

Bob can bark. Bob can bark. Bob can bark.
Rob can purr. Rob can purr. Rob can purr.
Rat wears a hat. Rat wears a hat. Rat wears a hat.

Tiering Assignments and Assessments -- Advice

- **Begin by listing every skill or bit of information a student must use in order to meet the needs of the task successfully. Most of what we teach has subsets of skills and content that we can break down for students and explore at length.**

Tiering Assignments and Assessments -- Advice

- **Tier tasks by designing the full-proficiency version first, then design the more advanced level of proficiency, followed by the remedial or early-readiness level, as necessary.**

Tiering Assignments and Assessments -- Advice

- **Respond to the unique characteristics of the students in front of you. Don't always have high, medium, and low tiers.**

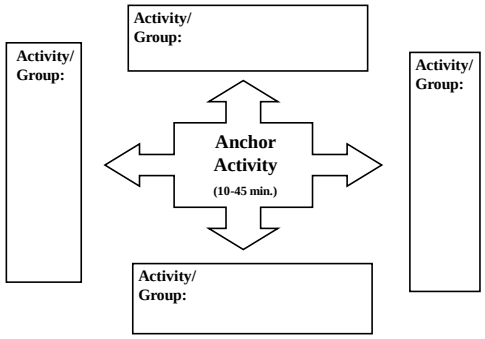
Tiering Assignments and Assessments -- Advice

- **Don't tier every aspect of every lesson. It's often okay for students to do what everyone else is doing.**

<u>Anchor activities</u> refer to two types of learner management experiences:

- **"Sponge" activities that soak up down time, such as when students finish early, the class is waiting for the next activity, or the class is cleaning up or distributing papers/supplies**
- **A main activity everyone is doing from which the teacher pulls students for mini-lessons**

Anchor Lesson Design



Anchor Activities Advice

- Use activities with multiple steps to engage students
- Require a product – 'increases urgency and accountability
- Train students what to do when the teacher is not available
- Start small: Half the class and half the class, work toward more groups, smaller in size
- Use a double t-chart to provide feedback
- Occasionally, videotape and provided feedback

Double-T Charts

[eye]	[ear]	[heart]
Char.'s of success we'd <u>see</u>	Char.'s of success we'd we'd <u>hear</u>	Char.'s of success we'd <u>feel</u>

What to Do When the Teacher is Not Available

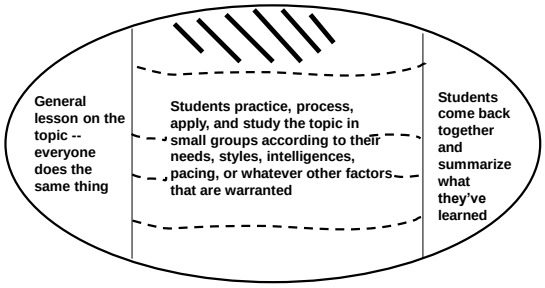
<u>Suggestions include</u>:

- Move on to the next portion; something may trigger an idea
- Draw a picture of what you think it says or asks
- Re-read the directions or previous sections
- Find a successful example and study how it was done
- Ask a classmate ("Ask Me," "Graduate Assistant," "Technoids")
- Define difficulty vocabulary
- Try to explain it to someone else

The Football Sequence

1. **First teach a general lesson to the whole class for the first 10 to 15 minutes.**
2. **After the general lesson, 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. This lasts for 15 to 20 minutes. We circulate through the room, clarifying directions, providing feedback, assessing students, and answering questions. This section is very expandable to help meet the needs of students.**
3. **Bring the class back together as a whole group and process what they'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. This usually takes about 10 minutes.**

The football metaphor comes from the way we think about the lesson's sequence: a narrow, whole class experience in the beginning, a wider expansion of the topic as multiple groups learn at the own pace or in their own ways, then narrowing it back as we re-gather to process what we've learned.



