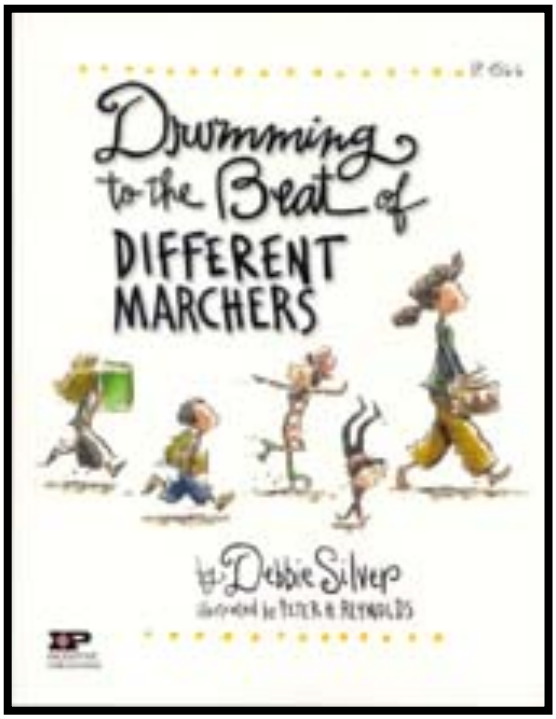
Nuts and Bolts Symposiums

The Never-Boring Conference for Educators



Square Pegs/Round Holes –

Small Adjustments That Activate Great Changes for "Different" Learners

Website: www.debbiesilver.com
FB: www.facebook.com/drdebbiesilver
Twitter: @DrDebbieSilver
Email: debbie@debbiesilver.com

debbie silver
speaker • author • humorist

The Teacher

"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

Checklists for Assessing "How Students Are Smart"

(Check all the items that apply)

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, finger-paint, 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.
_4. Has a good sense of self-direction.
_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:

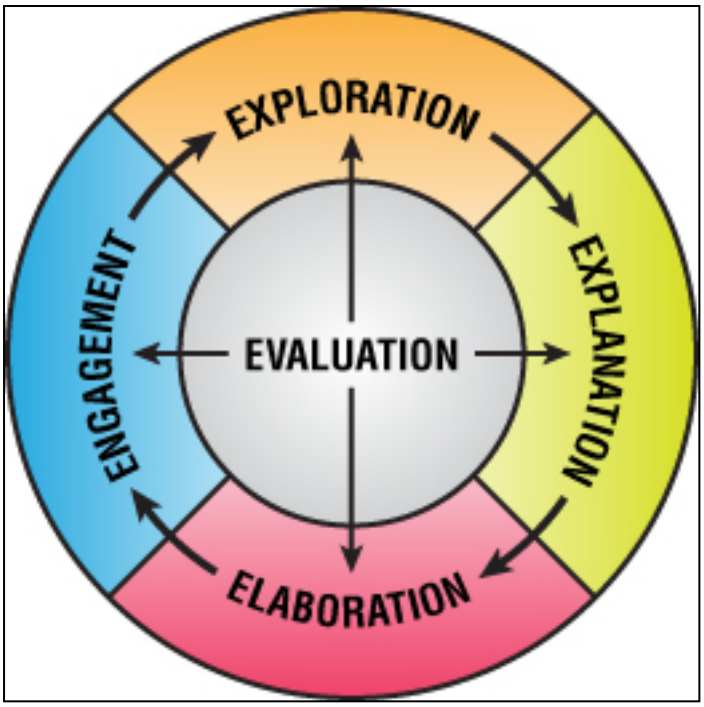
Linguistic Intelligence (Word Smart)
_1. Is a good reader.
_2. Enjoys word games.
_3. Is a good joke teller/ storyteller.
_4. Has a good vocabulary for age.
_5. Enjoys listening activities.
_6. Likes to write stories and/or poems.
_7. Communicates with others in a highly verbal way.
_8. Appreciates rhymes, 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:

The Learning Cycle



Name- _____

Essential Eight

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: 64, 1, 49, 4, 36, 9, 25, ___, and explain the logic behind it.

_____ within 20 seconds name 6 ways to sort rocks into categories.

_____ 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 *a* favorite song on key.

_____ honestly say that he/she has more strengths than weaknesses and name 6 strengths in less than 15 seconds.

_____ name five very close friends in less than 8 seconds.

Cartesian Diver

The Cartesian Diver was made popular in the 1800's by the philosopher René Descartes. It is commonly found in science classrooms. 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?

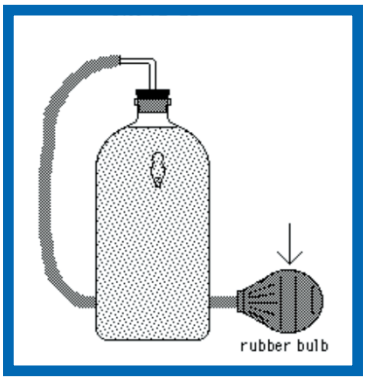
As you squeeze the bottle the pressure inside increases. Liquids are not compressible but gases are. Therefore, the air in the dropper compresses and allows more water to flow into the dropper. This increases the weight of the dropper. As the weight increases, the density increases until it becomes greater 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

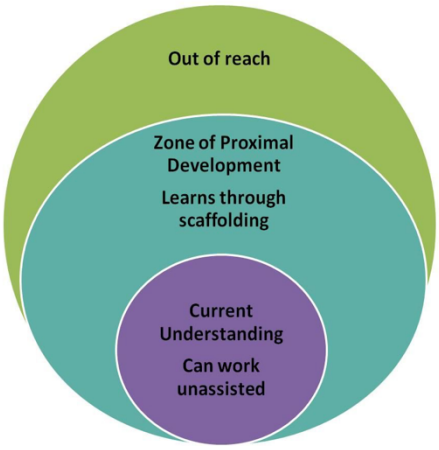
By Dr. Bill Deese, Louisiana Tech University



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.

