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## **An Interview with Marcia Tate: Formative Assessment and Brain Based Learning**

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### **Abstract**

In this interview, Dr. Marcia Tate discusses her work and focuses on critical issues in brain based learning, and the need for both formative and summative assessment. Tangential issues such as grade retention and response to intervention are also discussed. It is hope that this interview will assist teachers in the instructional and learning process and aid in both formative and summative assessment.

**Keywords:** *brain based learning, formative assessment, instructional and learning process, summative assessment*

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## Introduction

Marcia L. Tate, Ed.D. (Developing Minds, Inc.) is the former Executive Director of Professional Development for the DeKalb County School System, Decatur, Georgia. During her 30-year career with the district, she has been a classroom teacher, reading specialist, language arts coordinator and staff development executive director. She received the 2001 Distinguished Staff Developer Award for the State of Georgia and her department was chosen to receive the Exemplary Program Award for the state.

Marcia is currently an educational consultant and has taught over 450,000 administrators, teachers, parents, and business and community leaders throughout the world. She is the author of the following eight best-sellers: (1) *Worksheets Don't Grow Dendrites: 20 Instructional Strategies that Engage the Brain*-(3rd Ed.); "Sit & Get" *Won't Grow Dendrites: 20 Professional Learning Strategies that Engage the Adult Brain*-(2nd Ed.); (3) *Reading and Language Arts Worksheets Don't Grow Dendrites: 20 Literacy Strategies that Engage the Brain*-(2nd Ed.); (4) *Shouting Won't Grow Dendrites: 20 Techniques to Detour Around the Danger Zones*-(2nd Ed.); (5) *Mathematics Worksheets Don't Grow Dendrites-20 Numeracy Strategies That Engage the Brain* and (6) *Preparing Children for Success in School and Life: 20 Ways to Increase Your Child's Brain Power*; (7) *Science Worksheets Don't Grow Dendrites: 20 Instructional Strategies That Engage the Brain*; and (8) *Social Studies Worksheets Don't Grow Dendrites: 20 Instructional Strategies That Engage the Brain*.

Participants in her workshops refer to them as the best ones they have ever experienced since Marcia uses the 20 strategies outlined in her books to actively engage her audiences.

Marcia received her bachelor's degree in psychology and elementary education from Spelman College in Atlanta, Georgia. She earned her Master's degree in remedial reading from the University of Michigan in Ann Arbor, her specialist degree in educational leadership from Georgia State University and her doctorate in educational leadership from Clark Atlanta University. Spelman College awarded her the Apple Award for excellence in the field of education.

In this interview, she discusses formative and summative evaluation within a brain based framework.

**1. Dr. Tate, your recent book, *Formative Assessment in a Brain-compatible Classroom: How Do We Really Know They're Learning?* seems to combine an assessment approach (which we need to clearly define) and a learning approach (which we may need to clarify). How did you decide to juxtapose these two? And why?**

The book does combine an assessment and learning approach since those two terms go hand in hand. Without assessment, how will a teacher determine whether learning has truly taken place. In the book, *formative* assessment is defined as *assessment for learning* since it occurs during the teaching and learning process whereas *summative* assessment is defined as *assessment of learning* since it occurs following the culmination of a unit of study. If teachers really want to determine if students are learning, both more traditional types of testing (i.e. standardized, criterion-referenced) and more authentic forms of assessment (i.e. products and performances) should be included.

Whether examining any learning style theory (i.e. those proposed by Gardner, Sternberg, Marzano) or perusing any research regarding how people gain and maintain information, you will find that there are 20 instructional strategies that teachers should be using as they deliver instruction. I refer to these as brain-compatible strategies since they take advantage of the way all brains learn best. These strategies are as follows and are delineated in my bestseller, *Worksheets Don't Grow Dendrites: 20 Instructional Strategies that Engage the Brain* (3<sup>rd</sup> ed.).

