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Giving Students Meaningful Work Pages 80-81

Choice Is a Matter of Degree

Bryan Goodwin

Recently, my daughter engaged in a rite of passage at her school—the America Fair. For weeks, her project on her chosen topic, the Great Depression, consumed her life (and our dining room table) as she researched, wrote a report, and prepared a museum-style diorama to present at an open house.

Students in schools everywhere participate in similar events every year. Given the tremendous effort such projects require of students and teachers (and parents), it's worth asking, What is their real value?

Examining the Research

One premise underlying the use of student projects is that if we allow students to choose what to study, they will be more motivated to learn. A second premise is that students will learn more by doing projects than they will with traditional methods, such as classroom lectures. Let's look at what research says about both assumptions.

Choice: Can You Have Too Much?

A 2008 meta-analysis of 41 studies found a strong link between giving students choices and their intrinsic motivation for doing a task, their overall performance on the task, and their willingness to accept challenging tasks (Patall, Cooper, & Robinson, 2008). However, the researchers also found diminishing returns when students had too many choices: Giving more than five options produced less benefit than offering just three to five. The researchers concluded that with student choice, "too much of a good thing may not be very good at all" (p. 298).

In a now-famous experiment, researchers Sheena Iyengar and Mark Lepper (2000) gave two groups of college students a weekend assignment to write a two-page essay for extra credit. The first group was given the choice of 6 possible essay topics; the second was given 30 choices. The counterintuitive result of the experiment? The students who were given fewer choices were more likely to turn in the assignment, and they also wrote better essays.

Iyengar and Lepper concluded that having too many options may have caused students in the second group to simply "end the choice-making ordeal" by choosing a "merely satisfactory" topic for their essay (p. 1,000), which left them dissatisfied with their selection and less motivated to do a good job. In short, giving students too many choices or wide-open project assignments may actually demotivate them by causing too much angst over whether they've chosen the right topic or making them

expend all of their mental energy on deciding what to do, rather than on actually doing the project well.

Advice for Educators: Offer Limited Choice

The research suggests that teachers should give students choices, but not too many. John Guthrie, developer of Concept-Oriented Reading Instruction, recommends that teachers offer fewer choices to less experienced students—for example, simply letting them choose between two preselected readings. With more advanced students, teachers can expand the number of choices—for example, asking them to "choose three or four concepts of ecology and locate several animals that can be used to illustrate these concepts" (Guthrie, Wigfield, & Perencevich, 2004, p. 64). According to Guthrie, the transition from fewer to more choices should be gradual, sometimes spanning several months.

Do Projects Promote Better Kinds of Learning?

A meta-analysis of 35 studies of inquiry-based science strategies (for example, posing problems and asking students to conduct scientific experiments to resolve them) reported only modest gains in student achievement compared with conventional methods. However, the results indicated much larger gains in students' critical-thinking skills (Smith, 1996); this appears to be the area in which project-based learning yields the greatest benefits.

Another study—an examination of a middle school history course that combined direct instruction with project-based learning (having students create a short historical documentary)—found that students gained more content knowledge in this class than with traditional methods, and they also gained more skill in historical thinking—the ability to interpret historical facts (Ramos & De La Paz, 2009).

Advice for Educators: Remember the Driving Question

A major shortcoming of many student projects is that they tend to become "doing for the sake of doing" (Barron et al., 1998, p. 274). Educators can avoid this phenomenon and realize the potential of projects to promote students' critical-thinking skills by framing projects around a driving question.

A study by Barron and colleagues (1998) illustrates how a driving question makes a difference. These researchers examined a model rocket– building project that resulted in little student understanding about what really made rockets work. One student commented that the purpose of the project was simply, "You know, to build them and see how high they will go" (p. 274).

In a revised version of this study, the researchers framed the project around a driving question—a request for rocket designs from the National Aeronautics and Space Administration, which would select the best design for use in other classrooms. Researchers asked students to determine whether the rocket would go higher if it were painted or left unfinished, whether three fins were better than four, and how a rounded or pointed nose would affect the rocket's trajectory. Students

who completed the revised assignment demonstrated better knowledge of important content (such as the principles of aerodynamics) as well as the ability to think like scientists.

Educators Take Note

To return to the America Fair at my daughter's school, her classmates created many colorful dioramas that represented a wide array of interests. Some of the students, however, expressed regret that they had chosen a topic that ultimately failed to hold their interest. Others said that after much agonizing, they had simply picked one of the teacher-suggested topics. It seems that they would have preferred to select from a more limited list of topics.

Many of the projects also appeared to focus on recalling facts, such as state populations or the dates of historical events, rather than on critical thinking, such as analyzing the causes of events. Had the assignment been framed around a driving question (for example, What was it like to live in the time of the Renaissance or the Great Depression?), it might have taken better advantage of what project-based learning does best: promote students' critical-thinking skills.

My intent is not to criticize my daughter's school or its outstanding teachers. Rather, the lesson is this: If a time-honored tradition at this excellent school could use some research-based tweaks, it's likely that many other schools could benefit from reexamining their own project-based rites of passage in light of what the research says.

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Giving Students Meaningful Work Pages 16-20

Even Geniuses Work Hard
Carol S. Dweck

Let's give students learning tasks that tell them, "You can be as smart as you want to be."

We can all agree that meaningful schoolwork promotes students' learning of academic content. But why stop there? I believe that meaningful work can also teach students to love challenges, to enjoy effort, to be resilient, and to value their own improvement. In other words, we can design and present learning tasks in a way that helps students develop a growth mindset, which leads to not just short-term achievement but also long-term success.

Why Foster a Growth Mindset?

During the past several decades, my colleagues and I have conducted research identifying two distinct ways in which individuals view intelligence and learning. Individuals with a fixed mindset believe that their intelligence is simply an inborn trait—they have a certain amount, and that's that. In contrast, individuals with a growth mindset believe that they can develop their intelligence over time (Blackwell, Trzesniewski, & Dweck, 2007; Dweck, 1999, 2007).

These two mindsets lead to different school behaviors. For one thing, when students view intelligence as fixed, they tend to value looking smart above all else. They may sacrifice important opportunities to learn—even those that are important to their future academic success—if those opportunities require them to risk performing poorly or admitting deficiencies. Students with a growth mindset, on the other hand, view challenging work as an opportunity to learn and grow. I have seen students with a growth mindset meet difficult problems, ones they could not solve yet, with great relish. Instead of thinking they were failing (as the students with a fixed mindset did), they said things like "I love a challenge," "Mistakes are our friends," and "I was hoping this would be informative!"

Students with a fixed mindset do not like effort. They believe that if you have ability, everything should come naturally. They tell us that when they have to work hard, they feel dumb. Students with a growth mindset, in contrast, value effort; they realize that even geniuses have to work hard to develop their abilities and make their contributions.

Finally, students with a fixed mindset tend not to handle setbacks well. Because they believe that setbacks call their intelligence into question, they become discouraged or defensive when they don't succeed right away. They may quickly withdraw their effort, blame others, lie about their scores, or consider cheating. Students with a growth mindset are more likely to respond to initial obstacles by remaining

involved, trying new strategies, and using all the resources at their disposal for learning.

Creating a Culture of Risk Taking

Teachers who strive to design challenging, meaningful learning tasks may find that their students respond differently depending on the students' assumptions about intelligence. Students with a growth mindset may tackle such work with excitement, whereas students with a fixed mindset may feel threatened by learning tasks that require them to stretch or take risks.

To prepare students to benefit from meaningful work, therefore, teachers need to create a growth-mindset culture in the classroom. One way to create such a culture is by providing the right kinds of praise and encouragement. My research has shown that praising students for the process they have engaged in—the effort they applied, the strategies they used, the choices they made, the persistence they displayed, and so on—yields more long-term benefits than telling them they are "smart" when they succeed.

Teachers should also emphasize that fast learning is not always the deepest and best learning and that students who take longer sometimes understand things at a deeper level. Students can learn about many historical figures who were not regarded as "fast" learners in childhood. Albert Einstein swore that he was slow to learn and that's why he pondered the same questions year after year—with, as we know, excellent results.

Some teachers teach their students about the different mindsets directly. (To learn about a growth mindset curriculum that my colleagues and I have created, go to www.brainology.us.) Teachers may illustrate the concept of the growth mindset by having their students write about, and share with one another, something they used to be poor at and are now very good at.

In one class, for example, the students were astounded to learn that the school's baseball star used to be inept at baseball and only became proficient after much practice. Such discussions encourage students not to be ashamed to struggle with something before they are good at it.

Teachers can also ask their students to choose an area in which they would like to improve and then to establish a personal goal that would be a big reach for them. For example, a student who is typically afraid of criticism might decide to seek critical feedback on her next art project; an algebra student struggling to understand absolute values might commit to watching a YouTube video on how to solve linear absolute value equations, and then teach the process to his classmates; a student who lacks physical confidence might join a sports team; or a shy student might approach other students she would like to befriend. Students can share their plans and even help one another enhance their skills and reach their goal.

Another strategy is to have students write a letter to a struggling student explaining the growth mindset, telling the struggler not to label himself or herself, and giving the student advice on improvement strategies to try.

Through such exercises, teachers are transmitting crucial information— telling students that they view them all as having intelligence that they can choose to develop. The teachers are also communicating that their role is not to judge who is smart and who is not, but to collaborate with students to make everyone smarter.

Building a Growth Mindset

Within a classroom culture that supports a growth mindset, teachers can design meaningful learning tasks and present them in a way that fosters students' resilience and long-term achievement.

Emphasize Challenge, Not "Success"

Meaningful learning tasks need to challenge every student in some way. It is crucial that no student be able to coast to success time after time; this experience can create the fixed-mindset belief that you are smart only if you can succeed without effort.

To prevent this, teachers can identify students who have easily mastered the material and design in-class assignments that include some problems or exercises that require these students to stretch. This way, the teacher will be close at hand to guide students if necessary and get them used to (and ultimately excited about) the challenging work. Some teachers have told me that after a while, students begin to select or create challenging tasks for themselves.

When presenting learning tasks to students, the teacher should portray challenges as fun and exciting, while portraying easy tasks as boring and less useful for the brain. When students initially struggle or make mistakes, the teacher should view this as an opportunity to teach students how to try different strategies if the first ones don't work—how to step back and think about what to try next, like a detective solving a mystery.

Suppose that a student has attempted a math problem but is now stuck. The teacher can say, "OK, let's solve this mystery!" and ask the student to show the strategies he or she has tried so far. As the student explains a strategy, the teacher can say, "That's an interesting strategy. Let's think about why it didn't work and whether it gives us some clues for a new path. What should we try next?"

When, perhaps with the teacher's guidance, the student finds a fruitful strategy, the teacher can say "Great! You tried different ways, you followed the clues, and you found a strategy that worked. You're just like Sherlock Holmes, the great detective. Are you ready to try another one?" In this way, the teacher can simultaneously gain insight into what the student does and does not understand and teach the student to struggle through knotty problems.

