Standards-Based Differentiation: Identifying the Concept of Multiple Intelligence for use with Students with Disabilities

Andrea P. Beam

A Feature Article Published in

TEACHING Exceptional Children Plus

Volume 5, Issue 4, March 2009

Standards-Based Differentiation: Identifying the Concept of Multiple Intelligence for use with Students with Disabilities

Andrea P. Beam

Abstract

With evolving eras in special education, an extreme concentration has been placed on accountability through high-stakes testing. In the past, only test scores of general education students were analyzed in most accountability efforts. Current laws, however, have extended accountability measures not only to include those students served in special education, but also to report their scores alongside their non-disabled peers. With the increased focus on accountability through high-stakes testing, educators are searching for more effective means to educate students who are participating in special education programs. Differentiation has become a means to educate all spectrums of students with disabilities. What is not evident, however, are the various methods used to differentiate lessons. It is proposed that educators consider multiple intelligences when differentiating for their students who require alternative methods of instruction. By incorporating different learning styles into daily plans, it is believed that all students will be reached academically.

Keywords

differentiation, assessment, special education

SUGGESTED CITATION:

Beam, A. P. (2009). Standards-based differentiation: Identifying the concept of multiple intelligence for use with students with disabilities. *TEACHING Exceptional Children Plus*, 5(4) Article 1. Retrieved [date] from http://escholarship.bc.edu/education/tecplus/vol5/iss4/art1

The term *differentiation* has assorted meanings for various individuals. Some may believe that to differentiate simply means to have separate lesson plans for each student. The expert, Carol Ann Tomlinson, would probably disagree and expand that differentiation to more than that. It is student-centered, crafted to encourage student growth, and multi-faceted, blending whole group, small group, and individualized instruction (Tomlinson, 1999). One very important component that seems to get forgotten in the whole "differentiation thrust," nonetheless, is multiple intelligences (MI), which is just one approach of differentiating. Without careful consideration of the characteristics of each student, it is pointless to consider methods of alternative instruction.

Before an instructor can lunge into new material, it is imperative to understand the population of which he or she works. An effective practice of getting to know the student is to use a type of interest inventory. The interest inventory allows not only the teacher to know what type of learners are in the class (i.e., MI), but it allows the student to better understand him or herself, as well. There are several versions of the MI test located on the World Wide Web, but one that the teacher can give in class is a simple pencil-paper test (see Figure 1) (*Multiple Intelligence Test*, based on Gardner's MI Model).

An effective practice of getting to know the student is to use a type of interest inventory. The interest inventory allows not only the teacher to know what type of learners are in the class.

One method to differentiate means to, first, ponder the seven multiple intelligences in children as determined by Howard Gardner. Allowing for differences enables the classroom teacher to better determine not only how various types of students think, but what they enjoy, how they prefer to gain instruction, and what they need to be successful. Linguistic students, for instance, think in "words". They enjoy reading, writing, and telling stories. Classroom instruction that works best for this student are lectures or debates, writing activities, brainstorming, or oral speeches to the class. Logical-Mathematical students, on the other hand, think by "reasoning". They enjoy instruction that includes experimenting, questioning, figuring out puzzles, or calculating. Any scientific demonstration, classifications or categorizations, or merely mathematical problems on the board motivate this type of learner. The third type of student is the one who has spatial intelligence. This student thinks in images and pictures. He or she learns best by designing, drawing, or visualizing. This student is especially eager to have instruction that is in the form of charts or graphs, videos or movies, or the simple creative daydreaming. Next, students who are strong in bodily-kinesthetic think through somatic sensations. These are the "hands on" students who enjoy dancing, running, building things, or anything else that is "hands on" in nature. Educators may find that several of their students with disabilities enjoy the kinesthetic activities, which include all hands on activities, manipulatives, cooking or gardening, or working on cars or small machines. The next kind of learner is that who is musical and is skilled with rhythms and melodies. Often, these students are identified by their love of singing, whistling, and tapping feet and hands. They receive information best through sing-along activities (e.g., rap, chants, rhythms, songs), or music apprecia-

tion, including playing recorded music or playing live music. This type of student does especially well with background music while they work. The last two types of multiple intelligence, as identified by Gardner, are interpersonal and intrapersonal learners. Interpersonal learners benefit from bouncing ideas off of one another (e.g., extroverts). These are the leaders of the group and very much enjoy cooperative learning groups, peer teaching, cross-age tutoring, or brainstorming sessions. Intrapersonal, on the other side, are more quiet and into themselves (e.g., introverts). They prefer independent work, self-paced instruction, options for homework, and journal keeping.

