Drumming to The Beat of Different Marchers -- Giving Every Learner a REASONABLE Chance at Success!!

Presented by:
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Concerning a teacher’s influence, I have come to the frightening conclusion that I am the decisive element in the classroom. It’s my personal approach that creates the climate. It’s my daily mood that makes the weather. As a teacher, I possess a tremendous power to make a child’s life miserable or joyous. I can be a tool of torture or an instrument of inspiration. I can humiliate or humor, hurt or heal. In all situations, it is my response that decides whether a crisis will be escalated or deescalated, and a child humanized or dehumanized.”

--Haim Ginott
**Self-Efficacy**

It influences:

- The CHOICES We Make
- The EFFORT We Put Forth!
- How long We PERSIST When We Confront Obstacles (and in the face of failure)
- How we FEEL

Albert Bandura (1925 -) popularized the term *self-efficacy*. He defines it as the part of our "self system" that helps us to evaluate our performance. Perceived self-efficacy refers to one's impression of what one is capable of doing. This comes from a variety of sources, such as personal accomplishments and failures, seeing others who are similar to oneself, and verbal persuasion.

Verbal persuasion may temporarily convince people that they should try or avoid some task, but in the final analysis it is one's direct or vicarious experience with success or failure that will most strongly influence one's self-efficacy. For example, a teacher may "fire-up" her students before a standardized test by telling the kids how great they are, but the enthusiasm will be short-lived if the test is completely beyond their ability or their perceived beliefs that they can actually do well.

People with high-perceived self-efficacy try more, accomplish more, and persist longer at a task than people with low perceived self-efficacy. Bandura speculates that this is because people with high-perceived self-efficacy tend to feel they have more control over their environment and, therefore, experience less uncertainty.
Zone of Proximal Development...ZPD

Zone of Proximal Development, an idea developed by Lev Vygotsky over one hundred years ago, seeks to define the process through which students effectively learn in cooperation with a teacher.

A student's Zone of Proximal Development, or ZPD, is defined as the student's range of ability with and without assistance from a teacher or a more capable peer. On one end of the range is the student's ability level without assistance. On the other end of the range is the student's ability level with assistance.

A classroom that makes the best use of all of its students' ZPDs should follow the following guidelines:

1. The teacher should act as a scaffold, providing the minimum support necessary for a student to succeed. The idea is to assist without denying the student's need to build his or her own foundation. The challenge for the teacher, then, is to find the optimal balance between supporting the student and pushing the student to act independently. To effectively scaffold the student, the teacher should stay one step ahead of the student, always challenging him or her to reach beyond his or her current ability level. However, if instruction falls outside of the zone (above or below a student's ZPD), no growth will occur.

2. To effectively scaffold students within their ZPDs, a teacher should also have an awareness of the different roles students and teachers assume throughout the collaborative process. The roles roughly resemble the following:
   - teacher modeling behavior for the student
   - student imitating the teacher's behavior
   - teacher fading out instruction
   - student practicing reciprocal teaching (scaffolding others) until the skill is mastered by all students in the classroom.

Adapted from: <http://www.wcer.wisc.edu/step/ep301/Spr2000/Jenna-B/zpd.html>
Name-________________________________________________

The purpose of this “get acquainted” activity is to start thinking about the different areas of intelligence. Participants are to mix freely and try to get seven different people to sign the blanks (each participant may sign her/his own sheet once). In order to record a name in the blank, the person signing must actually perform the task (not just say that she/he can do it).

Find Someone Who Can:

_______________________ recite a poem from memory.

_______________________ finish this numerical sequence: 8,1,7,2,6,3,5, ____, and explain the logic behind it.

_______________________ with hands on head stand on one foot with eyes closed for at least 7 seconds.

_______________________ recall at least one dream from the last 3 weeks.

_______________________ hum the first line of Silent Night on key.

_______________________ tell 3 times they were very brave.

_______________________ name four very close friends in less than 15 seconds.

_______________________ Name 4 ways plants are different from animals.

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Find Someone Who Can:

_______________________ recite a poem from memory.

_______________________ finish this numerical sequence: 64, 1, 49, 4, 36, 9, 25 ____, and explain the logic behind it.

_______________________ within 30 seconds name 4 ways to sort rocks into categories.

_______________________ recall at least one dream from the last 3 weeks.

_______________________ with hands on head stand on one foot with eyes closed for at least 8 seconds.

_______________________ hum the first line of Silent Night on key.

_______________________ name 6 strengths or talents he/she has in less than 30 seconds.

_______________________ name five very close friends in less than 20 seconds.

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Checklists for Assessing “How Students Are Smart”
Adapted by Debbie Silver
from Multiple Intelligences in the Classroom by Thomas Armstrong

Name of Student- ____________________________________________
Check all the items that apply:

Linguistic Intelligence (Word Smart)
__1. Is a good reader.
__2. Enjoys word games.
__3. Is a good joke teller/ storyteller.
__4. Has a good vocabulary for age.
__5. Enjoys listening activities.
__6. Likes to write stories and/or poems
__7. Communicates with others in a highly verbal way.
__8. Appreciates rhymes, puns, and/or nonsense words.
__9. Has a good memory for words, stories, details.

Other linguistic strengths:

Logical-Mathematical Intelligence (Number Smart)
__1. Asks a lot of questions about how things work.
__2. Has a good sense of cause and effect.
__3. Finds math games interesting.
__4. Can see and repeat patterns easily.
__5. Enjoys working puzzles and brain teasers.
__6. Understands computer programming.
__7. Is a logical thinker.
__8. Can estimate things involving numbers with relative ease.
__9. Can work math concepts in head.
Other logical-mathematical strengths:

Visual-Spatial Intelligence (Picture Smart)
__1. Reports clear, visual images (or dreams).
__2. Can envision objects from more than one perspective.
__3. Daydreams more than peers.
__4. Likes to draw and/or create art projects.
__5. Has a good eye for detail and color.
__6. Is good at spatial games like chess and Tetris.
__7. Likes movies, slides, or other visual presentations.
__8. Can move between 2-dimensional and 3 dimensional representations with ease.
__9. Can read and/or create maps.

Other visual-spatial strengths:
Bodily-Kinesthetic Intelligence (Body Smart)
__1. Is very coordinated.
__2. Exceptionally mobile: moves, twitches, fidgets, taps when seated for long.
__3. Enjoys working with clay, fingerpaint, and other tactile media.
__4. Can mimic others’ gestures, posture, and movements
__5. Must touch anything new or interesting.
__6. Loves to take things apart and put them back together.
__7. Uses dramatic body movements for self-expression.
__8. Enjoys running, hopping, climbing, wrestling, or similar activities.
__9. Exhibits fine motor control (crafts, painting, etc.).

Other bodily-kinesthetic strengths:

Musical Intelligence (Music Smart)
__1. Can detect music that is off-key, off-beat, or disturbing in some way.
__2. Remembers melodies of songs.
__3. Taps rhythmically as he/she works or plays.
__4. Sensitive to environmental noise (rain on the windows, etc.).
__5. Plays a musical instrument and/or sings in a choir.
__6. Has a good singing voice.
__7. Responds favorably when music is played.
__8. Sings songs that he/she has learned.
__9. Unconsciously hums much of the time.

Other musical strengths:

Interpersonal Communications Intelligence (People Smart)
__1. Establishes meaningful peer relationships.
__2. Seems to be a natural leader.
__3. Empathizes with others.
__4. Likes to play with others.
__5. Shows good teamwork skills.
__6. Others seek this student’s company.
__7. Has two or more close friends.
__8. Frequently acts as a mediator and/or peace maker.
__9. Enjoys teaching others.

Other interpersonal communication strengths:
Intra-personal Awareness Intelligence (Self Smart)

1. Displays a sense of strong will.
2. Enjoys playing or working alone.
3. Has high self-esteem.
5. Does not mind being different from others.
6. Has a realistic view of his/her strengths and weaknesses.
7. Is able to deal effectively with successes and failures.
8. Has an interest or talent that is not readily shared with others.
9. Seems to “march to the beat of a different drummer.”