Give a Sense of Progress

Meaningful learning tasks give students a clear sense of progress leading to mastery. This means that students can see themselves doing tasks they couldn't do before and understanding concepts they couldn't understand before. Work that gives students a sense of improvement as a result of effort gives teachers an opportunity to praise students for their process. That is, teachers can point out that the students' efforts were what led to the progress and improvement over time.

Some teachers make students' progress explicit by giving pre-tests at the beginning of a unit that purposely cover material students do not know. When students compare their inevitably poor performance on these pre-tests with their improved performance on unit post-tests, they get used to the idea that, with application, they can become smarter.

Homework is an especially important component of an instructional program that enhances students' sense of learning and progress. Homework assignments should not feel like mindless, repetitive exercises; rather, they should present novel problems for students to solve, require them to apply what they've learned in new ways, or ask them to stretch to the next level.

For example, suppose that students are learning about the rise and fall of civilizations. Their homework assignment might be to apply their learning by designing a civilization that would either thrive (by building in positive factors) or implode (by building in risk factors). They can write the story of their civilization and what happened to it. Or suppose students were studying Shakespeare's sonnets. For homework, they could write a sonnet to the person or animal of their choice in the style of Shakespeare.
Grade for Growth

The way teachers evaluate their students' work can also help students develop a growth mindset. At one high school in Chicago, when students don't master a particular unit of study, they don't receive a failing grade—instead, they get a grade of Not Yet. Students are not ashamed of that grade because they know that they're expected to master the material, if not the first time, then the next time, or the next.

The word "yet" is valuable and should be used frequently in every classroom. Whenever students say they can't do something or are not good at something, the teacher should add, "yet." Whenever students say they don't like a certain subject, the teacher should say, "yet." This simple habit conveys the idea that ability and motivation are fluid.

Some teachers my colleagues and I work with tell us that they've shifted their grading system to consider more growth-mindset criteria, so that no student can coast to an A and students who struggle and improve get credit for their effort. One school bases one-fourth of each student's grade on growth-mindset factors, thus

rewarding students who challenge themselves, are resilient in the face of difficulty, and show clear improvement over time. Other schools give a separate grade for challenge-seeking, effort, and resilience. Of course, for that grade to be effective (and not just a consolation prize), teachers need to have reinforced the value of these qualities daily throughout the school year.

What if a student puts in great effort but does not improve? The teacher needs to factor in the effort but then work with the student to figure out what the impasse was and how the student can break through that impasse.

Long-Term Success

Meaningful work not only promotes learning in the immediate situation, but also promotes a love of learning and resilience in the face of obstacles. This kind of meaningful work takes place in classrooms in which teachers praise the learning process rather than the students' ability, convey the joy of tackling challenging learning tasks, and highlight progress and effort. Students who are nurtured in such classrooms will have the values and tools that breed lifelong success.

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"I'm Not Stupid": How Assessment Drives (In)Appropriate Reading Instruction

Struggling readers require individual instructional interventions, and in order for those interventions to be successful, teachers must consider the abilities their students enter the classroom with and build upon them to provide meaningful instruction.

Danielle V. Dennis

> "Hey, Dr. Dennis, you know what I think? Just because I don't always understand what I read doesn't mean I'm stupid." —Javaar, sixth-grade student

Javaar (all student names are pseudonyms) made this statement after I introduced the new instructional program my school district purchased for struggling middle school readers. Phonics and decoding strategies were the focus of the program in which my sixth-grade students were expected to spend most of each lesson practicing how to chunk phonemes. Then they read about cats that sat on mats and answered literal comprehension questions about what the cat sat on. Like many teachers, I felt a tension between what I was supposed to teach and what I knew my students needed. Javaar's comment, and the ensuing nods of agreement from other students, opened my eyes. My students forced me to look at what they knew about literacy, to find their strengths, and to use instructional strategies that were appropriate for them—striving young adolescent readers.

State of Accountability

In response to the requirements of the No Child Left Behind Act of 2001 (NCLB), the State of Tennessee revised the Tennessee Comprehensive Assessment Program (TCAP), a criterion-referenced standardized assessment that monitors students' proficiency on the state content standards in grades 3–8 (see www.state.tn.us/education/assessment/achievement.shtml). The content standards follow the criteria set by the Tennessee Reading Policy, which calls for "uninterrupted, direct, and explicit reading instruction using a comprehensive SBRR [scientifically based reading research] program that systematically and effectively includes the five essential elements of reading (phonemic awareness, phonics, fluency, vocabulary, and comprehension), taught appropriately per grade level" (Tennessee State Board of Education, 2005, p. 4). According to the same policy, schools must use TCAP results to make instructional decisions about individual students.

TCAP scores are reported across three levels: advanced, proficient, or below proficient. Students scoring below proficient do not answer enough

questions correctly to satisfy the minimum state requirements at that grade level. When scores are reported by the state, teachers and schools do not receive information that demonstrates which content standards students complete successfully and which require additional instruction. Score reports provide only the level at which students scored on each overarching section of the TCAP.

What do criterion-based test reports tell middle-level educators about struggling readers? Essentially, score reports reflect students' abilities to master grade-level content standards as measured by state-mandated assessments, such as TCAP. Students either score above, at, or below grade level on the standards measured by a particular test. Although this information is helpful for schools in determining whether students have successfully mastered the reading standards, these scores do not reveal why struggling readers are testing below grade level. In other words, the data we have from standardized reading assessments force us to ask the question, What abilities do struggling middle school readers possess?

If instructional decisions for young adolescent readers are made based on TCAP results, then are these decisions made on the assumption that all students who score below proficient are missing the same basic skills? Research on the instruction offered to struggling elementary school readers demonstrates that this is often the case, and that ensuing instruction promotes skills required for emergent readers (Buly & Valencia, 2002; Pressley & Allington, 1999; Rupp & Lesaux, 2006). Linn (2000) asserted that using scores from standardized assessments in this way has "undesirable effects on teaching and learning because they [lead] to a narrowing of the curriculum and an overemphasis on basic skills" (p. 8). Although no "scientific evidence" exists revealing a connection between testing and increased achievement (Afflerbach, 2005; Allington, 2002a), many school districts use data from these assessments to make indiscriminate decisions about individual students (Afflerbach, 2005; Allington, 2002a; Buly & Valencia, 2002). According to Afflerbach (2005), using results from standardized reading assessments as estimates of individual growth are "at best an approximation of the students' actual achievement level" (p. 158). Students scoring below proficient on state assessments are identified and placed in supplemental or remedial reading classes, which often focus on phonemic awareness and decoding skills regardless of the grade or reading level of the students in the class (Allington, 2001; Buly & Valencia, 2002; Franzak, 2006).

Consider the school day of a student who earns below-proficient scores on the state reading assessment. The student spends part of the day practicing phonemic awareness and decoding strategies while spending the majority of the day with difficult subject-area texts he or she is expected to comprehend independently. At no point during the day is the student exposed to "just right" text (Allington, 2007; Hall, 2007). Allington (2007) considered placement of adolescents in supplemental reading courses that focus on early reading skills an "unintended effect" of federal education policy and explained that "most struggling readers find themselves spending much of the school day in learning environments where no theory or empirical evidence would predict any substantial learning" (p. 7). Hall (2007) noted the discrepancy between the literacy expectations of struggling readers and the behaviors they demonstrate and suggested that struggling adolescents attempt to comprehend content area texts that are much too difficult. To appear successful with the task, struggling readers are forced to focus on specific facts within the text (Franzak, 2006; Hall, 2007), but this surface-level approach to reading does not teach students how to engage or interact with text.

Study Context

I knew students were assigned to my class because they failed the state reading assessment, but what did that really tell me as their teacher? My first step was to look at all of the assessment information I collected on my students. Did the state reading assessment tell me they were missing the skills required of early readers, such as phonics or decoding? No. Informal reading inventories demonstrated that most of my students were able to read the words on the page and were able to comprehend text, but they did so at levels below the grade in which they were enrolled. In general, the assessment data I gathered suggested that problems with fluency, limited vocabulary, and use of comprehension strategies were hindering their

reading success. I developed a plan that built on and supported their strengths, which meant explaining to the administrative team why the new remedial reading program was not the best instructional tool for my students. With data in hand, and a formulated plan, I took the team step-by-step through what I learned by first looking at what the students knew and then developing a framework for literacy instruction.

Method

What I found when I moved beyond standardized tests and a prescribed curriculum were patterns in assessment data that allowed me to more accurately address my students' literacy needs. I individually administered (N = 94) five assessments that measured phonemic awareness, phonics, fluency, vocabulary, and comprehension skills (see Table 1). Preliminary data analysis suggested that most of the students in the study earned below-grade-level scores in the categories of meaning (comprehension and vocabulary), word identification, and reading rate. However, cluster analysis, a statistical procedure used to link students with similar abilities and needs, revealed that many students were strong in one or more of these categories (see Table 2). Notably, four distinct groups emerged from the cluster analysis, each representing both the abilities and needs of young

Table 1 Assessments Administered to Students

	Skills measured				
Assessment administered	Phonemic awareness	Phonics	Fluency	Vocabulary	Comprehension
Woodcock-Johnson Diagnostic Reading Battery	X	X			
Test of Word Reading Efficiency (TOWRE)	X	X	X		
Spelling Inventory	X	X			
Peabody Picture Vocabulary Test (PPVT)				X	
Qualitative Reading Inventory–4 (QRI–4)			X	X	X

Table 2 Cluster Analysis

Group	Meaning	Word identification	Rate
1 Ron	++	-	-
2 Latoya	+	++	--
3 Enrique	--	++	+
4 Jacob	-	--	++

Note. ++ scores > .5 *SD* above sample mean; + scores < .5 *SD* above sample mean; - scores < .5 *SD* below sample mean; -- scores > .5 *SD* below sample mean.

adolescent readers, and none representing students missing phonics and decoding skills.

I highlight the characteristics of each group by describing a prototypical profile of one student to represent the linked abilities of all of the students in each group. Then, I offer suggestions, linked to the characteristics of the group, for the instruction needed to build upon each group's strengths.

Group 1: Ron—The Strategic Reader

According to his Qualitative Reading Inventory–4 (QRI–4) results, Ron's independent reading level on both narrative and expository text is grade 5, and he demonstrates the ability to negotiate appropriately matched text with deep understanding. Ron enters text with high levels of prior knowledge, as measured by the QRI–4 background knowledge questions. Ron's scores on the spelling inventory are in line with grade-level peers, and his vocabulary knowledge is strong. At first glance, Ron's word identification scores are of concern, but further analysis reveals that his ability to decode real words is only slightly below grade-level peers (grade equivalent [GE] = 5). It is his inability to decode nonsense words (GE = 3) that decreases his overall word identification scores. For example, Ron easily identified the word *chromosome*, but was unable to identify the nonsense word *blighten* (though he was able to identify the words *light* and *eaten* on the real word assessment). Finally, Ron's reading rate was slower than about half of the students assessed (words correct per minute [WCPM] = 93).