Figure 1: Multiple Intelligence Test (Based on Howard Gardner's MI Model, 1983)

Where does your true intelligence lie? This quiz will tell you where you stand and what to do about it. Read each statement. If it expresses some characteristic of your and sounds true for the most part, job down a "T." If it doesn't, mark an "F." If the statement is sometimes true, sometimes false, leave it blank.

1. _____ I'd rather draw a map than give someone verbal directions.
2. _____ I can play (or used to play) a musical instrument.
3. _____ I can associate music with my moods.
4. _____ I can add or multiply in my head.
5. _____ I like to work with calculators and computers.
6. _____ I pick up new dance steps fast.
7. _____ It's easy for me to say what I think in an argument or debate.
8. _____ I enjoy a good lecture, speech or sermon.
9. _____ I always know north from south no matter where I am.
10. _____ Life seems empty without music.
11. _____ I always understand the directions that come with new gadgets or appliances.
12. _____ I like to work puzzles and play games.
13. _____ Learning to ride a bike (or skates) was easy.
14. _____ I am irritated when I hear an argument or statement that sounds illogical.
15. _____ My sense of balance and coordination is good.
16. _____ I often see patterns and relationships between umbers faster and easier than others.
17. _____ I enjoy building models (or sculpting).
18. _____ I'm good at finding the fine points of word meanings.
19. _____ I can look at an object one way and see it sideways or backwards just as easily.
20. _____ I often connect a piece of music with some event in my life.
21. _____ I like to work with numbers and figures.
22. _____ Just looking at shapes of buildings and structures is pleasurable to me.
23. _____I like to hum, whistle and sing in the shower or when I'm alone.
24. _____I'm good at athletics.
25. _____ I'd like to study the structure and logic of languages.
26. _____ I'm usually aware of the expression on my face.
27. _____ I'm sensitive to the expressions on other people's faces.
28. _____ I stay "in touch" with my moods. I have no trouble identifying them.
29. _____ I am sensitive to the moods of others.
30. _____ I have a good sense of what others think of me.

Once the educator determines the type of learners that he or she has in his or her class, he or she can, then, develop lesson plans and activities that incorporate the variety of his or her students. Differentiation, as previously noted, "addresses the issues of diversity, academic ability, interests, cultures, motivation levels, and learning styles by utilizing multiple modes of instruction and assessment to meet learning needs" (Tomlinson, 1999) with the goal, of course, to maximize student learning. New teachers in the field, particularly those working with students with disabilities, should understand that students learn best in environments that allow freedom of choice, open-ended exploration, and validation of their experience(s) (e.g., curiosity, playfulness, imagination, creativity, wonder, wisdom, inventiveness, vitality, sensitivity, flexibility, humor, and joy). So often, instructors are overloaded with high-stakes testing and assessments and feel pressured to get the information "out there", not really taking into account their learners. In the meantime, students, also, feel anxious (see Figure 2). For this reason, differentiation is a must.

Figure 1 (continued): Multiple Intelligence Scoring Sheet

Place a check mark by each item you marked as "true." Add your totals. A total of four in any of the categories A through E indicates strong ability. In categories F and G a score of one or more means you have abilities as well.