To Increase (or Decrease) a Task's Complexity, Add (or Remove) these Attributes:

- Manipulate information, not just echo it
- Extend the concept to other areas
- Integrate more than one subject or skill
- Increase the number of variables that must be considered; incorporate more facets
- Demonstrate higher level thinking, i.e. Bloom's Taxonomy, William's Taxonomy
- Use or apply content/skills in situations not yet experienced
- Make choices among several substantive ones
- Work with advanced resources
- Add an unexpected element to the process or product
- Work independently
- Reframe a topic under a new theme
- Share the backstory to a concept – how it was developed
- Identify misconceptions within something

To Increase (or Decrease) a Task's Complexity, Add (or Remove) these Attributes:

- Identify the bias or prejudice in something
- Negotiate the evaluative criteria
- Deal with ambiguity and multiple meanings or steps
- Use more authentic applications to the real world
- 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
- Critique something against a set of standards
- Work with the ethical side of the subject
- Work in with more abstract concepts and models
- Respond to more open-ended situations
- Increase their automacity with the topic
- Identify big picture patterns or connections
- Defend their work

- **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 1800's?" or, "How is this portrayed in the Kingdom Protista?"**
- **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."**
- **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?"**

The Equalizer

(Carol Ann Tomlinson)

Foundational ---------- Transformational
Concrete ---------- Abstract
Simple ---------- Complex
Single Facet/fact ---------- Multi-Faceted/facts
Smaller Leap ---------- Greater Leap
More Structured ---------- More Open
Clearly Defined ---------- Fuzzy Problems
Less Independence -------- Greater Independence
Slower ---------- Quicker

R.A.F.T.S.

R = Role, A = Audience, F = Form, T = Time or Topic, S = Strong adverb or adjective

Students take on a role, work for a specific audience, use a particular form to express the content, and do it within a time reference, such as pre-Civil War, 2025, or ancient Greece.

Sample assignment chosen by a student:

A candidate for the Green Party (role), trying to convince election board members (audience) to let him be in a national debate with Democrats and the Republicans. The student writes a speech (form) to give to the Board during the Presidential election in 2004 (time). Within this assignment, students use arguments and information from this past election with third party concerns, as well as their knowledge of the election and debate process. Another student could be given a RAFT assignment in the same manner, but this time the student is a member of the election board who has just listened to the first student's speech.

R.A.F.T.S.

Raise the complexity: Choose items for each category that are farther away from a natural fit for the topic . Example: When writing about Civil War Reconstruction, choices include a rap artist, a scientist from the future, and Captain Nemo.

Lower the complexity: Choose items for each category that are closer to a natural fit for the topic. Example: When writing about Civil War Reconstruction, choices include a member of the Freedmen's Bureau, a southern colonel returning home to his burned plantation, and a northern business owner

Analyze…	**Construct…**
Revise…	**Rank…**
Decide between…	**Argue against…**
Why did…	**Argue for…**
Defend…	**Contrast…**
Devise…	**Develop…**
Identify…	**Plan…**
Classify…	**Critique…**
Define…	**Rank…**
Compose…	**Organize…**
Interpret…	**Interview…**
Expand…	**Predict…**
Develop…	**Categorize…**
Suppose…	**Invent…**
Imagine…	**Recommend…**

Practice Complex-ifying.
'Really.
'A lot.

Practice turning regular education objectives and tasks into advanced objectives and tasks.

This quarter, you've taught:

- **4-quadrant graphing**
- **Slope and Y-intercept**
- **Multiplying binomials**
- **Ratios/Proportions**
- **3-dimensional solids**
- **Area and Circumference of a circle.**

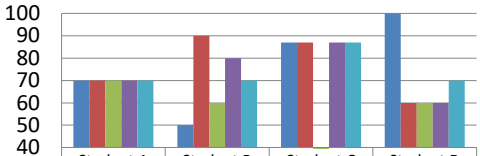
The student's grade: B

What does this mark tell us about the student's proficiency with each of the topics you've taught?