Focusing instruction on decoding would be much like a doctor treating the wrong symptom of an illness, because data reveal Ron's word identification abilities are appropriate for his grade. Further, Cunningham et al. (1999) concluded that assessment and instruction of nonwords may not be effective because those words are "harder and less valid decoding items because they require a task-specific kind of self regulation" (p. 411). Providing Ron with time to read appropriately matched text—text written at his independent reading level—will let Ron increase his volume of reading, which encourages development toward reading text at his grade level (Allington 2002b, 2007; Krashen, 1989). Though Ron's reading rate was lower than his peers, Spear-Swerling (2004) noted that students in the Strategic Reading phase often reread text when it does not make sense and referred to this as an appropriate fix-up strategy to aid comprehension. By increasing Ron's access to appropriately matched text, teachers offer the opportunity for Ron to use appropriate fix-up strategies on a more regular basis.

Group 2: Latoya—The Slow Word Caller

Latoya revealed the highest level of spelling knowledge of any student in the study, which displays her ability to apply experiences with the association of word spellings and pronunciations that lead to word memory (Ehri & Rosenthal, 2007). Latoya was able to spell words such as *resident* and *discovery*, indicating familiarity with harder prefixes and suffixes and unaccented final syllables (Bear, Invernizzi, Templeton, & Johnston, 2008). She earned higher overall decoding scores than Ron, but unlike Ron her scores were driven by her ability to decode nonsense words (GE = 6; real words GE = 5). Further, Latoya's reading rate was slower than any of her peers (WCPM = 81). Nathan and Stanovich (1991) proposed that students who successfully focus attention on decoding skills and reveal a slow reading rate often demonstrate a deficit in known word meanings. This assertion is further evidenced by Latoya's meaning scores, which were largely influenced by low scores on the vocabulary assessment and the background knowledge questions on the QRI–4. Latoya's independent reading level on both narrative and expository text is at the fourth-grade level.

Latoya demonstrated her ability to apply knowledge of words on the spelling inventory and decoding skills on the assessment of nonsense words, indicating that, like Ron, additional instruction in decoding is redundant for Latoya. Providing Latoya with opportunities to read books at her independent level, engaging her in vocabulary instruction using words from the text, and building her background knowledge will increase her understanding of the text as she reads. With increased knowledge of words in context, Latoya will also increase her reading rate (Nathan & Stanovich, 1991). Though Latoya possesses some of the skills required by readers in the Strategic Reading phase, her abilities place her within the Automatic Word Recognition phase of reading (Spear-Swerling, 2004), because she does not demonstrate the ability to consistently use

vocabulary and comprehension strategies. Thus, explicit instruction in these areas will benefit Latoya, particularly when matched with independent text.

Group 3: Enrique—The Automatic Word Caller

Like most of the English-language learners in the study, Enrique exhibited the ability to decode words quickly and accurately (WCPM = 108) but earned lower scores on measures of comprehension and vocabulary than both Ron and Latoya. Enrique's independent reading level on narrative text is mid-third grade, while his independent reading level on expository text is mid-second grade. The discrepancy between the two types of text is highlighted by Enrique's scores on the vocabulary assessment and QRI–4 content questions, which suggest a lack of background knowledge and are lower than those of any other group in the study.

Much like Latoya, Enrique requires intensive instruction in vocabulary and comprehension strategies using narrative and expository text at his independent reading level. Unlike Latoya, Enrique demonstrates his knowledge of words with rapid decoding skills, which will necessarily slow once Enrique learns the meaning of words in context (Nathan & Stanovich, 1991; Spear-Swerling, 2004). Particular attention must be paid to vocabulary instruction in expository, or content area, text because these texts require students to continually build upon their prior knowledge to learn new material. Reader behaviors, such as questioning strategies, will also encourage Enrique to slow his reading to consider if the text makes sense as he reads (Caldwell, 2008).

Group 4: Jacob—The Rapid "Reader"

Jacob displays the ability to read quickly, scoring significantly higher than his peers on measures of reading rate (WCPM = 113). Similar to Enrique, Jacob's speed inhibits his ability to make meaning from the text, as evidenced by his third-grade independent reading level score on narrative text and his low-second-grade level on expository text. Like his scores on all of the assessments administered, Jacob's word identification scores are considerably lower than those of his peers. Much like Ron, however, once his scores in that category are separated, it is apparent that he earned significantly lower scores on nonsense word decoding (GE = 2) than on decoding of real words (GE = 3). On the spelling inventory, Jacob was able to spell words such as *scrape* and *nurse*, indicating an ability to recognize vowel patterns, but was unable to spell words such as *squirt* or *smudge*, suggesting that words with complex consonants are difficult for him (Bear et al., 2008).

Based on his low spelling scores, Jacob requires intensive word study with instruction offered at his developmental level rather than at the level required of early readers. Jacob needs opportunities to read appropriately matched text, with a particular focus on building background knowledge. Saenz and Fuchs (2002) asserted that students who earn lower scores on assessments of expository text comprehension than on narrative text comprehension are less able to draw on their prior knowledge to make inferences from expository text. Spear-Swerling (2004) acknowledged that building students' background knowledge and explicitly teaching inferencing strategies is essential for students, like Jacob, who do not yet use the text as a tool for gathering information.

With increased pressure on schools to raise the scores of struggling readers on state-mandated high-stakes assessments, middle school leadership teams are using these data when placing struggling students in remedial reading classes, without accompanying information designed to reveal the abilities these students display.

Tiered Instruction for Striving Readers

I now worry that too many school districts are making the same sort of decision that my district made for struggling young adolescent readers: purchasing a single commercial reading program for instructional intervention (Allington, 2001; Buly & Valencia, 2002; Ivey & Baker, 2004; Shanahan, 2005). With increased pressure on schools to raise the scores of struggling readers on state-mandated high-stakes assessments, middle school leadership teams are using these data when placing struggling students in remedial reading classes, without accompanying information designed to reveal the abilities these students display (Dennis, 2008).

Under current reading policies, Ron, Latoya, Enrique, and Jacob will all receive intensive intervention in an instructional program that likely focuses on phonemic awareness and decoding skills, because they earned below-proficient scores on the TCAP. As Franzak (2006) noted, "If 'reading' is defined and treated as a set of hierarchically listed tasks, some readers will continue to occupy the bottom rung of the literacy ladder" (p. 231). When students are not taught according to their individual abilities and needs, but instead are taught based on the premise of a one-size-fits-all instructional program, we are not providing them with opportunities to climb the literacy ladder. Tiered intervention plans, such as Response to Intervention, offer educators a step-by-step process for individually evaluating students' instructional needs. Gersten et al. (2009) offered a five-step process for implementing a multitiered intervention plan in the primary grades. I revised their recommendations to match adolescents' unique literacy needs and involve the entire school community.

Step 1

Use state reading assessment data (e.g., TCAP) to identify students who score below proficient. Using state reading assessment results as an approximation, or screening tool, for determining students' ability levels is appropriate (Afflerbach, 2005; Linn, 2000). However, teachers and administrators must continue through the steps of the tiered plan to match adolescent readers to suitable instructional models, based on readers' individual needs.

Step 2

Conduct a series of reading assessments, including an Individual Reading Inventory, to determine the varying needs of individual students. Keep in mind that not all students who earn below-proficient scores on the state reading assessment require intervention. As Klenk and Kibby (2002) asserted, most struggling readers are not in need of dramatically different instruction from their peers, but do need more intensive instruction of various skills. This is highlighted within and across the four profiles presented. Each group demonstrates specific abilities and needs that must be addressed through appropriate instruction and then differentiated based on the unique reading abilities of each student.

Continually assess students throughout the year and alter instruction to match demonstrated growth and abilities. Revise groups purposefully and often. To monitor growth over time, formally assess students at the middle and the end of the year. (Students who do not demonstrate marked progress should be referred to a student study team for evaluation of need for special services.)

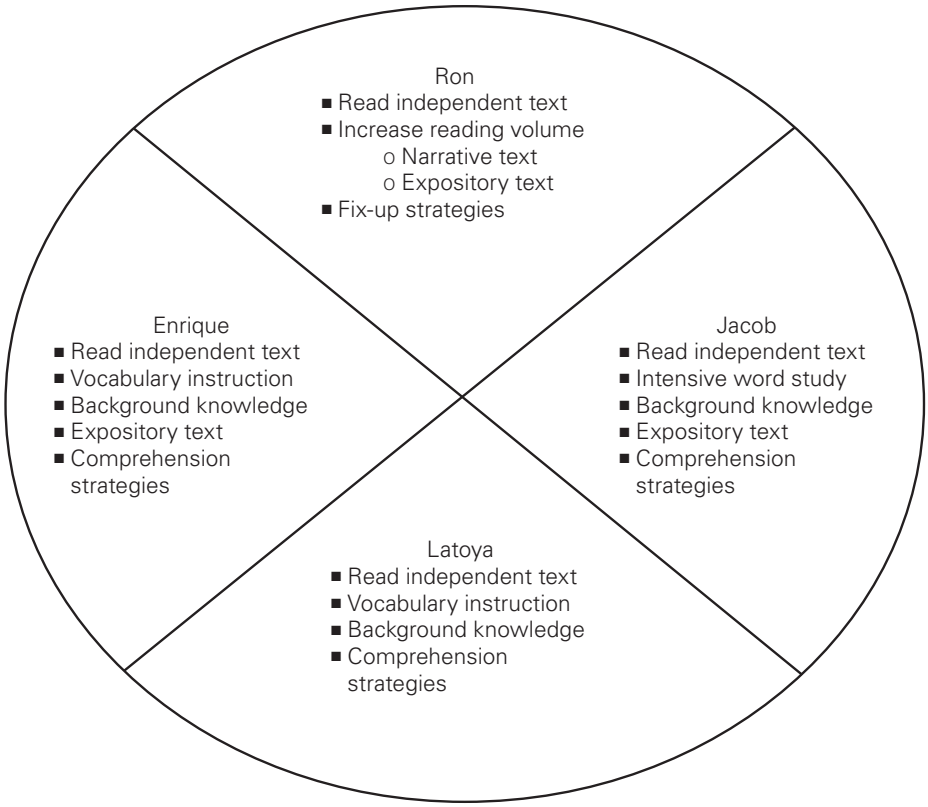
Step 3

Next, group students according to results from Step 2 (see Figure 1). Students in all four groups benefit from opportunities to read text at their independent level, as well as the chance to engage in instructional level text with teacher support and guidance. This requires teachers to use dynamic teaching strategies to accommodate the varying needs of this heterogeneous population (Fountas & Pinnell, 2001). Dynamic grouping allows teachers to provide instruction to changing groups of students based on text type, interest level, level of background knowledge, and reading level, all factors that influence successful negotiation of text.

