

Chapter 8: Setting Conditions for Learning: Meta-Strategies for Differentiation

BACKGROUND

Among the projects that Bill embarked upon with Susan Napolliello, Elementary School Principal at the International School of Kuala Lumpur, was the use of walk-through observations as a means of raising the profile of differentiation and to improve instruction in the school. The idea of walk-through observations is to get a snapshot or picture of what is going on within the school, by walking through and observing for very short periods (3 – 5 minutes) what goes on in a series of classrooms. Put together over the course of a year, the walk-through observations provide administrators and teachers a fuller, more extensive picture of the quality of education taking place within the school¹.

In preparation for those walk-through observations, Susan and Bill and others brainstormed a list of indicators that might be present in classrooms where differentiated instruction was present. In determining the criteria for these indicators of differentiation, Bill and Susan were guided by specific principles: they sought to identify those strategies that would support student learning and improve student opportunities for success. The long list of brainstormed strategies included diverse

¹ For a fuller discussion of the walk-through process at the International School of Kuala Lumpur, please see Chapter 15, “How Administrators Can Support Differentiation: Using Observation to Improve Instruction,” reprinted from *Educational Leadership*.

items such as flexible student groupings, the use of wait time, smooth transitions, non-verbal routines, and patterns of questioning during a lesson. Using an inductive process, Susan and Bill then categorized and refined their lists, looking not only at teacher behaviors, but also at the impact of those behaviors on student learning. They further identified student behaviors that would become evident when those approaches or strategies were in place, and also identified the learning theory and research bases for the strategies.

The results of their efforts are the following five meta-strategies, broad or super-categories of strategies or approaches which we now see as developing a classroom culture and setting optimum conditions for learning:

- Purposeful use of non-verbal cues
- Mediation of student thinking
- Deliberate creation of a constructive learning community
- Promotion of self-directed learning
- Use of student responses to inform instruction

While these are not specific differentiation strategies, they provide us with large patterns of classroom behaviors and interactions, and set conditions which encourage learning. Out of these patterns, specific differentiation strategies will evolve – hence the term *meta-strategies*. Teachers who employ these meta-strategies weave them into their instruction; they form the background architecture of differentiated classrooms, the structure of norms and values that provide scaffolds for all students to challenge themselves at appropriate levels. These meta-strategies also provide support for students who may be struggling (even momentarily) with learning.

THE META-STRATEGIES

Purposeful Use of Non-Verbal Cues

Students know when their teachers are pleased or irritated, can sense if their teachers like or dislike them, and even if their teachers have a preference for working with girls or boys in the class. Students usually make these inferences, not from anything the teacher has said, but rather from the nonverbal messages that their teacher sends.

Since Darwin's 1872 publication of *The Expression of Emotions in Man and Animals*, nonverbal communication in humans has been an area of scientific study. Our tone of voice, facial expressions, posture and gestures, even the way we dress, signal messages to those around us. Estimates vary as to the percentage of our communication that is expressed nonverbally, and range anywhere from 65% (Birdwhistell, 1970) to 95% (Mehrabian, 1971). While these estimates are hard to verify, it is apparent that most of our communication is expressed nonverbally. This makes evolutionary sense since as a species we have been communicating nonverbally for hundreds of thousands of years, while language is only thirty or forty thousand years old – a relatively new innovation. Since so much of what we communicate is nonverbal, it is important, then, to recognize and be conscious of the effect as well as the potential of nonverbal communications in our day-to-day interactions, and particularly as they influence student learning in the classroom.

Ralph Waldo Emerson, the 19th century American essayist, is credited with saying, “Your actions speak so loudly, I can't hear what you're saying.” We have all experienced situations in which the verbal and nonverbal communication of the person we are speaking with is incongruent, or out of *sync* with his behavior. What is

being said just doesn't seem to match the speaker's behavior. At such times, we tend to believe what we *see* rather than what we *hear*. Neuroscientists suggest that our nonverbal communication is processed in older parts of our brains such as the brain stem, the basal ganglia and the limbic system, areas that pre-date brain centers used for speech; this may be why our nonverbal processing overrides the verbal when there is a mismatch with the person's nonverbal signals.