Unidimensionality – A single score on a test represents a single dimension or trait that has been assessed

Student	Dimension A	Dimension B	Total Score
1	**2**	**10**	**12**
2	**10**	**2**	**12**
3	**6**	**6**	**12**

Problem: Most tests use a single score to assess multiple dimensions and traits. The resulting score is often invalid and useless. -- Marzano, CAGTW, page 13



	Student A	Student B	Student C	Student D
Fiction	70	50	87	100
Non-Fiction	70	90	87	60
Writing	70	60	0	60
Speaking	70	80	87	60
Listening	70	70	87	70

What do all these have in common?

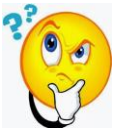
- **Put name, date, period in the top right corner of the paper**
- **Used a quiet, indoor voice while in the classroom**
- **Showed up to play in an evening musical concert**
- **Brought in permission slip signed by parents**
- **Donated a box of tissues to the classroom**
- **Completed a reading log of time read**
- **Had a nice, neat notebook in math**
- **Dressed out in gym uniform in p.e.**
- **Turned in work in a timely manner**
- **Did service for the school**
- **Worked collaboratively**
- **Tutored classmates**

Public Curriculum

Hidden Curriculum

What is the Role of Each One?

Formative Assessment
Summative Judgment



We can learn without grades, but we can't learn without descriptive feedback.

Sine non qua

Literally: "Without which, not." Put another way: "Without this, nothing."

Helpful mindset for students and teachers:

Assessment and Feedback are considered *information*, NOT evaluation or judgment.

Two Questions to Ask Students:

- **What are you supposed to be learning?**
- **Where are you in relation to that goal?**

What do these all have in common?

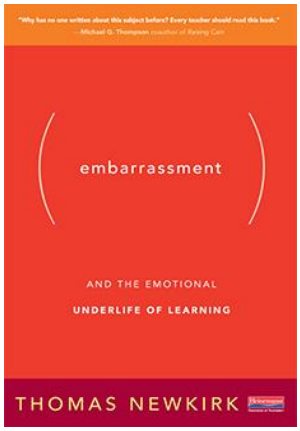
Good job.	Well done.
Excellent.	Sloppy.
Little effort here.	Intelligent!
Unacceptable.	Missing supportive detail.
Confusing.	Poorly designed.
Did not follow directions.	Outstanding!
One of the best in class!	Significant errors.
Well organized.	

How about this for descriptive feedback?

"You earned a 92%, Joel," says the teacher as she passes back test papers. "That's better than most of the class."

Does your feedback invoke the student or colleague's ego? If so, they will try to save face, protect their honor or status, and not engage with the feedback – which is your goal. We want to be analytical, critical, thoughtful, not threatening.

(Based on an idea from Dylan Wiliam)



'Highly recommended new book, 'worthy of a book study – One of the most impactful books on teaching I've read in years.

Feedback vs Assessment

<u>Feedback</u>: Holding up a mirror to students, showing them what they did and comparing it what they should have done – There's no evaluative component!

<u>Assessment</u>: Gathering data *so we can make a decision*

<u>Greatest Impact on Student Success</u>:

Formative feedback

Feedback begins with non-emotional, non-judgmental facts…

From Teacher's perspective:

"You included one piece of evidence for each claim."
"You accounted for the amplitude of the wave."

From student's perspective:

"I did not use distilled water in the lab."
"I arched my back on the dismount."

…then it is followed by reflection on how those elements relate to student's success relative to the evaluative criteria:

From the teacher's perspective:

- *"The criteria called for two pieces of evidence per claim, not one."*
- *"Because you accounted for the wave amplitude, your declarations of energy outputs were correct."*

From the student's perspective:

- *"If I used distilled water, I would not have as many contaminants potentially affecting my lab results."*
- *"Because I arched my back, I am able to make a fluid transition into the next element of the routine."*

What about teachers receiving constructive, descriptive feedback?

"Your lesson was engaging."

[Judgement/Unhelpful]

"You incorporated students' personal interests and culture in your examples, and you started with a real-life problem that needed to be solved. As a result, students spent most of their time discussing the math involved instead of just socializing.

[Commenting on Decisions and their Impact – Helpful, professional]

What gets listed in the criteria, gets the focus – But to what end?