Ron, Latoya, Enrique, and Jacob all need word study instruction, with a particular focus on building content knowledge. Though the method of instruction may look similar, the words chosen for each student are necessarily different, based on each student's independent reading level and word knowledge. Enrique and Jacob, in particular, require substantial vocabulary work in the context of expository text.

Each of these students will benefit from explicit comprehension instruction, based on texts at their independent reading level. In a meta-analysis of instructional interventions designed to promote students' comprehension, Mastropieri, Scruggs, Bakken, and Whedon (1996) found that interventions with a focus on self-questioning and self-monitoring of strategy use were most effective. Thus, it is not enough to teach students comprehension strategies; they must also learn to monitor their use of the strategies learned and to question their understanding of the text as they read. These are reader behaviors that students must have modeled for them (Caldwell, 2008).

Figure 1 Students in Tiered Instructional Program



Step 4

Include students in setting literacy goals, and ask them to offer ideas for monitoring their growth (Hall, 2007). Then, involve them in self-evaluations of meaningful literacy tasks. Struggling adolescent readers participate in a variety of reading behaviors both in and out of school (Franzak, 2006; Hall, 2007). To provide reading instruction that focuses on students' strengths rather than their weaknesses, Hall (2006) recognized that "it becomes critical to reconsider how we conceptualize the ways teachers might think about reading instruction, struggling readers, and the multitude of influences that can affect student learning and growth" (pp. 425–426). Such an approach requires educators to include adolescents in the decision-making and goal-setting activities necessary to improve their literacy abilities (Hall, 2007).

Step 5

Involve all teachers in Steps 2–4. Provide professional development on appropriate instructional methods to personnel working with struggling adolescent readers. In order for students to reach their established literacy goals, all school personnel must be involved in the instructional process. Students will need opportunities to read independent-level text in science and social studies, as well as in reading/language arts. We cannot expect to increase student achievement in one class period devoted to reading instruction but instead must involve all members of the instructional team (Allington, 2007).

Addressing Varying Needs and Abilities

With the deeper working knowledge of the abilities of struggling young adolescents provided through

these data, policies and instructional decisions may begin to accurately address the varying needs and abilities of these students. Certainly, what was learned through this research is that struggling young adolescents demonstrate complex, heterogeneous reading abilities requiring significantly different instructional interventions. In order for those interventions to be successful, we must consider the abilities with which our students enter the classroom, based on substantial data, and turn our focus to how best to build upon those abilities to provide meaningful instruction to our striving readers.

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Aspects of Text Complexity Project
Why Complex Text Matters
David Liben

The American College Testing Service, in its influential study "Reading Between the Lines" (ACT 2006), determined a benchmark score on their reading test; 51% of students scored above this benchmark. These students were more likely to:

- Enroll in college.
- Earn a grade of B or higher in first-year U.S. history and psychology classes.
- Earn a GPA of 3.0 or higher.
- Return for a second year at the same institution.

It was also found that 47% of students who met the reading test benchmark met the science test benchmark as well, whereas *only 5%* of students who did not meet the reading benchmark met the science test benchmark. This is a particularly interesting finding in light of recent efforts to boost K-12 science learning. The 51% figure of test takers meeting the benchmark was the lowest in over a decade.

Student responses were analyzed with the goal of determining what patterns might distinguish students scoring above the benchmark from those below. The major findings follow:

1. Literal vs. inferential question type failed to differentiate students scoring above the benchmark from those scoring below (p. 13).
2. Questions focusing on textual elements—main idea/author's purpose, supporting details, relationships, meaning of words, and generalizations and conclusions—also failed to differentiate students scoring above from those scoring below (p. 14).
3. The clearest difference of performance between the two groups was *degree of text complexity*, in the passages that acted as "sorters" within the ACT. This finding held true for both males and females, all racial groups and was steady regardless of family income levels (p. 16).

This is a stunning finding. The textual elements described above and inferential questions in general constitute many of the essential elements of what we usually think of as "critical thinking." Developing these skills in students has been a major focus of educational efforts in all disciplines for decades. Yet the ACT study shows that, at least for this group of nearly a half million high school students, critical thinking does not distinguish those who are college and career ready from those who are not; facility with reading complex text does.

Text complexity on ACT's Reading tests (the ACT, PLAN, and EXPLORE, covering grades12, 10 and 8 respectively) was divided into three levels of complexity: *uncomplicated*, *more challenging*, and *complex* (p. 14). In looking at scores based on this complexity gradient the following was found:

1. Students scoring below the benchmark (49% of the 568,000 taking the test) scored *no better than chance* on multiple-choice items associated with complex text, the most challenging of the three levels.
2. Only students who obtained nearly perfect scores (35 out of 36) did as well on complex text as they did on the less challenging text, indicating that a significant number of students who met the benchmark still scored relatively poorly on complex text.

Four hundred and sixty eight thousand students took the 2006 ACT exam. All were applying or considering applying to some form of post secondary education and therefore were likely to engage seriously with this test. Despite this, 49% , nearly a quarter of a million students, performed no better on the more complex reading passages than if these passages were written in Sanskrit.

How did we arrive at a situation where so many of our students fail to understand complex text? We will address this question, as well as the consequences this problem has generated, both those already present and those likely to emerge or become more widespread over time. We begin with the causes.

1. School Books and Reading Demands K-12 Have Become Easier

- Chall et al. (1977) found a 13-year decrease from 1963–1975 in the difficulty of 11th-grade textbooks *in all subjects*; this corresponded with concurrent declines in SAT scores. She found a similar pattern for 6th-grade texts but not as clear-cut as for older students. Similarly, declines in first-grade basal readers corresponded with declining SAT scores *10 years later*.
- Hayes, Wolfer, and Wolfe (1996) found more: between 1963–1991, average length of sentences in reading textbooks K–8 (basals) was shorter than in books published between 1946–62; in 7th and 8th grade readers (usually anthologies, very widely used), the mean length of sentences decreased from 20 to 14 words. Vocabulary also declined: the vocabulary level of 8th-grade basal readers after 1963 was equivalent to 5th-grade readers before 1963; 12th-grade literary anthologies after 1963 were equivalent to 7th-grade readers before 1963.
- Hayes also found that though the vocabulary level of words in basal readers for grades 1–7 increased each year, high school literature books did not increase in vocabulary difficulty for each year and did not differ greatly from grades 7–8 literature books.
- Hayes also found that though science books were more difficult than literature books, only books in AP classes had vocabulary levels comparable to even newspapers of the time.
- The span of years Hayes' work covers corresponded with SAT declines in the same period. Hayes addresses the question of whether declining SAT scores reflected demographic changes in students taking the test. He points out that the years for the decline do not match up with the years for the demographic shift; more pointedly he notes that the number of students scoring in the highest ranges (600-800) decreased both relatively and absolutely.
- Data since 1962 (Williamson, 2004) show a 305L (Lexile) gap between end of high school and college texts, equivalent to 1.5 standard deviations, or *more than the lexile difference between the 4th grade NAEP and the 8th grade NAEP.*
- Although data after 1992 are not as thorough, it should be noted that the SAT was re-centered in the mid-90s, thus essentially adding about 80 points to the verbal scores (Adams, in press).

These data do not include analysis of elements of text cohesion, which might give a different picture (McNamara, in press). That being said, while no measure of text difficulty is perfect, what is relevant in these numbers is the steady decline over time, across grades, in sophistication and difficulty of text, and the resulting correspondence with dropping SAT scores.

So the texts students read, or certainly many of the texts students read K–12, became easier after 1962. What about texts students were asked to read in college over that period and into our current period?

2. College Books and College Reading Have *Not* Gotten Easier

- Lexile scores of college textbooks have not decreased in any block of time since 1962 and in fact have increased (Stenner, in press).
- Hayes (1996) found that vocabulary difficulty of newspapers had remained stable over the period of his study.
- Hayes (1992) found that word difficulty of every scientific journal and magazine he examined between 1930–1990 had *increased*.
- Related to the above, a College Board research report (2005) shows that college professors assign more reading from periodicals than do high school teachers.

3. Curriculum and Pedagogy May Have Exacerbated the Problem of Declining K-12 Text Complexity Relative to College Demands

- Students in high school are not only reading texts significantly less demanding than students in college, but instruction with any texts they do read is heavily scaffolded compared to college, where students are routinely expected to read more independently (National Governors Association & Council of Chief State School Officers, 2009).
- Students in college are held more accountable for what they read than students in high school. College instructors assign readings, not necessarily explicated in class, for which students might be held accountable through exams, papers, presentations, or class discussions. Students in high school are rarely held accountable for what they have read independently (Heller & Greenleaf, 2007). The jarring exception is when college-bound students sit for the college entrance exams.

Note: We are not recommending here that teachers stop supporting students in their reading, only that this support taper off and that on regular occasions students be held accountable and assessed on texts they have not seen before and for which they have had no direct preparation from teachers prior to reading. As pointed out above, for most students, the only time in their K-12 experience this takes place is on standardized tests.

- Students have more difficulty reading expository texts than narrative (Bowen, 1999; Duke, 1998; Heller & Greenleaf, 2007; Shanahan & Shanahan, 2008; Snow, 2002), yet this material currently constitutes only 7% to 15% of instructional text in elementary and middle school (Hoffman et al., 1994; Moss & Newton, 2002; Yopp & Yopp, 2006). In college, most, and for many students *nearly all*, reading is expository (Achieve, 2007).
- The above data take on greater relevance with recent findings from McNamara and Graesser (personal communication – Active Ingredients work) that narrativity is "the most prominent component of reading ease." In other words, the greater the portion of a student's total reading is narrative, the greater the ease. Given the time constraints inevitably encountered in school, the more narrative text read, the less opportunity there is of encountering text that is complex.
- Expository text from social studies and science presents students with a different mix of rhetorical and semantic challenges relative to narrative (McNamara, Graesser & Louwerse, 2004**)**. If students only engage in even successful reading of narrative, they will be denied the opportunity to develop the abilities to overcome the challenges presented by expository texts. These genre challenges however, are related to each other (McNamara, in press), thus each genre's set of challenges will overlap to some degree, and failure to learn from one genre will likely weaken the ability to learn from the others.
- Successful learning from text and the consequent development of comprehension skills require the employment of both strategies and knowledge to build a mental or situation model from the given textbase. A high standard for coherence (a demand for the text to make sense) then drives comprehension monitoring. This recruits many of the same strategies that are called upon when comprehension breaks down (Perfetti, Landi, & Oakhill, 2004; Van den Broek, Risden, & Husebye-Hartman, 1995; Van den Broek et al., 2001). If students engage in this process frequently, the use of strategies becomes more automatic and habitual, and the strategies become skills (Afflerbach, Pearson, & Paris, 2008). If students do not employ this process when reading expository text then the resultant learning is superficial and short lived (Kintsch, 1998; Kintsch, in Tobias and Duffy, 2009).
- Shallow reading from complex expository texts—skimming for answers, focusing only on details, and failing to make inferences in order to integrate different parts of the text, to connect to background knowledge, and therefore form a rich situation model—will do more than impede students' ability to read complex text. It will likely cause reading ability to deteriorate. Years of reading expository text in this superficial way gives students the message that expository text itself is shallow, thus reading it is an inevitably shallow and unrewarding exercise. The messenger, in this case, has been slain.