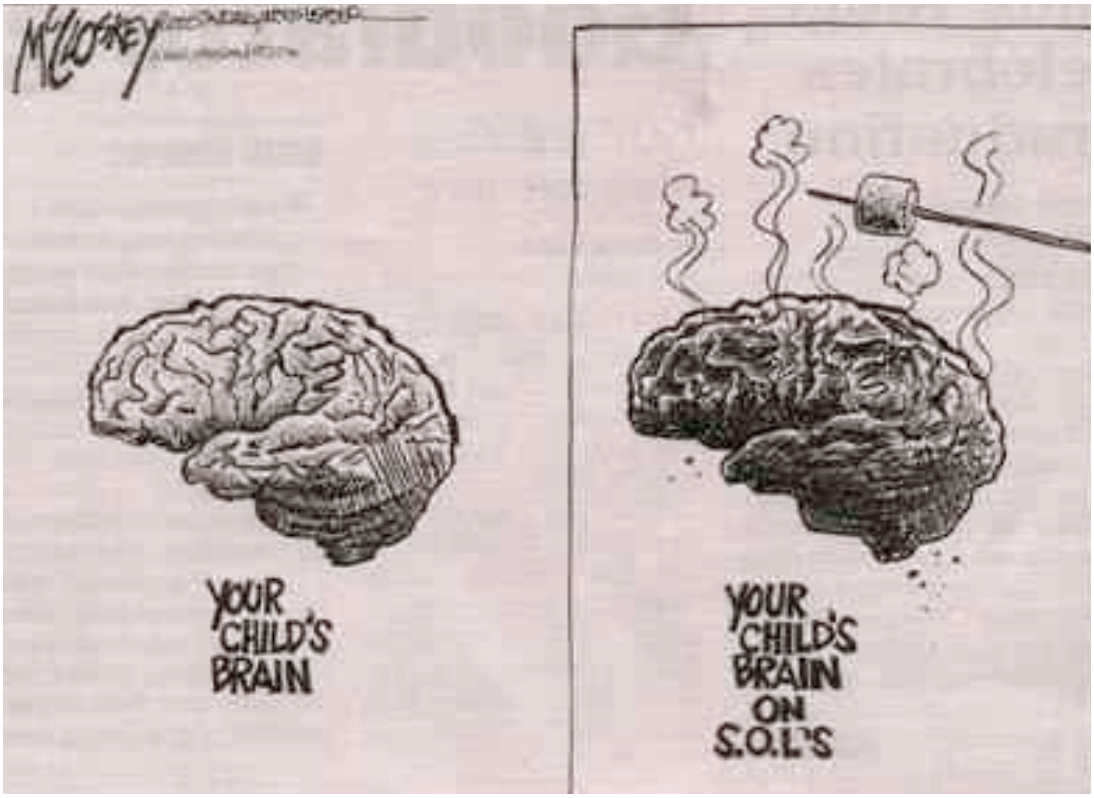
	A	B	C	D	E	F	G
	Linguistic	Logical-Mathematical	Musical	Spatial	Bodily-Kinesthetic	Intra-Personal	Inter-Personal
	7.	4.	2.	1.	6.	26.	27.
	8.	5.	3.	9.	13.	28.	29.
	14.	12.	10.	11.	15.		30.
	18.	16.	20.	19.	17.		
	25.	21.	23.	22.	24.		
Totals							

Theodore Sizer (n.d.) said it best when he identified "the fact that students differ may be inconvenient, but it is inescapable. Adapting to that diversity is the inevitable price of productivity, high standards, and fairness to kids." "How is differentiation effectively implemented?" might be the question several educators ask themselves. First, it is crucial to understand that it is not individualized instruction, chaotic, or another way to provide homogeneous groups. It is, nonetheless, a way to maximize student growth by meeting the student where he or she is and, additionally, helping the student progress to higher academic levels (Kerinan, 2000).

Ideally, when developing a differentiated classroom, teachers should structure the class where the students and teacher(s) can be

collaborators in the learning process. Flexibility is priority, and the teacher adjusts prearranged content in response to the students' readiness, interests, and learning profile (Tomlinson, 1999). If prepared correctly, the results are more engaged students. Those students who were, formerly, bored or struggling will now be excited about learning because they feel as if they have a voice and choice with their education (Willis & Mann, 2000). When designing a differentiated lesson plan, teachers should be sure to vary the learning activities and materials by difficulty (e.g., readiness level), topic (e.g., student interest), and learning style (e.g., multiple intelligence) (Kerinan, 2000).

Figure 2: Standards of Learning (Jim McCloskey Political Cartoons, 2008)



Additionally, the classroom should be guided by general principles of differentiation, such as respectful tasks, flexible grouping, and ongoing assessment and adjustment. While differentiating, teachers can be flexible with regard to the academic content, the process of teaching, the product of assessment, and the learning environment according to each student's readiness level (e.g., scaffolding) , interests, and learning profile, as already mentioned (Tomlinson, 1999).