"If we mark students' everyday, coming-to-know writing on spelling and punctuation, they will only use words they know how to spell and sentences they know how to punctuate."

- 'Rick's wording, but based on an idea originated by Marjorie Frank

Two Ways to Begin Using Descriptive Feedback:

- "Point and Describe"
  (from ***Teaching with Love & Logic,*** **Jim Fay, David Funk)**
- "Goal, Status, and Plan for the Goal"
  1. **Identify the objective/goal/standard/outcome**
  2. **Identify where the student is in relation to the goal (Status)**
  3. **Identify what needs to happen in order to close the gap**

When providing descriptive feedback that builds perseverance,

…comment on decisions made and their impact, NOT quality of work.

Highlighting Mistakes: A Grading Strategy
(Youtube.com)

Effective Protocol for Data Analysis
and Descriptive Feeddback found in many Schools:

Here's What, So What, Now What

1. Here's What: *(data, factual statements, no commentary)*
2. So What: *(Interpretation of data, what patterns/insights do we perceive, what does the data say to us?)*
3. Now What: *(Plan of action, including new questions, next steps)*

Item	Topic or Proficiency	Right	Wrong	Simple Mistake?	Really Don't Understand
1	**Dividing fractions**		✓		✓
2	**Dividing Fractions**		✓		✓
3	**Multiplying Fractions**		✓	✓	
4	**Multiplying fractions**	✓			
5	**Reducing to Smplst trms**	✓			
6	**Reducing to Smplst trms**	✓			
7	**Reciprocals**	✓			
8	**Reciprocals**		✓	✓	
9	**Reciprocals**		✓	✓	

Date

Mr./Mrs./Miss _____,

I understand….

I need assistance in….

I suggestion the following four steps for me to take in order to learn these content and skills:

Sincerely,

_____

Teacher Action	Result on Student Achievement
Just telling students # correct and incorrect	Negative influence on achievement
Clarifying the scoring criteria	Increase of 16 percentile points
Providing explanations as to why their responses are correct or incorrect	Increase of 20 percentile points
Asking students to continue responding to an assessment until they correctly answer the items	Increase of 20 percentile points
Graphically portraying student achievement	Increase of 26 percentile points

-- Marzano, CAGTW, pgs 5-6

The Value of Pre-Assessments

Teacher Focus

- To make informed decisions about the next steps in students' instruction

Student Focus

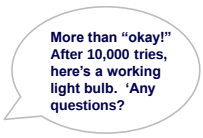
- To provide highly motivating Growth-Over-Time perspective
- To prime the brain, 'putting important content on student's "radar scope" for elevated attention during learning

Students should be allowed to re-do assessments until they achieve acceptable mastery, and they should be given full credit for having achieved such.

Recovering in full from a failure teaches more than being labeled for failure ever could teach.

It's a false assumption that giving a student an "F" or wagging an admonishing finger from afar builds moral fiber, self-discipline, competence, and integrity.

Re-Do's & Re-Takes: Are They Okay?



Thomas Edison

F.A.I.L.

First Attempt in Learning

Executive Function could be key!

- He swears he can wake up and be ready to go to school 10 minutes before the bus arrives, and he does – but he forgets to bring three assignments and one permission slip due today, so after he arrives, he calls Mom to see if she can bring those items to school on her way to work, and oh, could she bring some lunch money, too?

- She makes unsupported claims in an information essay and says she was never told to she had to support them with facts even though the requirement was underlined in her printed directions and you emphasized it with her orally three times.
- She reasons well through tricky word problems last week, but can't figure out similar ones this week using the same processes.
- When doing a Web search on the speed of light, she gives up when she inputs, "light" in the search box and gets 2,220,000,000 possible websites.

- On multiple occasions she misjudges how long tasks will take and is perpetually behind and asking for extensions.
- He can't break down large tasks into "doable" sections and proceed through them in an orderly manner, nor can he perceive when he's made progress in a large project.
- She doesn't see how letting her 5 year-old brother for whom she is babysitting for an hour be alone with the hamster in a plastic cup while she goes in another room to talk to friends via Google Hangout could pose any problem for the hamster.