In sum, the texts students are provided in school to read K-12 are not of sufficient complexity to prepare them for college or career readiness. In addition, expository text, the overwhelmingly dominant form of career and college reading, constitutes a minute portion of what students are asked to read in pre-collegiate education. When it is read, it is over scaffolded by teachers, and taught superficially (read these pages, and find the answers). Far too many students are not only ill prepared cognitively for the demands this type of text presents; but are unaware there is even a problem, aside from how boring their

informational texts seem to be. Those quarter million students who scored at levels no better than chance on the ACT likely had no idea how poorly they did. About to leave high school, they were blind-sided by tasks they could not perform on text passages they had never been equipped to encounter.

Given all of this, it is not surprising that Heller and Greenleaf (2007), in findings that paralleled the ACT Between the Lines study, found that advanced literacy across content areas (reading of expository, subject focused text), is the best available predictor of students' ability to succeed in introductory college courses. Nor surprising that in a synthesis of national and international reports on adolescent literacy prepared for the Vermont Principals Association (Liben unpublished Power Point, 2007), we found that all nine called for enhancements in content area reading.

What are Some Consequences of so Many Students Leaving High School Unable to Read Complex Text?

In addition to the findings noted in the ACT study:

- 20% of college freshman required remedial reading courses (NCES, 2004b). This is especially significant in light of the fact that 11 states have already passed laws "preventing or discouraging" enrollment in these classes in public four-year institutions (Jenkins & Boswell, 2002). In fact, students who enroll in these courses are 41% more likely to drop out than other students (NCES, 2004A).
- Only 30% of students enrolled in *any* remedial reading course went on to receive a degree or certificate (NCES, 2004).
- Differences between students in top brackets and all others, on measures such as NAEP test scores and AP courses successfully completed, have increased, (National Pipeline Data, 2005).
- Over 75% of surveyed students who dropped out indicated that difficulty with reading was a major contributing factor (Lyon, 2001).
- According to the National Assessment of Adult Literacy (2003), 15% of adults scored as proficient in 1992 and only 13% in 2003, a statistically significant difference in a decade.

The National Endowment for the Arts, in *Reading at Risk* (NEA, 2004), reports the following:

- The percentage of U.S. adults reading literature dropped from 54.0 in 1992 to 46.7 in 2002, a decrease of 7.3 percent in a decade.
- The percentage of adults reading *any book* likewise dropped by 7 percent in the same period.
- The rate of decline was in all demographic groups—women and men; whites, African Americans, and Hispanics; all education levels; and all age groups.
- Though all age groups are reading less, the steepest decline by far is in the 18–24 and 25–34 age groups: 28% and 23%, respectively. In other words, the problem is not only getting worse *but doing so at an accelerating rate.*

The NEA study cites declines in reading beginning in 1982 with 18- to 24-year-olds. Hayes cites a decline in difficulty of text beginning in 1962. It is tempting to link these findings, as 18- to 24-year-olds in 1982 began school from 1969–1975 and the Hayes study cites text difficulty decreasing beginning in 1962.

Conclusion

Being able to read complex text critically with understanding and insight is essential for high achievement in college and the workplace (Achieve, 2007, ACT, 2006). Moreover, if students cannot read challenging texts with understanding, they will read less in general, extending the societal effects the *Reading at Risk* report already documented. If students cannot read complex expository text, they will likely turn to sources such as tweets, videos, podcasts, and similar media for information. These sources, while not without value, cannot capture the nuances, subtlety, depth, or breadth of ideas developed through complex text. Consequently, these practices are likely to lead to a general impoverishment of

knowledge, which in turn will accelerate the decline in ability to comprehend challenging texts, leading to still further declines. This pattern has additional serious implications for the ability of our citizens to meet the demands of participating wisely in a functional democracy within an increasingly complex world.

The ACT findings in relation to performance on the science test bear repeating. The need for scientific and technical literacy increases yearly. Numerous "STEM" (Science Technology Engineering Math) programs are beginning to dot the educational map. Yet only 5% of students who did not meet the ACT reading benchmark met the science benchmark. Science is a process, but it is also a body of knowledge. This body of knowledge is most efficiently accessed through its texts. This cannot be done without the ability to comprehend complex expository text.

A final thought: the problems noted here are not "equal opportunity" in their impact. Students arriving at school from less-educated families are disproportionally represented in many of these statistics. The stakes are high regarding complex text for everyone, but they are even higher for students who are largely disenfranchised from text prior to arriving at the schoolhouse door.

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Teaching for Meaning Pages 26-31

You *Can* Teach for Meaning

September 2004

Teaching for meaning is an engaging idea, but many teachers find it problematic in this age of mandates and standardized tests.

Jay McTighe, Elliott Seif, and Grant Wiggins

Teaching is more than covering content, learning is more than merely taking in, and assessment is more than accurate recall. **Meaning** must be made, and understanding must be earned. Students are more likely to make **meaning** and gain understanding when they link new information to prior knowledge, relate facts to "big ideas," explore essential questions, and apply their learning in new contexts.

Consider the following classroom scenarios (Tharp, Estrada, & Yamauchi, 2000). A 6th grade teacher asks students to collect data from home on the height and weight of various family members. Students discuss the following questions in groups: How could we represent these data? What is the most effective way? Students decide on specific approaches and share them with the class. A spirited discussion takes place on the best approach.

A 4th grade teacher asks students to explore the Eskimo culture through research and discussion. Using the textbook and multiple resources, the class tackles the following question: What makes Eskimo life similar to and different from your life? Students define and describe ideas about Eskimo life, using a graphic organizer to make connections between concepts and facts. In small groups, they develop a project on an aspect of Eskimo life, conduct research, organize data, and draw conclusions that compare Eskimo life with their own lives. The teacher has shared a rubric identifying the key features of successful project work. She regularly collects samples of student work to provide feedback and offer suggestions **for** improvement.

These two examples illustrate a curricular and instructional approach that we call *teaching **for meaning** and understanding*. This approach embodies five key principles:

- Understanding big ideas in content is central to the work of students.
- Students can only find and make **meaning** when they are asked to inquire, think at high levels, and solve problems.
- Students should be expected to apply knowledge and skills in meaningful tasks within authentic contexts.
- Teachers should regularly use thought-provoking, engaging, and interactive instructional strategies.
- Students need opportunities to revise their assignments using clear examples of successful work, known criteria, and timely feedback.

Teachers who regularly use this approach center their planning on three recurring questions that should be at the heart of any serious education reform: What are the big ideas and core processes that students should come to understand? What will teachers look **for** as evidence that students truly understand the big ideas and can apply their knowledge and skills in meaningful and effective ways? What teaching strategies will help students make **meaning** of curriculum content while avoiding the problems of aimless coverage and activity-oriented instruction?

Such an approach to teaching and learning is more apt to engage the learner and yield meaningful, lasting learning than traditional fact-based and procedure-based lecture, recitation, or textbook instruction. Yet when well-intentioned teachers and administrators are asked to put these ideas into practice, it is not uncommon to hear a chorus of *Yes, but*'s. The message? Teaching **for meaning** is fine in the abstract, but such ideas are impractical in the real world of content standards and high-stakes testing. The current focus on state and local content standards, related testing programs, No Child Left Behind, and accountability have strengthened the view that we must use more traditional teaching approaches to produce high levels of achievement.

Ironically, a key lever in the standards-based reform strategy—the use of high-stakes external tests—has unwittingly provided teachers with a rationalization **for** avoiding or minimizing the need to **teach for meaning** and in-depth understanding. Teachers are more likely to spend time practicing **for** the test, covering many facts and procedures and using traditional lecture and recitation methods in the hope that more students will become proficient.

Two key *Yes, but*'s interfere with the promise of teaching **for meaning**: Yes, but . . . we have to **teach** to the state or national test. Yes, but . . . we have too much content to cover. Both are misconceptions.

Misconception Number 1: We have to teach to the test.

Many educators believe that instructing and assessing **for** understanding are incompatible with state mandates and standardized tests. Although they rarely offer research to support this claim, these educators imply that teachers are stuck teaching to the test against their will. They would **teach for meaning**, if they could. The implicit assumption is that teachers can only safeguard or raise test scores by covering tested items and practicing the test format. By implication, there is no time **for** the kind of in-depth and engaging instruction that helps students make **meaning** and deepens their understanding of big ideas.

We contend that teachers can best raise test scores over the long haul by teaching the key ideas and processes contained in content standards in rich and engaging ways; by collecting evidence of student understanding of that content through robust local assessments rather than one-shot standardized testing; and by using engaging and effective instructional strategies that help students explore core concepts through inquiry and problem solving.

What evidence supports these contentions? A summary of the last 30 years of research on learning and cognition shows that learning **for meaning** leads to greater retention and use of information and ideas (Bransford, Brown, & Cocking, 2000). One avenue of this research explored the differences between novices and experts in various fields. Psychologists learned that experts have more than just a lot of facts in their heads: They actually *think* differently than novices do. According to the researchers, "expertise requires something else: a well-organized knowledge of concepts, principles, and procedures of inquiry" (p. 239). This finding suggests that students, to become knowledgeable and competent in a field of study, should develop not only a solid foundation of factual knowledge but also a conceptual framework that facilitates meaningful learning.

Data from the Trends in International Mathematics and Science Study (TIMSS) also challenge the premise that teaching to the test is the best way to achieve higher scores. TIMSS tested the mathematics and science achievement of students in 42 countries at three grade levels (4, 8, and 12). Although the outcomes of TIMSS are well known—U.S. students do not perform as well as students in most other industrialized countries (Martin, Mullis, Gregory, Hoyle, & Shen, 2000)—the results of its less publicized teaching studies offer additional insights. In an exhaustive analysis of mathematics instruction in Japan, Germany, and the United States, Stigler

and Hiebert (1999) present striking evidence of the benefits of teaching **for meaning** and understanding. In Japan, a high-achieving country, mathematics teachers state that their primary aim is to develop conceptual understanding in their students. Compared with teachers in the United States, they cover less ground in terms of discrete topics, skills, or pages in a textbook, but they emphasize problem-based learning in which students derive and explain rules and theorems, thus leading to deeper understanding. A recent TIMSS analysis of data from seven countries indicates that all high-achieving countries use a percentage of their mathematics problems to help students explore concepts and make connections, whereas U.S. teachers tend to emphasize algorithmic plug-in of procedures instead of genuine reasoning and problem solving (Hiebert et al., 2003; Stigler & Hiebert, 2004).