Other intra-personal awareness strengths

Naturalistic Intelligence (Nature Smart)

1. Likes to identify and classify living and nonliving things in nature.
2. Cares for pets or animals.
3. Understands repeating patterns in nature and the universe.
4. Seems more “in tune with nature” than peers.
5. Would rather be outside than inside.
6. Has a demonstrated appreciation for a part of the natural world (i.e. dinosaurs, clouds, rocks, etc.)
7. Likes to garden and/or appreciates plants.
8. Understands and appreciates the environment.
9. Loves to collect things from nature.

Other naturalistic strengths

Differentiating Instruction

DIFFERENTIATING CONTENT:

1. Use reading materials at varying readability levels.
2. Make text materials available through means other than just reading.
3. Present ideas through both auditory and visual means.
4. Use reading buddies. (Yes, in high school!)
5. Meet with small groups to re-teach an idea or skill for struggling learners or to extend the thinking or skills of advanced learners.
Using Technology To Differentiate Instruction

To Assess Students’ Multiple Intelligences:
• Learning http://www.chaminade.org/inspire/learnstl.html
• The One and Only Surfaquarium -- http://surfaquarium.com/MI/inventory.html
• Kaliedoscope http://www.ncwiseowl.org/kscope/

Verbal/Linguistic (Word Smart)
• Web Development tools -- sharing a poem, myth, legend, news article
• Word processing programs
• Multimedia authoring
• Story creation software (www.fablevision.com)
• CD-ROM interactive books, e-books, text to voice software
• Create podcasts
• Reading and interpreting web information
  http://bubbl.us/
  http://voicethread.com
• DORA- Diagnostic Online Reading Assessment
• The San Diego Quick Reading Assessment
  http://webschool.wash.k12.ut.us/reading/inventory/sandiego.html

Logical Analytical/Math (Number Smart)
• Calculation tools
• Spreadsheets
• Graphing calculators
• Online data collection
• Science and math websites and software
• Problem solving websites and software
• The Futures Channel http://www.thefutureschannel.com

Naturalist (Nature Smart)
• http://www.plt.org
• http://www.projectwild.org
• http://www.projectwet.org

Bodily Kinesthetic (Body Smart)
• Video productions of skits, dances, etc.
• Video analysis of sports and dance moves
• Claymation -- sequence of movement
• Lego Logo and Robotics
• Joysticks, keyboards, and other devices for fine motor control
• Fitness software and interactive games (Wii Fit, etc.)
Visual Spatial (Picture Smart)
- Pics for Learning
- WebQuest Projects
- Multimedia presentations
- www.googlelitttrips.com
- www.fablevision.com
- Tom Synder’s Timeliner
- Comic art
- Photoshop
- 3D and morphing software
- Scrapbooking, slideshows, clipart, charts, graphs, and tables
- Digital cameras
- Concept mapping tools and diagrams http://www.text2mind
- www.inspiration.com
- www.kidspiration.com

Musical (Music Smart)
- Video and audio recording devices (digitalize music)
- Music clips
- Music generation software
- Music composition software (Garage Band)
- DVDs and CDs
- Music sharing sites
- www.songsforteaching.com

Interpersonal Communication Skills (People Smart)
- Blogs
- Listservs
- Webquests and collaborative elements
- Peer tutoring
- Social networking
- Collaborative computer software or games
- Group presentations (PowerPoint/Keynote)
- Tom Synder’s Group Decision software
- Video conferencing

Intrapersonal Awareness (Self Smart)
- Blogs
- Computer-based journaling
- Computer-based editing
- Multi-media portfolios
- Internet research (self-paced)
- Problem-solving software
- Individual video projects
- Virtual Worlds
Cartesian Diver

Introduction:
The Cartesian Diver was made popular in the 1800's by the philosopher Rene Descartes. It is commonly found in science classrooms or perhaps you have seen the *Diving Tony* toy distributed in boxes of Frosted Flakes. The Cartesian diver offers an eloquent demonstration of the most unique property of a gas, its compressibility.