Teachers can group students according to any of the three components mentioned. For grouping strategies by student interest, teachers can allow students to select alternative books or articles. When teachers group according to ability, they will need to accommodate for experiences or readiness by using pretests or baselines so scaffolding is effective. Finally, allowing for self-selection, also referred to as learning style or multiple

intelligence, teachers can allow individuals to select topics or type of outcome preferred.

Tomlinson (1999) divides differentiation into the three distinct categories that have already been discussed, but expands to include differentiation for assessment purposes. This information can be quite valuable as educators prepare their students for the high-stakes tests that are certain to follow. When assessing student readiness level, teachers can use standardized tests, teacher-made tests, course grades, product evaluations, participation levels in various activities, interaction with peers, interaction with teachers and other adults, or extracurricular activities. When assessing by student interest, general or specific interest inventories work well. Also, individual or group interviews, student's written work (e.g., self-selected topic), whole-class or small-group discussions, task commitment (e.g., topics of choice), or self-selected reading. Finally, the third component of differentiation that can be used with assessment is the student's learning profile. When assessing, instructors may like to use instructional, thinking, or expression style preferences (e.g., determined by the student), grouping preferences (e.g., individual or cooperative), work arrangements (e.g., whole class, pair, individual, table work, floor work, with or without music, etc.).

Teachers should be aware of their own comfort level when it comes to differentiating. As the educator's comfort level increases, so can that of differentiated lessons. The important thing to remember, however, is to begin slowly, but definitely begin! Some examples of low-preparation differentiation include allowing a choice of books for the students, homework options, use of reading buddies, varied journal prompts, varied pacing options, student-teacher goal setting, flexible grouping, varied supplementary materials, open-ended activities, explorations by interest, or mini-lessons. For those instructors who are more comfortable with differentiation, or those ready for a challenge, can attempt the high-preparation differentiation tasks, which can include tiered activities and labs, independent studies, multiple texts, alternative assignments, multiple-intelligence options, varying graphic organizers, tiered learning centers, choice boards, graduated rubrics, personal agendas, or stations developed by readiness, interest, or learning profile (Tomlinson, 1999).

For those teachers who are unsure of how to develop a differentiated lesson plan, three examples have been included (see figure 3-5) (L.Hussar, personal communication, June 25, 2008 & A. Tomasulo, personal communication June 24, 2008). In each example, there are differentiated options. When instructing students with disabilities, it is imperative to reach the students at their base level before moving forward. One method of reaching these students, regardless of their disability, is to differentiate the lessons. A multitude of arrangements have been discussed that will aid educators for the benefit our most precious commodity—that of our aspiring youth.

References

Gardner, H. (1983). *Frames of mind: The theory of multiple intelligences*. New York, NY: Basic Books.

Kerinan, L. (2000). *What is Differentiated instruction?* ASCD Online: Retrieved October 10, 2008 from www.ascd.org/pdi/demo/diffinstr/differentiated1.html.

McClosky, J. (2008). *Daryl Cagle's Professional Cartoonists Index.* Retrieved on October 10, 2008 from http://www.cagle.com/politicalcartoons/PCcartoons/mccloskey.asp.

Sizer, T. (n.d.). Abstract obtained from Elwood Public Schools. Retrieved October 10, 2008 from http://www.elwood.k12.ny.us/pdfs/Differentiation.pdf

Tomlinson, C. (1999). *The Differentiated classroom: Responding to the needs of all learners*. Alexandria, VA: ASCD.

Willis & Mann. (2000). *Differentiating instruction*. ASCD Online: Retrieved October 10, 2008 from www.ascd.org/ed_topics/cu2000win_willis.html.

About the Author:

Andrea P. Beam is an Assistant Professor in the Department of Special Education at Regent University with a background in Elementary Education, Special Education, and Administration.

Figure 3: Differentiated Lesson Plan for 3rd Grade Math (developed by Lisa Hussar)

Lesson Plan
Math/3rd Grade
Name:
Date:
Class/Subject: Math Time: 45 minutes

Academic Objective(s): TSW solve routine and non-routine problems

Related Standard of Learning Objective(s): SOL 3.00 The student will solve routine and non-routine problems using a variety of strategies.