Compatible findings emerged in an ambitious study of 24 restructured schools—eight elementary, eight middle, and eight high schools—in 16 states (Newmann & Associates, 1996). The research showed that students improved their performance in mathematics and social studies and that inequalities among high- and low-performing students diminished when the curriculum included sustained examination of a few important topics rather than superficial coverage of many topics; when teachers framed instruction around challenging and relevant questions; and when students were required to provide oral and written explanations **for** their responses.

Two additional studies of factors influencing student achievement were conducted in Chicago Public Schools. Smith, Lee, and Newmann (2001) examined test scores from more than 100,000 students in grades 2–8 and surveys from more than 5,000 teachers in 384 Chicago elementary schools. The study compared teachers who used interactive teaching methods with those who used noninteractive teaching methods. The researchers then looked at subsequent achievement in reading and mathematics.

The researchers described interactive instruction methods as follows:

> Teachers . . . create situations in which students . . . ask questions, develop strategies **for** solving problems, and communicate with one another. Students are often expected to explain their answers and discuss how they arrived at their conclusions. These teachers usually assess students' mastery of knowledge through discussions, projects, or tests that demand explanation and extended writing. Students work on applications or interpretations of the material to develop new or deeper

> understandings of a given topic. Such assignments may take several days to complete. Students in interactive classrooms are often encouraged to choose the questions or topics they wish to study within an instructional unit designed by the teacher. Different students may be working on different tasks during the same class period. (p. 12)

The study found clear and consistent correlations between interactive teaching methods and higher levels of learning and achievement.

In a related study (Newmann, Bryk, & Nagaoka, 2001), researchers in Chicago systematically collected and analyzed classroom writing and mathematics assignments given in grades 3, 6, and 8 by randomly selected schools and control schools **for** a three-year period. Researchers rated assignments according to the degree to which the work required authentic intellectual activity, which the researchers defined as "construction of knowledge, through the use of disciplined inquiry, to produce discourse, products, or performances that have value beyond school" (pp. 14–15). The study concluded that students who received assignments requiring more challenging intellectual work also achieved greater-than-average gains on the Iowa Tests of Basic Skills in reading and mathematics and demonstrated higher performance in reading, mathematics, and writing on the Illinois Goals Assessment Program.

Misconception Number 2: We have too much content to cover.

Teachers from kindergarten to graduate school wrestle with the realities of the information age and the knowledge explosion: There is simply too much information to cover. In theory, the standards movement promised a solution to the problem of information overload by identifying curricular priorities. Content standards were intended to specify what is most important **for** students to know and be able to do, thus providing a much-needed focus and set of priorities **for** curriculum, instruction, and assessment. In practice, however, content standards committees at the national, state, and district levels often worked in isolation to produce overly ambitious lists of "essentials" **for** their disciplines. Rather than streamlining the curriculum, the plethora of standards added to the coverage problem, especially at the elementary level, where teachers must **teach** standards and benchmarks in multiple subjects (Marzano & Kendall, 1998). The matter is further complicated by teachers' propensity to focus on overloaded textbooks as the primary resource **for** addressing their obligations to the content standards.

U.S. textbook publishers try to cover the waterfront to appease state textbook adoption committees, national subject-area organizations, and various special-interest groups. Project 2061's study of mathematics and science textbooks (Kesidou & Roseman, 2002; Kulm, 1999) found few commercial texts that were not "a mile wide and an inch deep."

Teachers confronted with thick textbooks and long lists of content standards may understandably come to the erroneous conclusion that they must cover huge amounts of content. They feel that "if it is in my book, it has to be taught." The perceived need to "cover" is typically based on two implicit assumptions that we think are unfounded. The first assumption is that if a teacher covers specific material—that is, talks about it and assigns some work—students will adequately learn it **for** tests. The second is that teachers should typically address standards one at a time in lesson planning.

We know of no research that supports the idea that a coverage mode of instruction increases achievement on external tests. In fact, current research suggests that "uncoverage"—focusing on fewer topics and core understandings—is more likely to increase student achievement. The TIMSS research that demonstrated lower achievement scores **for** U.S. students found that U.S. mathematics and science curriculums were unfocused and included too many topics (Schmidt, McKnight, & Raizen, 1997). In contrast, high-achieving countries offered fewer topics at each level, coupled with more coherent and focused content. This concentrated focus enabled teachers and students to gradually build more complex understandings in mathematics, to delve deeply into subject matter, and to attain higher levels of achievement (Schmidt, 2004; Schmidt, Houang, & Cogan, 2002).

Recent studies on mathematics reform curriculums described by Senk and Thompson (2003) also support using an "uncoverage" approach to improve student achievement. All the mathematics reform curriculums that Senk and Thompson studied were designed to help students understand fundamental mathematical concepts and ideas. Longitudinal data from middle schools show that students using understanding-based mathematics curriculums demonstrated superior performance in both nonroutine problem solving and mathematical skills. Other studies on high school mathematics reform programs showed that students in these programs developed additional skills and understandings while not falling behind on traditional content.

The second misconception—that content standards and benchmarks should be addressed one at a time through targeted lessons—is often reinforced by state

and national standardized tests that typically sample the standards and benchmarks one at a time through decontextualized items. Thus, the presentation of both tests and standards documents often misleadingly suggests that teachers should **teach** to standards one bit at a time. From this point of view, teachers certainly do not have enough time to address all standards.

We suggest clustering discrete standards under an umbrella of big ideas. This approach renders teaching more efficient while applying a principle of effective learning derived from research. Bransford and colleagues suggest that

> Experts' knowledge is not simply a list of facts and formulas that are relevant to the domain; instead, their knowledge is organized around core concepts or "big ideas" that guide their thinking about the domain. (2000, p. 24)

Similarly, the use of complex performance assessments enables students to apply facts, concepts, and skills contained in multiple standards in a more meaningful way while enabling educators to assess **for** true understanding, not just **for** recall or recognition.

Implications

Teaching **for meaning** and understanding leads to more lasting and significant student learning. Although we have made a strong case against two widely held objections to this approach, we realize that educators must test, debate, and explore these claims in their respective settings.

We therefore encourage you to conduct ongoing action research at the school and district levels that compares the kind of curriculum, assessment, and instruction described here with teaching that focuses on covering content or practicing **for** standardized accountability tests. Are students more engaged when you frame content in provocative essential questions? Do students show increased understanding when they have some choice in the manner in which they demonstrate their knowledge? Is performance on traditional assessments compromised when learners have the opportunity to apply their knowledge in authentic situations? Do inquiry-based and problem-based instruction energize teachers?

Let the results speak **for** themselves. We hope that by "uncovering" some of these unfounded claims, we will encourage educators and district leaders to take a more proactive stance and focus on what they *can* do to improve

learning in today's standards-based world.

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Leading Differentiated Instruction
Illinois Principals Association
Agenda

Differentiation **readiness**

–What is already happening?

Differentiation **process**

–What do you want them to know?

–How will you know if they know it?

–Do you know what they know?

–How will you bridge the gap?

Differentiation **implementation**

–What are your options for staff development?

–What are your short term/long term goals?

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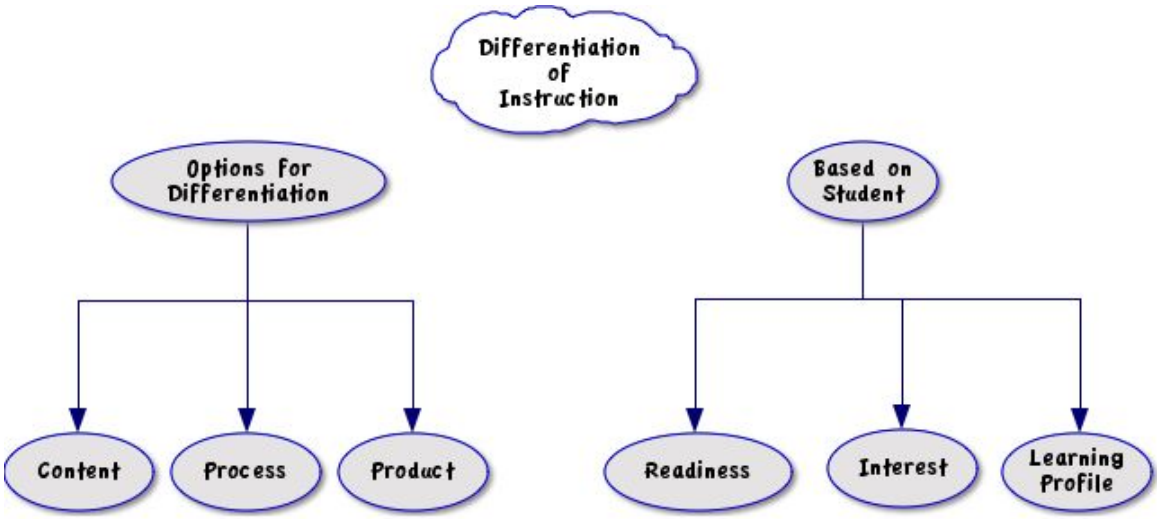
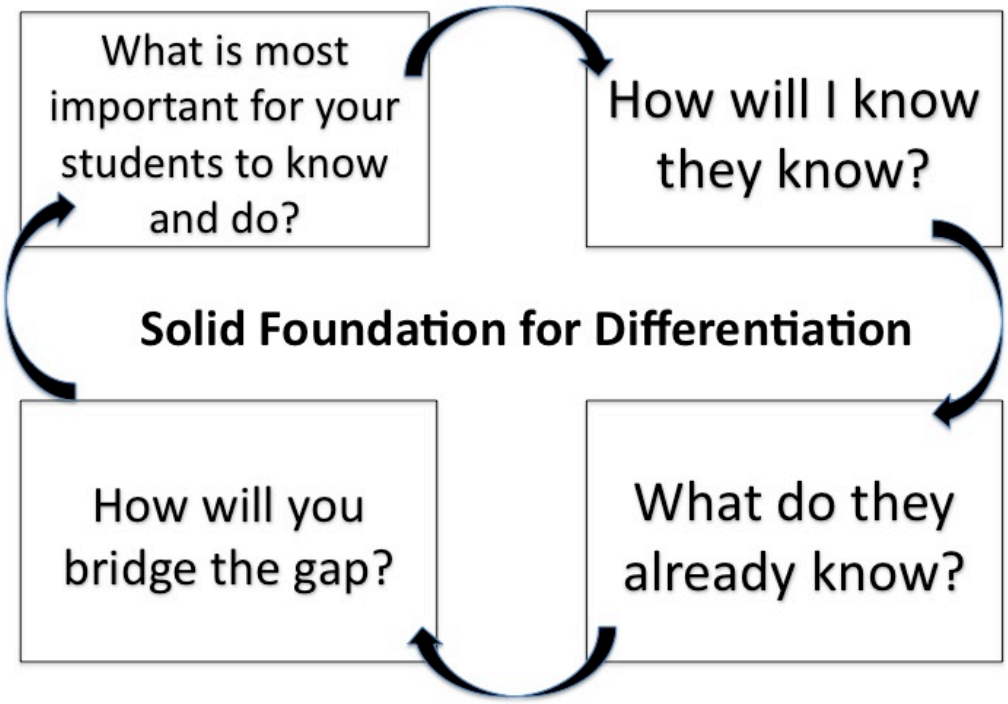
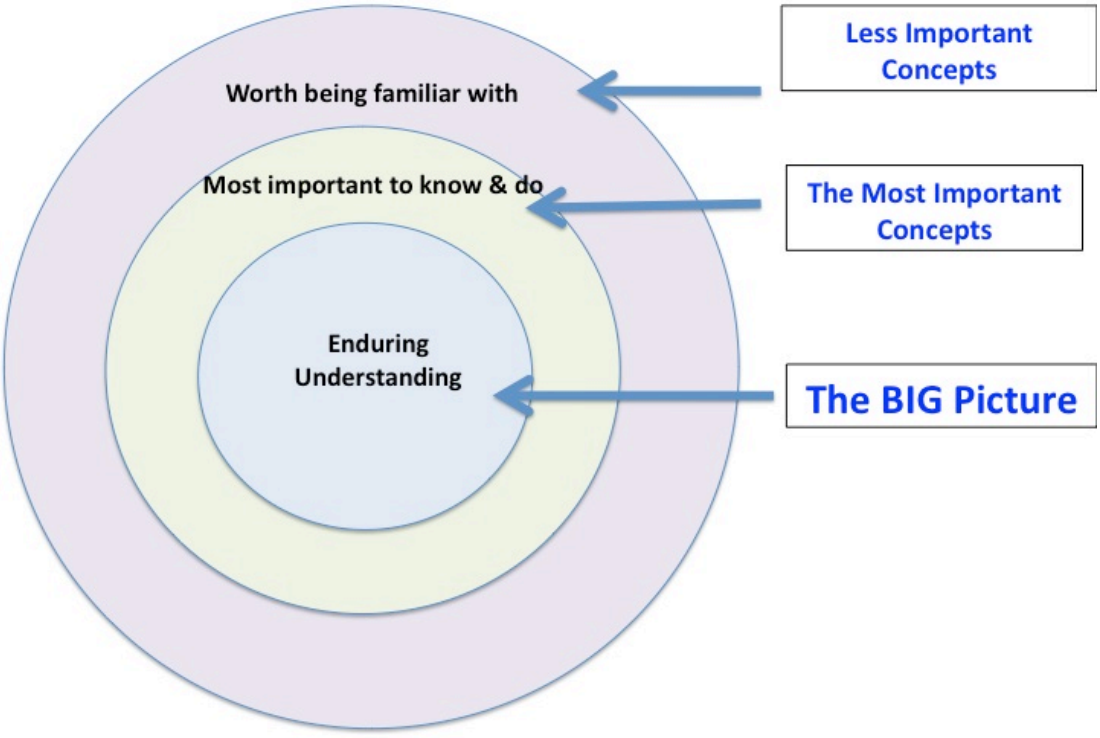