Materials:
- One 2-liter plastic bottle with cap
- One glass eyedropper

Procedure:
1) Fill the bottle with water.
2) Fill a glass with water.
3) Draw water into the dropper until it is 2/3 full.
4) Place the dropper into the glass of water. If it sinks, adjust the water level until the dropper floats.
5) Place the dropper into the 2-liter bottle and screw the cap tightly in place.

Activity:
Hold the bottle in one hand and squeeze. What do you observe? Release the pressure with your hand and observe again.

Questions:
**Why does the dropper sink when you apply pressure to the bottle?**
As you squeeze the bottle the pressure inside increases. Liquids are not compressible but gases are. Therefore, the air in the dropper compresses and allows more water to flow into the dropper. This increases the weight of the dropper. As the weight increases, the density increases until it becomes greater than the density of water. Objects that have a density greater than water will sink.

**Why are gases compressible and liquids not?**
In gases the molecules are very far apart compared to their size. In other words, gases are mostly empty space. When put under increased pressure, the gas molecules can move closer together and the gas will occupy less volume.

On the other hands, in liquids the molecules are already crowded very close together. Since there is no empty space between the molecules, an increase in pressure cannot cause a decrease in volume.
Remote Control
Cartesian Diver

By Dr. Bill Deese, Louisiana Tech University

You can amaze your students by operating your Cartesian Diver by "remote control." Start with the standard Cartesian Diver set-up. Drill a hole in the bottle top just large enough to accommodate a piece of aquarium tubing. Use another bottle (any size, but smaller is usually more convenient). Drill a hole in its cap also large enough to accommodate the aquarium tubing. Fill the second bottle with water and insert a piece of aquarium tubing 3 or more feet long inside each bottle.

By squeezing the small bottle, you will increase the pressure in it. The increased pressure in the small bottle will result in an identical increase in pressure in the large bottle, thus sending the Cartesian Diver to the bottom of the large bottle by a "remote control" device.

Some sneaky teachers we know even hide the "remote control" so that they can seemingly command the Cartesian Diver to dive by voice control alone. We highly recommend this procedure! It really causes the students to think about what is happening.

This activity demonstrates the principle that pressure is the same throughout a fluid.
Analytical/Linguistic
Science Fact Sense

___ = Number of _______________________________________

a. 3 = N O B in the M E
b. 7 = N O C in the R
c. 206 = N O B in the AS
d. 6 = N O S on a S
e. 1 = N O C in P
f. 4 = N O C in the H H
g. 3 = N O A in a WM
h. 3 = N O B P on an I
i. 93 = N O M M from the E to the S
j. 46 = N O C in most H C

Project Learning Tree (PLT) is an award-winning environmental education program designed for teachers and other educators, parents, and community leaders working with youth from grades PK-12. PLT uses the forest as a "window" on the world to increase students' understanding of our environment; stimulate students' critical and creative thinking; develop students' ability to make informed decisions on environmental issues; and instill in students the commitment to take responsible action on behalf of the environment. [http://www.plt.org/](http://www.plt.org/)

**Project WILD** Project W.I.L.D./Aquatic Project WILD is an interdisciplinary, supplementary environmental and conservation education program for educators of grades K-12. The program emphasizes wildlife because of its intrinsic and ecological values, as well as its importance as a basis for teaching how ecosystems function. [http://www.projectwild.org/](http://www.projectwild.org/)

Project W.E.T. Project WET (Water Education for Teachers) is a nonprofit water education program and publisher for educators and young people ages 5-18. The program facilitates and promotes awareness, appreciation, knowledge, and stewardship of water resources through the dissemination of classroom-ready teaching aids and establishment of internationally sponsored Project WET programs. [http://www.projectwet.org/](http://www.projectwet.org/)
## BARFS/NOT BARFS

<table>
<thead>
<tr>
<th>These Are Barfs:</th>
<th>These Are NOT Barfs:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speedily</td>
<td>Spacious</td>
</tr>
<tr>
<td>Gracefully</td>
<td>Grapefruit</td>
</tr>
<tr>
<td>Twice</td>
<td>Quest</td>
</tr>
<tr>
<td>Finally</td>
<td>Comply</td>
</tr>
</tbody>
</table>

A Barf is - ___________________________________________________________________

### Which of These Are Barfs?

<table>
<thead>
<tr>
<th>Scholarly</th>
<th>Quickly</th>
<th>Fly</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Really</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|         |         |     |
|_________|---------|-----|
|         |         | Quite|
|         | Under   |     |
|         |         | Beautiful|

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Critical Thinking and the Magic Tube
By William Deese
Louisiana Tech University

Description: A large cylinder with cords protruding from four holes is shown to the audience. When each cord is pulled, sometimes surprising results are obtained. The audience is challenged to explain how the magic tube is constructed.