The purposeful use of nonverbal cues in a classroom contributes to a learning environment that is safe and predictable. In visiting classrooms, it becomes immediately apparent whether students understand expectations for behavior, for learning and for interacting with one another, or whether they are confused because no routines, or inconsistent or poorly understood routines are in place. It is also clear when teachers have been thoughtful about furniture placement in order to construct efficient traffic and work patterns within the class. The use of nonverbal cues is much more than classroom management. It sends the message to all students that "I have tried to anticipate and be thoughtful about all aspects of our work environment in order to make learning as efficient and enjoyable as possible."

Teacher behaviors in this category might include the appropriate use of silence, adjustments in lesson pacing; the thoughtful and purposeful use of space; and the use of predictable routines; e.g. establishing patterns within the class so that students know what is expected of them when they "finish" a piece of work. Other teacher behaviors in this category might include the appropriate use of the approachable or credible voice², and a determined congruence between the teacher's

² The approachable voice is one in which a sentence or question might be delivered with a wide range of modulation, usually curling upwards at the end of the sentence. An example of this might be when a teacher asks, "Would you like me to read a story to you?" The credible voice has a narrower range of modulation and usually curls downwards at the end. It is the voice of authority and is often used by teachers in giving instructions. For more information on approachable and credible voice patterns, please see Michael Grinder's (1997) work, *The science of non-verbal communication*.

verbal and nonverbal behaviors. Thus, as teachers, not only do we carefully select the words and phrases of our content delivery and our instruction, but we also deliberately choose the nonverbal behaviors that will support our message.

Teachers sometimes ask if nonverbal communication is culturally bound, and whether the use of specific tones and gestures in one culture may be different to another. They want to know if our use of nonverbal communication might therefore be confusing to the ESL student or the student new to international schools. While it is true that the meanings and emphatic use of some gestures are culturally shaped or even culturally specific (e.g. hands on hips are perceived as an aggressive stance in some Asian cultures), Ekman & Friesen's (1975) work on the expressions of primary emotions suggests a universality in how we show emotions such as joy, anger, sadness or disgust. In other words, although some of our nonverbal communication is culturally bound, others are universal, and we can teach students in our classes to understand our meaning and intention.

Mediation of Student Thinking

Like the purposeful use of nonverbal cues, the mediation of student thinking relies on the development of a classroom culture in which thinking is *modeled*, *respected*, and *expected*. Our use of the word 'mediate' comes from the Latin, meaning 'in the middle' and describes our intervening role as teachers in setting conditions that promote thinking in our students. 'Thinking' here refers not only to the application of cognitive processes such as analysis, synthesis, or evaluation, to specific content, but also to the development of habits or routines that identify opportunities to apply such thinking. In other words, we need to develop the habit of thinking. None of this happens in a vacuum, and all of it requires deliberate and

focused training. We have been influenced here by the work of Feuerstein (1980), Costa (2000), Perkins (2000), and Lipton & Wellman (2004).

In order to teach thinking, teachers themselves have to be regularly engaged in it. Modeling specific cognitive processes, or making thinking visible (Tishman & Perkins, 1997) makes thinking accessible to students at the same time as it provides them with routines that will help them to adopt and develop such habits for themselves. Specific suggestions for modeling thinking include:

1. **Use the language of thinking, and teach thinking skills explicitly.** When teachers thoughtfully use words such as *recall*, *infer*, *evaluate* or *analyze*, and teach students how to perform these cognitive operations, students gain insights into how to think in context. Students also have the opportunity to observe teachers in the act of thinking. We visited one 7th grade classroom in which the teacher displayed Bloom's Taxonomy on her notice board with accompanying verbs that might be used in each category. This teacher also deliberately taught each of the cognitive operations explicitly, and gave her students practice in framing questions. Marzano and his colleagues (2001) note that teaching students to identify similarities and differences, to compare and contrast, is a strong research-based strategy that really does make a difference in children's learning.
2. **Develop the use of thinking routines within the classroom.** Simple and elegant patterns of thinking can be used over and over again and become part of the fabric of classroom life, making the practice of thinking public, shared and expected, at the same time as they provoke student thinking (Ritchart,

2002). The work of the Visible Thinking in Action³ group from Harvard suggests a very simple routine that involves two questions: “What’s going on here?” and “What do you see that makes you say so?” Repeatedly using such a routine gives students practice in thinking aloud: describing what they see or hear, and then developing the habit of citing data to support their conclusions.