Instructional and Management Strategies

Multiple Intelligences	Varied questioning
Tiered lessons or products	Jigsaw
Learning centers/stations	Literature circles
Independent study	Varied journal prompts
Varied texts	Varied organizers
Learning contracts	Interest groups
Small group instruction	Curriculum compacting


What is most important for your students to know and do?
How will I know they know?
Solid Foundation for Differentiation
How will you bridge the gap?
What do they already know?


Worth being familiar with
Most important to know & do
Enduring Understanding
Less Important Concepts
The Most Important Concepts
The BIG Picture

Daily Focus: What strategy or skill will you use?

Reading Strategies	Reading Skills
Purpose and plan for reading Monitor & Repair Comprehension Connect Predict Question Visualize Infer Determine Importance Summarize Synthesize	Define Compare/Contrast Fact/Opinion/Generalize Sequence Main Idea Summarize Cause/Effect Context Clues Draw Conclusions Others:
Science Skills	**Social Studies Skills**
Define Observe Compare/Contrast Classify Measure Draw Conclusions Infer Predict Collect, Record, Interpret Data Make Hypothesis Make & Use Models Others:	Define Compare/Contrast Fact/Opinion Sequence Main Idea Summarize Cause/Effect Context Clues Infer Read Maps/Visuals Others:

Assessing Enduring Understandings & Big Ideas

Oral Projects Class Debate Historical Role Play Interview Newscast - Presentation and Planning Video - Talk Show Others: **Writing** Extended Response Book Jacket Letter Writing Persuasive Essay Expository Essay Narrative Essay Science Building A Structure Lab Report Science Fair Experiment Scientific Drawings Others: **Fine Arts** Designing and Making An Instrument Instrumental Music Performance - Music In History & Cultures Vocal Music Performance Analysis of A Work of Art Creating a Painting, Drawing, etc. Making A Collage, Mask, etc. Others:	**Products** Making A Brochure Making A Game Making A Map Making A Poster Create a Concept Map Newspaper Public Awareness Campaign Timeline Digital Storytelling (slide show, video, etc.) Video Others: **Math** Extended Response Gathering/Presenting Data Creating/solving problems Applying "real-life" examples of math concepts Others: **Science** Building A Structure Lab Report Science Fair Experiment Scientific Drawings Others:

Beginning Unit Design for Differentiation

Unit Name	
Topics-Key Concepts-Vocabulary (What will the students be learning about?)	
Most important to know and do	*Worth being familiar with*
Big Ideas (What are 2 or 3 "big ideas" all students should know at the end of the unit?)	
Assessments (How will you know they know??)	
Summative (used for evaluation, measure learning)	*Formative (Daily, guide instruction)*
Learning Activities & Lessons (What lessons – activities – assessments will you use during the unit?)	

Beginning Unit Design for Differentiation

Unit Name	Immigration

Topics-Key Concepts-Vocabulary
(What will the students be learning about?)

Most important to know and do	*Worth being familiar with*
• Compare/contrast the homelands of immigrants throughout US history • Describe the reasons people left their homelands • Describe the jobs opportunities & conditions of past & present immigrants • Explain the technological advances of the Industrial Revolution that led to new jobs	• US Immigration laws and policies • The development of corporations • Important business leaders in steel & oil industry • Workers rights and the beginning of the labor unions • Poor living conditions of cities of the 1800s and the people and policies that changed them

Big Ideas
(What are 2 or 3 "big ideas" all students should know at the end of the unit?)

- People first came to America from Europe because they wanted to have freedom (religious, economic, etc.).
- The places immigrants have come from have changed: first colonies, Industrial Revolution, today, etc.
- People continue to come to America for the same reasons.

Assessments
(How will you know they know??)

Summative (used for evaluation, measure learning)	*Formative (Daily, guide instruction)*
• Create a diary from the point of view of an immigrant, describing the journey from your homeland to your first year in America • End of unit test with essay questions related to big ideas	• Daily 1 minute summary writing • Quizzes

Learning Activities & Lessons
(What lessons – activities – assessments will you use during the unit?)

• Vocabulary word sorts • Vocabulary 4-square of most important words • Interactive mapping activities to follow immigrant journeys • Ellis Island activity • Classroom matrix of comparing immigration facts from colonies to now • Inference with pictures activities of tenements & child labor	• PBS resources of perspectives from other countries • Jigsaw reading of primary sources on immigration • Power notes of textbook unit • America's Library sources of immigration policy • Personal journal of family immigration

Differentiation Choice Board

Choose 3 different activities from **each** row.

Options differentiated by interest, learning style, or readiness			Specific skill, concepts, objectives that all students must learn
1	2	3	
4	5	6	
7	8	9	

Literacy Choice Board

1 Read with a partner and follow the Buddy Reading Procedure.	2 Listen to books on tape and write about what you book you listened to.	3 Complete the Fluency Phrases procedure.	FLUENCY
4 Practice your word sort and try to "beat the timer."	5 Sort your words and come up with five additional words that follow each pattern.	6 Come up with as many multiple syllable words that contain each pattern.	WORD WORK
7 Create a comic strip sequencing the class story.	8 Complete a story map about the class story.	9 Complete a written summary of the class story.	COMPREHENSION

Directions: Choose 3 activities each day to complete. You must complete an activity from **each** row.

Monday	**I choose activities # _____, # _____, # _____**
Tuesday	**I choose activities # _____, # _____, # _____**
Wednesday	**I choose activities # _____, # _____, # _____**
Thursday	**I choose activities # _____, # _____, # _____**
Friday	**I choose activities # _____, # _____, # _____**

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Words I know about: _____

Words I know & could teach others about…	Words I am familiar with…	Words I have heard of but don't know…	Words I don't know…
Word Bank			

Word Sort Ideas for Vocabulary Words

Teach One, Taught One
Students look at the words and find one they know and can teach someone else. They "teach" their word to another student, then the other student "teaches" their word. (You will want to give directions like "explain it and give an example," etc.

"Words I Know" Sorts
Students preview words and divide them into categories to determine how well they know each word. For example: Words I know/Words I don't know; Words I know, Words I've heard of, Words I don't know, etc.

Connect Two
Tell students to pick up one word they know. Then tell them to look at the rest of the words and pick up another word that is related to it. It doesn't matter which two words they choose, as long as they can give a reasonable explanation *why* they connected them.

Open Sorts
In an open sort, students define the categories. Keep it simple at first. Prompts can be as follows:

- Can you find more than two words that are related? Why are they related?
- Which words are related? Why?
- If you could sort these words into two categories, what would they be?
- Group the words into categories. Label each group.

Closed Sorts
In a closed sort, the teacher defines the categories. Closed sorts work best after a few days of open sorts.

- Pull out all of the words that have to do with _____?
- Which words do *not* have to do with _____?
- Which of the words did we talk about yesterday?
- Arrange the words in order from first to last. Which word did you put first/last? Why?

Words I know about _____	A	B	
C	D	E	F
G	H	I	J
K	L	M	N
O	P	Q	R
S	T	U	V
W	X	Y	Z

QAR Strategies

(Question/Answer/Response)

Understanding the types of questions typically asked about text can help students choose the correct answer.

"In Text" Questions
Right There The answer is in the text, and if we pointed at it, we'd say it's "right there!" Often, the answer will be in a single sentence or place in the text, and the words used to create the question are often also in that same place. Questions typically ask "how many…", "who is…" "where was…"
Think and Search The answer is in the text, but you might have to look in several different sentences to find it. It is broken up or scattered or requires a grasp of multiple ideas across paragraphs or pages. You may have to fit the information together to answer the question. Questions typically ask, "What is the main idea…", "What caused…" "Compare and contrast…"
"Beyond Text" Questions
Author and You The answer is not directly stated in the text, but you still need information that the author has given you, combined with what you already know, in order to respond to this type of question. These questions require you to make inferences and formulate your own ideas or opinions based on text evidence. Questions typically ask, "The author implies…", "The passage suggests…", or "The author thinks…"
On My Own The answer is not in the text, and in fact you don't even have to have read the text to be able to answer it. These questions are based purely on your own background knowledge and experiences. These are not usually found on tests because they don't require you to refer to the passage. These include, "Based on your own experiences…" or "Think about someone/something you know…"

Urban Jungle

Zoos today focus on education and conservation, or saving endangered species and natural habitats. In the past few years, several of the nations leading zoos have spent millions of dollars building new exhibits. These displays show animals living in spaces that resemble their native homes.