### Brain-compatible Strategies

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|---|--|
| 1. Brainstorming/Discussion                   | 11. Music/Rhythm/Rhyme/Rap                   |
| 2. Drawing/Artwork                            | 12. Project/Problem-based Learning           |
| 3. Field Trips                                | 13. Reciprocal Teaching/Cooperative Learning |
| 4. Games                                      | 14. Role plays/Drama/Charades                |
| 5. Graphic Organizers/Semantic Maps/Word Webs | 15. Storytelling                             |
| 6. Humor                                      | 16. Technology                               |
| 7. Manipulatives/Experiments/Labs/Models      | 17. Visualization/Guided Imagery             |
| 8. Metaphors/Analogies/Similes                | 18. Visuals                                  |
| 9. Mnemonic Devices                           | 19. Work Study/Apprenticeships               |
| 10. Movement                                  | 20. Writing/Journals                         |

The beauty of these strategies is that they not only assist students in understanding and retaining content so that students score high on assessment instruments, but they also help to ensure that students still remember the content long after the tests are over. They also decrease behavior problems in class and make teaching and learning so engaging and fun!

- 2. Your book seems to suggest that teachers need to ask a wide variety of higher-order thinking questions-and while that is all well and good-how does a teacher go about doing remediation if, when, during the course of formative assessment, they find the student lacking in some basic skills?**

One way to determine what students are acquiring is through questioning. If the only questions asked during instruction are one's which call for students to recall or regurgitate information, then students will never know how to answer questions or approach tasks which call for them to apply, analyze, synthesize, or create information. Teachers should be talking out loud as they model the thought processes involved when answering all types of questions so that students have appropriate examples of higher-order thinking.

One of the advantages of formative assessment is that teachers don't need to wait until the end of a lesson to determine whether remediation is needed. During the lesson, teachers might have one student who understands a concept reteach that concept to another student who simply does not get it. They speak one another's language and can often reteach better than the teacher. The teacher may also form a small, flexible group of those students in need of remediation while the remainder of the class proceeds. If it is determined that the majority of the class seems unsure of the concept being taught, then re-teaching is in order. After all, most people need to hear something a minimum of three times before it sticks to the brain.

- 3. Based on formative assessment-when should the teacher be referring to the SAT team or for a FBA (Functional Behavior Assessment).**

One or two assessments does not a referral make. Teachers should be looking at a plethora of information for an individual student over a period of time before any referrals are made. Each case must be considered individually. The *Response to Intervention (RTI)* process is one which enables a teacher to look at a variety of student data to determine when a referral may be necessary.

- 4. One distressing area for some teachers is the ELL student (English Language Learner). How can teachers best do a formative assessment with said students?**

If an *ELL* student has no command of the English language, it would be difficult to determine what conceptual understanding the student has. That is, unless there is a person in the school who could translate. One of the best instructional strategies for the *ELL* student is reciprocal teaching, where an English-speaking student is paired with an *ELL* student throughout the day. It is crucial that these students are surrounded with language. The aforementioned instructional strategies are essential for *ELL* students. For example, through brainstorming and discussion students hear language; visuals which display concepts are essential and movement is a must. When teaching *ELL* students, movement is known as *total physical response*, during which a student acts out or role plays a vocabulary word or concept. This role play helps to ensure that the concept goes into long-term memory since anything we learn while moving is long remembered. This is the reason people never forget how to drive a car, ride a bike, type, or play the piano. When teaching in Canada, I discovered the *AIM (Accelerated Integrated Approach)* Program which incorporates many of the strategies, particularly movement when teaching French.

- 5. Often, in terms of "brain-based learning" a teacher will find that a student is a victim of Fetal Alcohol Syndrome or Fetal Alcohol Effects. How would this show up in formative assessment, and are there brain-based strategies to assist with these cases?**

Some of the same strategies that work for regular students should also work for those with areas of exceptionality like *fetal alcohol syndrome*. Once it is determined what a student is and is not capable of doing, then the appropriate strategy can be selected. These strategies address a student's visual, auditory, kinesthetic, and tactile learning styles so that areas of strength can be utilized and areas of weakness strengthened. I can't imagine using any teaching technique that is

not reflected in the aforementioned list of 20. Parents in my workshops who have children with brain damage have related to me that the strategies their doctors have suggested they use with their children are incorporated in the list of 20.