Rationale: The students are required to read and solve routine and non-routine problems in mathematics.

Materials: sample problems, paper, pencils, manipulatives, board, markers

Anticipated Difficulties: Students may have difficulty determining what the problems are asking and organizing/defending/explaining their thoughts.

Review: TTW display and review the steps for solving word problems.

Anticipatory Set: TTW pose a few routine, simple word problems for the students to solve mentally.

Teacher Presentation: TTW display routine and non-routine examples on the board. TTW model how to use all steps reviewed previously to solve problems to come up with a reasonable answer. TTW model several examples.

Guided Practice: TSW use the steps discussed to solve several word problems with the teacher.

Independent Practice: TSW be given 5 problems to complete on their own.

Additional Group Activity: TSW create their own story problem, exchange their problem with a partner, solve their partner's problem, and then discuss their answers and rationale with their partner.

Closure: TSW share their answers and state their methods/explanations.

Differentiation Alternatives: Students will be permitted to solve problems in different ways. Kinesthetic learners will be permitted to act out the problems to be solved or use manipulatives to derive an answer. Logical thinkers will use paper/pencil to come up with their answers. Visual learners can draw pictures to show their solutions to the problems.

Figure 4: Differentiated Lesson Plan for 3rd Grade History (developed by Lisa Hussar)

Lesson Plan
Math/3rd Grade
Name:
Date:

Class/Subject: History Time: (3) 30min. Class Periods (more if need be)

Academic Objective(s): TSW recognize the importance of Ancient Greece and Rome

Related Standard of Learning Objective(s): SOL 3.1 The student will explain how the contributions of ancient Greece and Rome have influenced the present world in terms of architecture, government (direct and representative democracy), and sports.

Rationale: The students should be able to list the contributions from Ancient Greece and Rome; and recognize how these ancient civilizations have affected us today.

Materials: text book, study guides, pencils (colored), paper, markers, music, poster board, computers, construction paper, any other materials students may wish to use (approved by the teacher)

Anticipated Difficulties: Students may have difficulty determining how the contributions of ancient civilizations have affected our world today.

Review: In their teams TSW take turns stating what they have learned about Ancient Greece and Rome.

Anticipatory Set: TTW pose questions such as: What would we do without the Olympics? How would our buildings be different if we didn't have columns? What if we would have a king, instead of a president?

Teacher Presentation: TTW display pictures that depict Ancient Greece and Rome. TSW discuss what they see. TTW distribute a rubric that outlines the requirements for the project the students will complete. TSW complete a project that shows the contributions of Ancient Greece and Rome and how they affect us today.

Guided Practice: TTW display projects from previous students to be used as examples.

Independent Practice: TSW be given 3 class periods to complete their projects (more time can be given if needed)

Additional Group Activity: The class will create a bank of review questions about Ancient Greece and Rome to be used in a Jeopardy game for SOL review.

Closure: TSW present their projects to their classmates.

Differentiation Alternatives: This lesson/project is open ended and therefore students may be creative. Musical learners can create a song. Visual learners can create a scene, poster, computer presentation, and/or pictures. Kinesthetic learners can create a skit. Logical learners can write a paragraph. Students may also choose to work in small groups to complete the project.

Figure 5: Differentiated Lesson Plan for 7th Grade History (developed by Amy Tomasulo)

Subject: U.S. History 1877-present
Class/Subject: 7th Grade Social Studies Time: 90 minutes

Academic Objective(s):
7.9.6: Describe the historical origin of the civil rights movement. (USII.8a)

7.9.7: Describe the goals of the civil rights movement.