The panda exhibit at Zoo Atlanta raises money to save a natural habitat – bamboo forests in China. Zoo Atlanta built a $7 million habitat for Yang Yang and Lun Lun, two pandas moving there from China. This is an important exhibit because giant pandas are among the world's rarest mammals, or warm-blooded animals with backbones. Few than 1,000 pandas exist in China's mountains because of their diminishing food supply. Farmers have to cut down bamboo forests to clear land, eliminating the panda's major food source. A single panda must eat more than 20 pounds of the plant each day to survive. The zoo will make sure that the pandas have the food and environment they need in order to survive.

Zoos across the country help other endangered animals, including elephants, monkeys, turtles, and cranes by replicating their habitats and helping wounded animals heal. Zoo studies also help scientists learn how to breed endangered species and help them give birth to new generations. Their studies paid off at the San Diego Zoo last month where a rare, new arrival boosted the U. S. panda population from three to four. The baby panda was the first born in the U. S. in ten years.

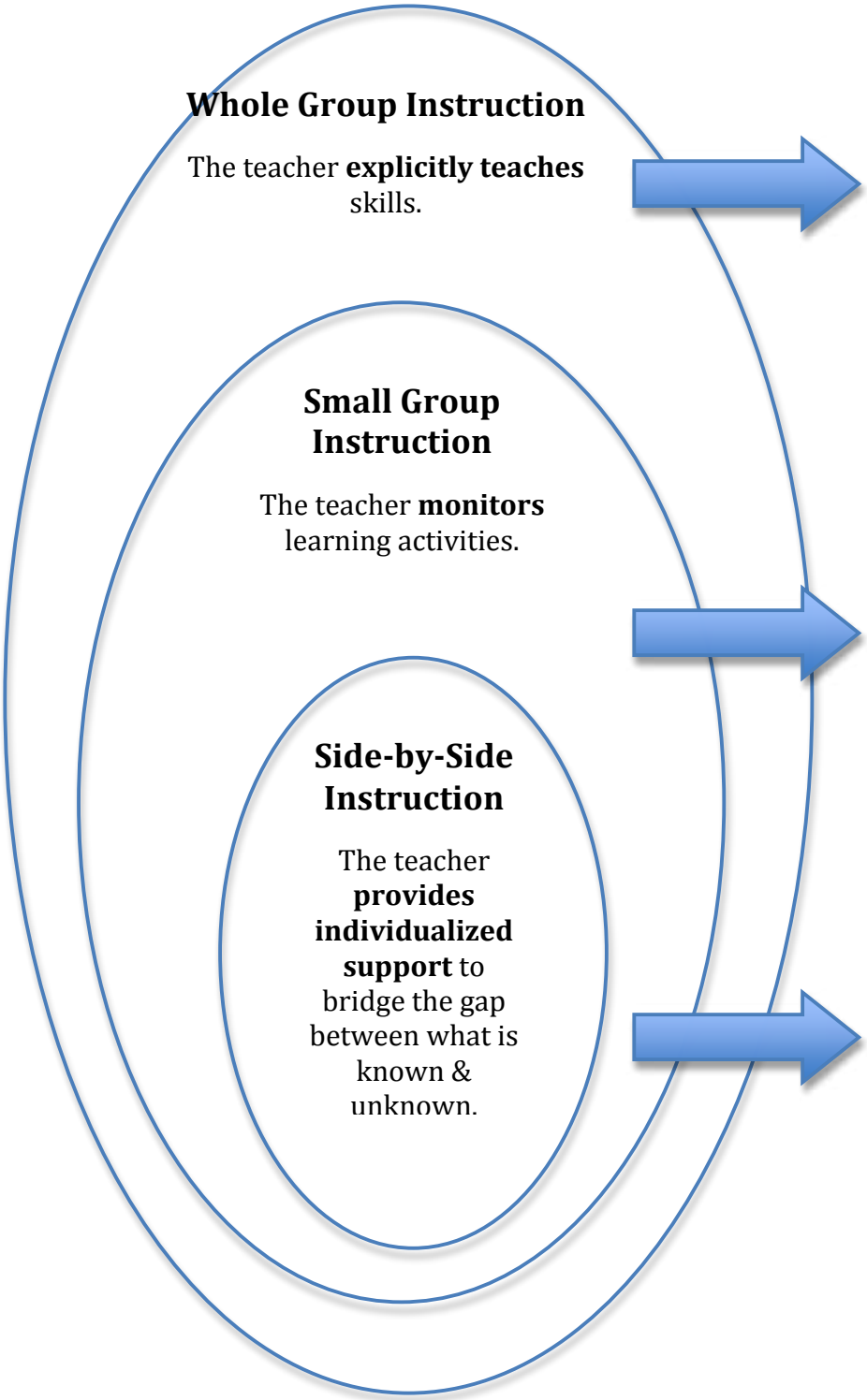
"Zoos are now spending more time trying to understand animals," says Ed Spevak, a Bronx Zoo curator, or person in charge of the exhibit. "Zoo animals live longer in zoos because they get better care, nutrition, and doctors." And today's zoo animals serve an important function: They help preserve the lives and homes of animals living in the wild.

Adapted from "Urban Jungle" by Tracey Gardner

A Protocol for Exemplary Instruction

A *balance* of *each* instructional delivery happens *daily*!

- Each is data driven & has a clear learning outcome.
- Each encourages students to practice and apply concepts and skills.
- Each uses research-based strategies, including reflection and meta-cognition of what has been learned.



Includes:

- Activating schema by making connections between known and new information
- Using multiple texts from a variety of genres, reading levels, etc.
- Active strategies with key vocabulary and concepts
- "Pulling apart" content through the use of organizers, questions, and note-taking strategies
- Reflecting on learning through discussion and writing

- Flexible grouping based on common needs, abilities and interests
- Prompts higher-level thinking through questioning
- Intervening when understanding breaks down
- Monitoring students' understanding of concepts and skills through observation, anecdotal records, etc.

- Intensive coaching to increase understanding of concepts and skills
- Uncovering misconceptions and helping students clarify their thinking
- Identifying misunderstanding and building understanding

What words would fit into the blanks?

1. Despite flipping upside down and being thrown from his bike, the motocross rider walked away _____.

2. The _____ was a risk-taker, starting numerous companies and businesses throughout his career.

3. The restaurant _____ to families, offering a large children's menu and providing a kid-friendly dining room.

4. Watch out when you play in the snow with your brother!

He will _____ you with a snowball as soon as you turn your back!

5. It is _____ in many countries to remove your shoes before walking in someone's home.

6. When you are baking, flour is an ingredient that is

_____ since it is going to be used in most recipes you make

ADMINISTRATORS' ACADEMY SIGN-IN SHEET

Leading Differentiated Instruction in Your Building – Revised 2012 – an Online Course

AAC # 1259

Presenter(s): Kellie Doubek

January 31, 2012

FULL NAME _____

E-MAIL _____

POSITION _____

SOCIAL SECURITY OR IEIN # _____
(Required)

SCHOOL NAME & ADDRESS _____

_____

SCHOOL PHONE _____

DISTRICT NAME AND NUMBER _____

HOME ADDRESS _____

_____

HOME PHONE _____

Do you have a Type 75 or Type 10 Certificate: Yes ☐ NO ☐

Choose One:

- Illinois Administrators' Academy Credit ☐
- Continuing Professional Development Credit (Administrators) ☐
  (No Application/Dissemination Plan Required)
- I do not need Illinois Administrators' Academy Credit or Continuing Professional Development Credit ☐
- Continuing Professional Development Units (Teachers) ☐

SIGNATURE _____

IMPORTANT: PLEASE COMPLETE IMMEDIATELY
Please complete this form and fax (217.391.0849) or mail to: Attn: Beth, IPA, 2940 Baker Drive, Springfield, IL, 62703.

On-line Administrators' Academy Application/Dissemination Plan

NAME_____TODAY'S DATE_____

SSOS School☐ SOCIAL SECURITY OR IEIN #_____

COURSE NAME_____

COURSE NUMBER_____ COURSE DATE_____

COURSE LOCATION_____

Describe the Application/Dissemination work you will do for this course. See Application/Dissemination Plan Instructions for complete detail.

IMPORTANT: PLEASE COMPLETE IMMEDIATELY

Please complete this form and fax (217.391.0849) or mail to: Attn: Beth, IPA, 2940 Baker Drive, Springfield, IL, 62703.

Application/Dissemination Plan Instructions

Administrators Academy #: 1259

Title: Leading Differentiated Instruction in Your Building – Revised 2012 - an Online Course

Presenter(s): Kellie Doubek

Date: January 31, 2012

Location: Online

IMPORTANT: Please use the description below to describe your application/dissemination work.

Each participant will analyze his/her understanding of the concepts of Differentiated Instruction and how to best implement or revitalize Differentiated Instruction in his/her school. Participants will examine ways to build understanding and support through family partnerships and identify targeted teacher training to meet student and staff needs. Participants will analyze their own supervision and coaching skills, along with their ability to sustain change. Each participant will create a
school-wide action plan to implement and evaluate the use of Differentiated Instruction to improve student achievement. The action plan must include:

1.) activities or processes for introducing or reintroducing the need for Differentiated Instruction to all staff.
2.) a step-by-step process for developing family/school partnerships to encourage an understanding of Differentiated Instruction and increase family participation and support.
3.) a step-by-step process for identifying individual teacher training needs in terms of student performance and teacher understanding.
4.) a step-by-step process for identifying and improving his/her own supervision/coaching skills in terms of problem solving Differentiated Instruction issues.
5.) a step-by-step process for analyzing and improving his/her own leadership skills for creating and sustaining change.
6.) assessment tools and evaluation techniques he/she will utilize to determine the program's success in terms of student progress and sustained utilization of Differentiated Instruction.

Plan needs to be detailed and more than 5 sentences to receive academy credit.

Please keep this form for your records with documentation of completion of On-line Administrators' Academy Application/Dissemination Plan.

By submitting this document I will take responsibility for completing the tasks delineated in my "Administrators' Academy Application/Dissemination Plan, " including the maintenance of documentation to verify my work, and that I will take responsibility for checking the ISBE's Educator Certification System (www.isbe.net/certification) to assure that the correct information is posted to my account. All problems must be reported to the IPA within 90 days of the completion of the Academy.