**6. Children with high functioning autism-what used to be called *Asberger's* seems to be increasing. Do you have any insights into the dramatic increase in autism? And are there brain-based strategies to be employed?**

The number of children diagnosed with autism has grown at what some people are calling an alarming rate. Today the CDC estimates that one in every 150 eight-year olds in the U.S. will have an autism spectrum disorder. The cause of this increase is still a mystery. Some blame environmental factors while others attribute it to genetic factors. There has been no definitive evidence that vaccinations should get the blame. It may even be that more students are being identified along the spectrum than ever before. I had a teacher in one of my classes in Canada who taught all autistic students. After returning to his classroom and implementing the 20 aforementioned strategies, he related to me in an email that his students are experiencing amazing academic results.

**7. Going to the opposite end of the Gaussian curve-are there specific types of questions teachers should be using with gifted kids? And how much formative assessment is needed for certain types of gifted kids?**

Questioning is so important that one entire chapter in the *Assessment* book is devoted to this assessment technique. There are three taxonomies of questioning in that chapter whose upper levels must be used particularly with gifted students. They are *Bloom's Taxonomy (Revised)*, *Biggs SOLO Taxonomy*, and *Webb's Depth of Knowledge*. The upper levels of these taxonomies are ripe for assignments for gifted students who are being asked to analyze, hypothesize, create, and construct.

Another thing formative assessment will do is help to determine what students already know prior to a unit of study being taught. If pre-assessment activities determine that gifted students have already mastered much of the content, then the unit can be shortened or eliminated altogether for those students.

**8. Are there instances, where based on formative assessment, that teachers will suggest retention-and what are those criteria?**

There may be instances where retention is recommended for a student. Every case of retention must be considered individually in terms of what would be most beneficial to that particular student and multiple data points which show little to no progress must be taken into consideration. Before that decision is made, the student should become a part of *Response to Intervention (RTI)* where a variety of strategies and techniques are being tried. Parents and teachers need to be in agreement regarding the retention and making the decision that remaining in the same grade for another year will make a definitive difference. There is research to support that much serious consideration should be given prior to a retention decision since, for many students, retention appears to negatively impact their ability to eventually graduate from high school.

**9. What types of things show up in a formative assessment for students with learning disabilities-and what types of strategies should be employed in terms of either remediation or accommodations or modifications?**

I do model lessons where I go into a teacher's classroom and teach his or her students while other teachers observe the lesson. I do not know the students nor they me. Therefore, I do not know who is learning disabled, autistic, a behavior problem, gifted, etc. I like it that way since I have no preconceived notions regarding what students are or are not capable of doing. It is amazing how, in many instances, when I leave at the end of the period, I still do not know, since utilizing the strategies as I teach enables most, if not all, students to be successful. Any modifications or accommodations for students would still reflect the aforementioned strategies as well as a variety of ways for students to show what they are learning.

I happen to be the mother of a child who has characteristics of attention deficit disorder. In fact, Chris is one of the reasons I began to delve into research about the brain. The 20 strategies are used most frequently in the primary grades and as students get older, some teachers have the mistaken assumption that they are not needed anymore. My son loved school in kindergarten but struggled by the time he got to middle school. In those classrooms where his brain was consistently engaged through drawing, role play, movement, or project-based learning for example, he was successful even in high school. In other classrooms where worksheets or lecture were the primary modes of lesson delivery, his achievement and grades suffered.

**10. I understand that you have a webinar recording on the LSI site. Can you provide for our readers?**

The webinar was very well received by the 900 participants who signed up for it and can be found at: <http://www.learningsciences.com/recorded-webinars/>

**11. What have I neglected to ask?  
What is my greatest desire when it comes to teaching and learning?**

I have good news and bad news! The good news is that the rate at which students are dropping out of high school prior to graduation seems to be decreasing. The bad news, however, is that losing even one child is one child too many. My professional purpose is to equip all teachers with the instructional strategies and assessment types needed to increase graduation rates so that students will not only gain the confidence to pass their assessment instruments, but will also be able to walk across the stage at the end of high school and receive a diploma which will enable them to go on to higher levels of education or into a lucrative career. I will not be satisfied until that happens!