- He has difficulty putting off little, but immediate satisfaction for much greater satisfaction later.
- He misreads the social situation and says something inappropriate for the moment.
- He doesn't recognize when he doesn't understand something and he needs assistance. In fact, he's sure he understands it and is frustrated when you tell him that he did something incorrectly.

- He Tweets a line in poor taste from a movie, but doesn't put quotes around it and cite the movie, so friends and family think he said it himself and he is confused when they are upset with him.
- He demonstrates "learned helplessness," citing very fixable problems for why he can't start the assignment, such as he doesn't have a pen, his desk is askew, he doesn't know which page to use, and he can't find his folder on the computer.

Executive Function skills:

(Guare, Dawson, Guare, 2013, p. 15-17)

- Response inhibition
- working memory
- emotional control
- flexibility
- sustained attention
- task initiation
- planning/prioritizing
- organization
- time management
- goal-directed persistence
- metacognition

And How Do We Build These Skills in Students?

There's no one strategy that works.

And even more interesting:

The strategies will need to change as the students mature

Exercise daily.

"Aerobic exercise can grease the wheels of executive brain function." "….[R]ecent research indicates that exercising students…can expand their working memory...as well as improve their selective attention and their ability to inhibit disruptive impulses. Regular exercise and overall physical fitness have been linked to academic achievement, as well as to success on specific tasks like safely crossing a busy street while talking on a cell phone."

And later, "…[E]xercising young adults…post quicker reaction times, give more accurate responses, and are more effective at detecting errors when they engage in fast-paced tasks in the lab."

-- "The Science of Smart: A Surprising Way To Improve Executive Function," Annie Murphy Paul, author of *Brilliant: The New Science of Smart* posted on her PBS on-line article, March

Video Students.

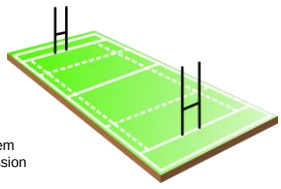
Video students struggling with EF skills, and in a quiet moment away from other students, sit with them and watch it, asking questions so the student can see and articulate the reality of what he is doing and its impact on his own learning and the learning of those around him.

Provide a compelling visual aide for pretty much everything students have to learn.

Provide students with time-keeping tools with alarms such as watches and timers.

Make Every Goal Transparent.

Provide lots of examples of the final product for every standard, and include almost-examples so they can see the difference. Also, provide students with ample experience critiquing others' products and attempts at the learning goals. Create their internal editor!



And just as importantly, develop a system to visibly see growth over time, progression toward goals.

Demonstrate how EF skill success leverages students for what they desire in life.

Examples: Help them make a plan for making enough money to purchase something of value, Help them identify what they need to do in order to be a successful group member of group they are seeking.

Help students find a way to improve their sleep patterns.

Sleep deprivation exacerbates executive function issues, and it degrades memory formation and learning, changes personalities, suppresses immune systems, and thwarts resilience.

Record Due Dates at Tops of Assignments (Or Opening Page of File)
Remove clutter and distractions from immediate visual area of student while he works.

Regular Bag Dumps and Clean-outs!
Do a book bag dump and clean out once a week and on the same day of the week. If everything is on an I-Pad, do a folder and file clean-out and confirm the current organization is helping not hindering the student's success.

Create a successful emotional atmosphere.

- Let students know that they are accepted as fully valued class members.
- Operate as an advocate, not an adversarial "gotcha" taskmaster.
- Know that humiliation for EF shortcomings kills motivation and enflames resentment.
- Let students know EF issues are normal.
- Accept that most everything that enters students' minds goes to emotional response centers first, cognitive centers later. Don't take it personally when they laugh at the unlaughable.

Help students experience growing autonomy.

Provide a modified democracy, choice, and control from time to time.

Give students with EF challenges increasing responsibility for lessons and classroom management and the leads in the school play or afterschool clubs.