7.9.11: Describe the contributions of key individuals and groups during the Civil Rights Era. (USII.8a)

7.9.12: Identify key events in the civil rights movement. (USII.8a)

7.9.13: Evaluate the role of Dr. Martin Luther King, Jr. in the civil rights movement. (USII.8a)

7.9.14: Describe the contributions of the Kennedy and Johnson administrations to the civil rights movement. (USII.8a)

Related Standard of Learning Objective(s):
USII.8 The student will demonstrate knowledge of the key domestic issues during the second half of the twentieth century by
- examining the Civil Rights Movement and the changing role of women;

Rationale:
It is essential for students to understand the conflicts and struggles within our history and its impact on American societies. This lesson will:
- Increase awareness of social injustice motivates people to demand equal treatment under the law.
- Understand how groups may create change by focusing attention on social, economic, and political concerns.
- Understand how goals and visions of leaders may shape public support for political, economic, and social change.
- Understand social, economic, and political problems persist through time.
- Understand how democratic principles guarantee rights for all citizens

Materials:
http://www.youtube.com/watch?v=BUdBN4FNNAk&feature=related
http://www.youtube.com/watch?v=Lerm86Mr5UE&feature=related

http://www.youtube.com/watch?v=Q_OqdHMoTxE&feature=related

Laptop and LCD multimedia projector

Alternative - *Abraham, Martin, and John* (words & music by Richard Holler)

Figure 5 (Continued):

Tape/CD, tape/CD player

Graphic organizer of civil rights leaders, large poster/chart paper for walk-about, markers, graphic organizer of civil rights events

Anticipated Difficulties:

- Students may confuse key individuals and not recognize the significance of their roles in the civil rights movement.
- Students may not be able to understand, evaluate, or justify major events.

Review:

This lesson provides an excellent opportunity to review:

- 13th, 14th, and 15th Amendments
- Jim Crow laws
- *Plessy v Ferguson*
- NAACP

Anticipatory Set:

Ask students what the difference between discrimination and prejudice is… (Brainstorm responses). Have students line up in front of room to differentiate discrimination and prejudice… Use presidents, food, clothing, and real life situations…Be sure to include gang scenario and Hitler. Relate to previous lessons and today's topic, the Civil Rights Movement: Leaders & Events.

Teacher Presentation:

Using a K/W/L chart, have students brainstorm what they already know about the Civil Rights Movement., and then inquire what they would like to know about this event. Pass out Civil Rights graphic organizers. Using the Montgomery Bus Boycott as an example, walk the students through the research and note-taking format (cause, key people and dates, and effects). Explain the *Jigsaw* process to the class and the importance of each member participating, so they fully understand their topic and how it will be presented to others.

Guided Practice:

Divide the students into 4 groups: Brown v. Board of Ed., March on Selma, Freedom Riders, and March on Washington. Groups will research important facts and summarize event and impact on the movement. ***(Grouping students by ability, interest, and/or need will provide differentiation.)*** The teacher will monitor groups to check for on-task behavior, clarify process, and answer group questions. The students will then JIGSAW into new groups to share information with members of the former groups. Students will record the information onto their charts.

Independent Practice:

The song "Abraham, Martin, and John" will then be used for the students to draw their own inferences of civil rights leaders. Using the information from the lesson, song, and their knowledge of history, the students will create a poem (using one of the poetry formats taught in English) on a specific individual/group which made a positive impact on the movement. ***(Students' choices of poetry format and civil rights leader provide differentiation.)***

Figure 5 (Continued):

Additional Group Activity:

Each new group will receive a different color marker. (This is so each groups' work can be distinguished by color.) As they "walk about" the room, they will record one important fact about the particular event on each chart. When they get back to their original topic, they will evaluate the information recorded for accuracy. (Symbols for evaluation are "!" - great answer; "?" – unsure of accuracy; "X" – inaccurate information.) The teacher will check each chart for accuracy and reinforce the information.

Closure:

"Give Me 5!" activity – Students will trace their hands and write a fact they learned today about the civil rights movement in each digit. The class will use their facts to complete the K/W/L chart.

Teacher Reflection:

- Use of direct instruction laid learning foundation
- Use of cooperative learning activities built student confidence, social skills, and enhanced understanding of the content
- Various learning styles addressed through visual, audio, tactile, and kinesthetic activities

Differentiation Alternatives:

- Flexible grouping
- Self-selected roles/events
- Oral reading
- Student created graphic organizers
- Self-selected writing format (poem, journal, speech, etc.)
- Key people and events flashcards or "flippie charts" can be created for note-taking/ recording pertinent information
- Visual time lines for sequencing key events can be implemented
- Cause and effect chains (paper links)