Zone of Proximal Development



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.

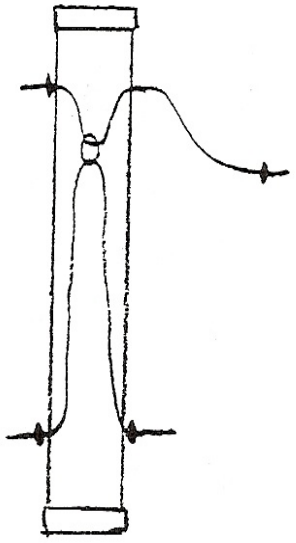
The teacher should act as a scaffold, providing the minimum support necessary for a student to succeed. The idea is to assist without denying the student's need to build their own foundation. The challenge for the teacher, then, is to find the optimal balance between supporting the student and pushing the student to act independently.

To effectively scaffold the student, the teacher should stay one step ahead of the student, always challenging them to reach beyond their current ability level. However, if instruction falls outside of the zone (above or below a student's ZPD), no growth will occur.

Critical Thinking and the Magic Tube

By Dr. 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 ¼ 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

Teachers Who Want to Help ESL Students:

Provide clues to meaning

- Use drawings, dramatic gestures, actions, emotions, voice, mime, chalkboard sketches, photographs and visual materials to provide clues to meaning.
- If necessary, repeat your actions using the same simple structures and actions.
- Simplify your message as much as possible breaking them into smaller, manageable parts to give newcomers a chance at comprehending.
- Make sure the student's attention is focused.
- Don't insist, however, that students make eye contact with you when you are speaking to them. This is considered rude in many cultures.

Modify their speech

- Talk at a slow-to-normal pace, in short sentences.
- Use a pleasant tone.
- Use simple sentence structure (subject-verb-object) and high-frequency words.
- Use names of people rather than pronouns.
- Pause after phrases or short sentences, not after each word. You do not want to distort the rhythm of the language.
- Avoid using the passive voice and complex sentences.
- If you have something important to convey, speak one-on- one to the newcomer rather than in front of the class. The anxiety of being in the spotlight interferes with comprehension.
- Ask simple yes/no questions so that newcomers have an opportunity to respond.
- Accept one-word answers or gestures.

Are active listeners

- Give full attention to your newcomer and make every effort to understand his / her attempts to communicate.
- Smile.
- Talk in a calm, quiet manner. Raising your voice does not help comprehension.
- Demonstrate your patience through your facial expressions and body language.
- Give your ESL students extra time to respond.
- Encourage new learners of English to act out or to draw pictures to get their meaning across.

- Don't jump in immediately to supply the words for the student.
- If the student response is heavily accented, correct by repeating the words correctly. Do not ask the student to repeat the correction. This can be very embarrassing.
- Resist the urge to over correct. This will inhibit newcomers so that they will be less willing to speak. Allow students to use a bilingual dictionary for words that can not be acted out.

Check comprehension frequently

- Don't ask "Do you understand?" unless you have taught it. This is not a reliable check since many students will nod "yes" when they don't really understand.
- Teach the phrases (or have a bilingual volunteer teach them) "I don't understand," "Slowly, please," and "Please repeat."
- Write down messages so students have a visual as well as auditory input. Make a list of phrases you want your student to learn and to understand. Ask a bilingual volunteer to work with the student on those phrases.

http://www.everythingesl.net/

EVERYTHING ESL

About the Author:
Judie Haynes is an ESL teacher from New Jersey, USA, with more than 24 years of teaching experience. In addition to her classroom work, she have authored four books on ESL, written a chapter for TESOL's *Integrating Standards into Classroom Practice* and is a contributing columnist for *Essential Teacher* magazine.

Reflections for *Square Pegs/Round Holes*

Presented by Dr. Debbie Silver

1. Do you agree with Gardner's statement, "It's not about how smart they are, but how they are smart." Why or why not?
2. Look over the *Essential 8* Activity and determine your personal strongest suits. Read the list about the characteristics of your particular strength(s). Does the list fit you? Why or why not?
3. Think back about a unit of study your recently taught. Did you provide opportunities for students to learn and/or to be assessed in some of the different strength areas? Why or why not?
4. Reflect on a time in your teaching career you uncovered a "diamond in the rough." Talk or write about what you discovered in a student that heretofore had been overlooked by others. What was the result of you finding an unknown strength in your learner?
5. Think of a unit you normally teach. Identify activities from each of the eight intelligences you could use to instruct and/or assess learning.

LIST OF RELATED CITATIONS

Square Pegs/Round Holes

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PRESENTED BY DR. DEBBIE SILVER

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