Announce Upcoming Events and Changes to the regular schedule well in advance, and do it repeatedly. 'No surprises. If we are actually going to do a surprise visitor to the classroom, we may need to tell students struggling with EF skills about it ahead of time.

Establish more than one reminder system. Don't keep it to Post-it notes and alarms on cell phones alone.

Confirm, Reconfirm, and Reconfirm Again.

Do this with directions and evaluative criteria for assignments and assessments, and calendars. Making it ritualistic helps, but the occasional asynchronous confirmation is wise, too.

Cue from Afar.

"Communicate indirectly (Example: note, text message) The idea is to create distance between you and your teen so that the cue can work without the two of you being in the same space at the same time."

-- P. 144, Guare, Dawson, Guare, 2013

Analyze, Break Down Tasks.

Break larger tasks down into smaller chunks and as Atul Gawande wisely taught us (*The Checklist Manifesto: How to Get Things Right*, 2011); it's particularly effective to put these task analyses in a checklist.

Practice breaking down tasks: preparing a bibliography, doing an Internet search, washing a P.E. uniform, getting himself ready for musical, athletic, or theatrical performance.

Analyze, Break Down Tasks - Example: Homework

- ❑Ten minutes before the end of class, confirm assignment with the teacher.
- ❑Write it in Daily Planner.
- ❑List everything I need to bring home in order to do the assignment.
- ❑Get every item on that list, cross off each one as I do.
- ❑Re-explain the assignment's directions to someone in my family and confirm that I have it right. If confused, check with the class Website.
- ❑Do assignment in room at home without distractions.
- ❑Half way through the assignment, check with someone that I'm doing it correctly.
- ❑Finish the assignment.
- ❑Put it in my book bag.
- ❑Put book bag on table near the front door.

Recommended Resources:

- *Smart but Scattered: The Revolutionary "Executive Skills" Approach to Helping Kids Reach Their Potential* by Peg Dawson and Richard Guare
- *Smart but Scattered Teens: The "Executive Skills" Program for Helping Teens Reach Their Potential* by Richard Guare, Peg Dawson, and Colin Guare
- *Late, Lost, and Unprepared: A Parents' Guide to Helping Children with Executive Functioning* by Joyce Cooper-Kahn and Laurie Dietzel
- *Promoting Executive Function in the Classroom (What Works for Special-Needs Learners)* by Lynn Meltzer
- The National Center for Learning Disabilities (www.ncld.org)
- http://developingchild.harvard.edu/resources/multimedia/videos/inbrief_series/inbrief_executive_function/
- "Worth a Closer Look: Executive Function," Rick Wormeli, *Middle Ground* magazine (Now, *AMLE Magazine*), August 2013, Association for Middle Level Education

Recommended Resources for ADHD information:

- *The Attention Deficit Disorder Assocation (www.add.org)*
- *http://www.helpguide.org/mental/adhd_add_signs_symptoms.htm*
- *National Resource Center on ADHD (http://www.help4adhd.org/), which includes resources for the organization, CHADD (Children and Adults with Attention-Deficit/Hyperactivity Disorder*

What does it mean to do advanced responsive teaching?

It means we become **mini-experts in increasingly diverse student populations**:

Learning disabilities	Artistic
504 and Otherwise Health Impaired	Speech and Language issues
Hearing challenges	Abused
Visual challenges	Extrovert/Introvert
Athletic/unathletic	Autistic
Gifted/advanced	English Language Learners
Emotionally challenged	ADHD
Military	Transient
Gang-affiliated	Tech-savvy/tech-illerate
Under resourced	Poor readers
Impoverished students	Single parent homes
Lesbian-Gay-Bisexual-Transgender (LGBT)	Depression/Suicidal
Gamers	Pregnant
Working full time or part time	Religious affiliation

What does it mean to do advanced responsive teaching?