Materials: 2-foot section of 2-inch PVC pipe
(2) 2-inch caps for the PVC pipe
7-foot section of 1/4-inch cord
(1) 1-inch metal ring

Construction:
1) Drill a 1/4 inch hole in the tube 3 inches from one end. Rotate the tube 180 degrees and drill another hole exactly opposite to the first one.
2) Drill two holes at the other end in analogous positions.
3) Cut the cord into 4-foot and 3-foot lengths.
4) Thread the 4-foot cord through a hole, through the metal ring, and out the hole on the opposite side.
5) Tie knots near each end of the cord.
6) Position the ring in line with the holes at the other end of the tube and thread the 3-foot cord through both holes and the ring.
7) Tie knots about 3 inches from each end of the second cord.
8) Pull one end of the long cord out and cut about 12 inches off. Tie knots about 3 inches from each end.

Procedure:
1) Display the magic tube to your audience and pull one of the cords. Then pull the end exactly opposite the first one you pulled.
2) Now pull one of the cords at the other end and observe.
3) Continue to pull various ends of the cords while your audience tries to figure out how the magic tube works.
4) If your audience is a class, ask them to design their own tubes. There may be more than one design that works.

Hazards: Be careful when drilling the holes in the PVC pipe.

Reference: A hand-out by Bruce Hogue, Dustan Middle School
DIFFERENTIATING PROCESS:

- Use tiered activities through which all learners work with the same important understandings and skills but proceed with different levels of support.

- Provide interest centers that encourage students to explore subsets of the class topic or particular interest to them.

- Develop personal agendas to be completed either during a specified agenda time or as students complete work early.

- Offer manipulatives or other hands-on supports for students who need them.

- Vary the length of time a student may take to complete a task in order to provide additional support for a struggling learner or to encourage an advanced learner to pursue a topic in greater depth.

DIFFERENTIATING PRODUCT:

<table>
<thead>
<tr>
<th>Different Ways to Find Out What Students Understand</th>
</tr>
</thead>
<tbody>
<tr>
<td>Make a chart or diagram</td>
</tr>
<tr>
<td>Write a letter to the editor</td>
</tr>
<tr>
<td>Conduct a discussion</td>
</tr>
<tr>
<td>Create an advertisement</td>
</tr>
<tr>
<td>Write an essay</td>
</tr>
<tr>
<td>Participate in a simulation</td>
</tr>
<tr>
<td>Create a poem</td>
</tr>
<tr>
<td>Do a photo essay</td>
</tr>
<tr>
<td>Create an invention</td>
</tr>
<tr>
<td>Teach someone else</td>
</tr>
<tr>
<td>Write an analogy</td>
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<tr>
<td>Participate in a mock trial</td>
</tr>
<tr>
<td>Design and teach a class</td>
</tr>
<tr>
<td>Devise a new recipe</td>
</tr>
<tr>
<td>Write a monologue</td>
</tr>
<tr>
<td>Illustrate a math concept</td>
</tr>
<tr>
<td>Do a multimedia presentation</td>
</tr>
<tr>
<td>Write a diary from the perspective of someone else</td>
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<tr>
<td></td>
</tr>
</tbody>
</table>
LIST OF RELATED CITATIONS
“Drumming to the Beat of Different Marchers”
DR. DEBBIE SILVER

Forsten, C., Grant, J., Hollas, B. & Shaffer, J. Betty Hollas, Jill Shaffer (2002). Differentiated Instruction: Different Strategies for Different Learners. Peterborough, NH. Staff Development for Educators.