It means we become **mini-experts in cognitive science principles specifically for the students we teach**:

- The mind craves structures, relationships, connections.
- Emphasize sense-making, meaning-making, and the growth mindset.
- Prime the brain.
- Create prior knowledge where there was none.
- The brain is a survival organ.
- Getting enough sleep is critical, not optional.
- Build in more movement and shifting from one activity to another.
- The mind retains information/skills through reiteration, recursive experiences.
- The brain needs a lot more water and protein than we think.
- Stress limits cognition.
- When assimilating too much, a child's default response is anger, frustration.
- There is no such thing as laziness.
- While there may be varied experiences and frames of reference as well as learning preferences depending on the situation or topic, most of the time students can learn most content in more than one way – we don't pigeon-hole students.
- Motivation, resilience, "stick-to-it-ness" are specific fields of expertise.

What does it mean to do advanced responsive teaching?

It means we become **mini-experts in assessment and grading practices that support responsive teaching principles**:

- Evidenced-based assessment
- Formative feedback, including getting training on descriptive feedback
- Gradebooks cumulative for the year
- Subject-like teachers collaborate on evidence descriptors
- Allow/Require re-do's for full credit
- Time becomes a variable
- Revising instruction based on assessment
- Distinguish between formative and summative
- Increase the role of pre-assessment in our lesson design
- Develop a constructive response to late work
- Report work habits, efforts, character elements separately from academic progress and performance
- Welcome alternative assessments (This is different than most interpretations of "Credit Recovery")
- Disaggregate scores/topic evaluations to see strong and weak areas
- Accept grades as what students know and can do at the end of learning, not during the learning.

What does it mean to do advanced responsive teaching?

It means we become **mini-experts in building a personal repertoire of differentiated responses, cultivating pedagogical dexterity:**

- Read professionally. Subscribe to at least one professional journal.
- Think reflectively.
- Keep up to date in our expertise regarding the disciplines we teach.
- Attend at least one national or regional conference/seminar each year.
- Exchange lesson plans for collegial review.
- Participate in PLC's, Teacher Action Research, Critical Friends Networks, or as a Lab School for a local university
- Actively pursue new ways to do differentiation elements like flexible grouping, scaffolding, tiering, adjusting instruction to readiness levels, etc.
- Participate in the national and local conversations of our discipline.
- Participate in a professional on-line community and/or course.

What does it mean to do advanced responsive teaching?

It means we become **mini-experts in building a personal repertoire of differentiated responses, cultivating pedagogical dexterity: (part 2)**

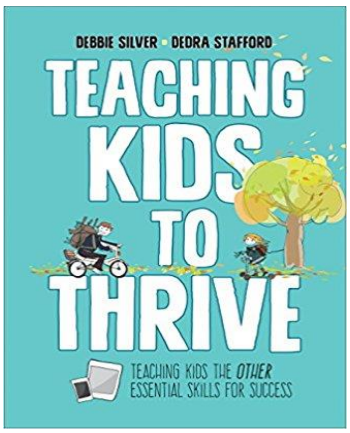
- Analyze practices/decisions regularly, and revise/change/drop those that aren't working.
- Invite professional critique from colleagues, students, parents.
- Coach others.
- Participate/Conduct discussions of hypotheticals/scenarios.
- Cultivate personal creativity and innovation.
- Ask students for how to teach something best.
- Co-teach.
- Blog or write for publication.

Questions to Begin and Maintain Conversation in your Differentiated Lesson Critiques

A. "Tell me about the students in this class."
B. "What were you trying to accomplish with this lesson?"
C. "May I see your class profile?" (also known as a, "learner profile")
D. "How did you determine who was in which group today?"
E. "Why are you teaching this topic this way to these specific students?"
F. "How did you alter your instruction based on the unique needs of these students?"
G. "What did you do with students prior to this lesson to prepare them for it?"

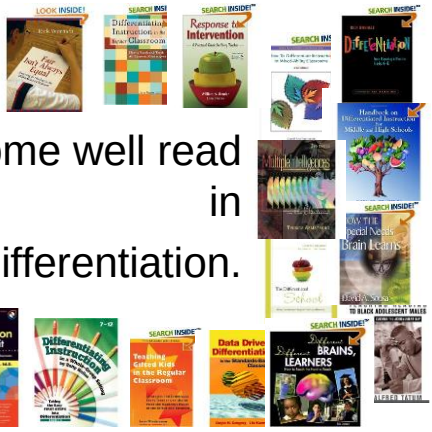
Questions to Begin and Maintain Conversation

H. "How will you have students respond to this information tomorrow or later in the week?"
I. "How did(does) assessment inform your decisions?"
J. "Is there anything you would change in this lesson the next time you teach it?"
K. "How will (or did) you know you were successful in this lesson with every student?"
L. "'Fair isn't always equal,' is a popular sentiment in differentiated classrooms. Please show how this is manifest in your classroom.



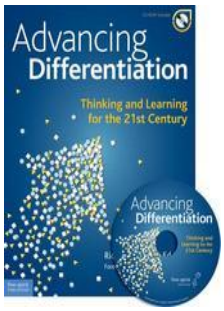
'Just released in 2017!

'Highly recommended – And the Foreword is unusually well written! :-)

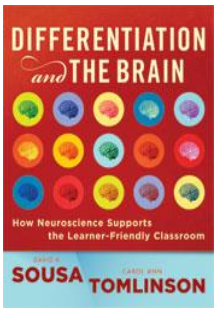


Become well read in differentiation.

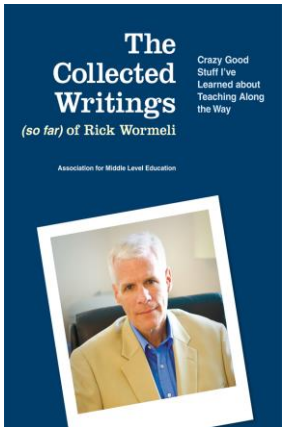
Fantastic books!



Richard Cash



David Sousa
Carol Ann Tomlinson



Great Resources to Further
your Thinking and Repertoire

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- Burke, Kay. *What to Do With the Kid Who…: Developing Cooperation, Self-Discipline, and Responsibility in the Classroom*, Skylight Professional Development, 2001
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- Frender, Gloria. *Learning to Learn: Strengthening Study Skills and Brain Power*, Incentive Publications, Inc., 1990

Great Resources to Further
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- Lavoie, Richard. *How Difficult Can This Be? The F.A.T. City Workshop*, WETA Video, P.O. box 2626, Washington, D.C., 20013-2631 (703) 998-3293. The video costs $49.95. Also available at www.Ldonline.
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- Rogers, Spence; Ludington, Jim; Graham, Shari. *Motivation & Learning: Practical Teaching Tips for Block Schedules, Brain-Based Learning, Multiple Intelligences, Improved Student Motivation, Increased Achievement,* Peak Learning Systems, Evergreen, CO. 1998, To order, call: 303-679-9780
- Rutherford, Paula. *Instruction for All Students,* Just ASK Publications, Inc (703) 535-5432, 1998
- Sousa, David. *How the Special Needs Brain Learns,* Corwin Press, 2001
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- Strong, Richard W.; Silver, Harvey F.; Perini, Matthew J.; Tuculescu, Gregory M. *Reading for Academic Success: Powerful Strategies for Struggling, Average, and Advanced Readers, Grades 7-12*, Corwin Press, 2002

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  Fulfilling the Promise of the Differentiated Classroom, ASCD, 2003
  How to Differentiate Instruction in Mixed-Ability Classrooms, ASCD, 1995
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  Differentiation in Practice: A Resource Guide for Differentiating Curriculum, Grades 5-9. ASCD, 2003 (There's one for K-5 and 9-12 as well)
  Integrating, with Jay McTighe, 2006, ASCD (This combines UBD and DI)
- Tovani, Cris. *I Read It, But I Don't Get It.* Stenhouse Publishers, 2001
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- Wormeli, Rick. *Day One and Beyond*, Stenhouse Publishers, 2003
- Wormeli, Rick. *Meet Me in the Middle*, Stenhouse Publishers, 2001

"I used to think…, but now I think…"