Several years ago, in our Grade 8 Humanities study of industrialization, we used photographs taken in Vietnam, a country that is in transition from a primarily agricultural to an industrialized country. The photographs were varied in content, with pictures taken in cities as well as in the countryside. The cue to the students was, “What’s going on here in terms of national development?” and when students had made a judgment, the follow-up question was, “What do you see that makes you say so?”

3. Explore multiple perspectives as you examine events, concepts and ideas.

Ask students to deliberately take on and speak from different roles and perspectives in order to develop flexibility of thought. Adults, as well as children, often leap to one or perhaps two different points of view. As a deliberate habit, ask, “What other ways might we look at this issue? What other ways are there to interpret this data?” One favorite question from the unit of study on industrialization was one originally framed by Jay McTighe: *Who are the winners and losers of industrialization?* According to social psychologists, humans are cognitive misers (Fiske & Taylor, 1984); that is, we tend to take shortcuts in our thinking, leading us to make erroneous decisions or form inaccurate perceptions. Training students to explore multiple perspectives gives them the tools needed to form and express their own

³ For more information on Making Thinking Visible and suggested thinking routines, please see http://www.pz.harvard.edu/vt/VisibleThinking_html_files/01_VisibleThinkingInAction/01a_VTInAction.html

viewpoints; it also sends the message that critical thinking often takes time, and it is expected in *this* classroom.

4. **Craft thoughtful, mediational questions that invite intellectual risk-taking.** So often, we signal to students that thinking is unimportant when we frame questions that have a single right answer. Walter Plotkin, Director of the American International School of Dhaka, calls this the “*Guess what I’m thinking game.*” When our questions are framed with a single right answer in mind, we give preferential treatment to students who know the content and can recall it quickly and with precision; we place a premium on fact knowledge; we send the message that “you can stop thinking” once we acknowledge the right answer; and we confirm the low status of students whose strengths are not in this area.

Rather than asking questions with a single right answer, we recommend asking mediational questions that are open-ended, and that open up more response possibilities. Costa and Garmston (2002) tell us there are five characteristics of mediational questions. They:

- a. **Use the approachable voice⁴.** We know that using the approachable voice makes the question invitational, rather than interrogatory. We know that differences in tone and emphasis, when asking a question such as, “Why did you do that?” produce different types of responses in the listener. If we want students to take risks, we need to invite them to do so by deliberately choosing the approachable voice.
- b. **Use plural forms.** Using plural forms, e.g. “What are some reasons . . .” suddenly opens up the possibilities of responses. Particularly for

⁴ See previous note on approachable and credible voices, and reference to Michael Grinder’s work.

students who are insecure when participating in classroom discussion, the use of plural forms is more invitational than if they need to focus on a single, correct answer. For students who are high-achievers, this question form also implies that there are other ideas that may not yet have been spoken.

- c. **Use tentative language.** Tentative language, such as “might”, or “hunch” or, “*What ideas are you **considering** at this time?*” send the message that nothing is set in stone, and it’s OK to take a guess.
- d. **Are open-ended.** Open-ended questions, by their construction, state from the outset that there are many possible ways to answer a question, many different pathways to consider.
- e. **Embed positive pre-suppositions:** This is the aspect of question crafting that lends the most self-confidence to the person receiving the question. When we frame a question that begins, “*What ideas are you **considering** . . .*” we make explicit our trust that the listener *is* considering ideas. Contrast this with the question, “*If you were to do that homework assignment over again, what might you improve?*” which embeds the negative pre-supposition that something, in fact, needs improving. Positive pre-suppositions build self-confidence, are encouraging, and promote intellectual risk-taking.

5. **Explore authentic, real-life problems or tasks.** Thinking skills like mediational questions, rarely operate within a vacuum. We are much more likely to cluster and apply different skills depending on the task in front of us. We need to provide the context for this kind of thinking to take place. We suggest that real life, authentic situations that require deliberate and

sophisticated thinking are more likely to engage students in a meaningful way, than artificial ones.

In developing a classroom culture for thinking, teachers support student risk taking and help them to develop cognitive self-confidence.

Create a Constructive Learning Community

In creating a constructive learning community, we set norms and expectations for our behavior and our interactions with one another. Highly effective teachers deliberately set out to develop a community culture that is characterized by interdependence, where all members of the class are mutually responsible for one another and supportive of each others' learning.

Parents sometimes complain that the learning of their highly talented children maybe negatively affected by the presence of ESL or lower achieving students within the same class. And, while this may be true if the teacher is unable to differentiate instruction to meet the needs of all learners, the research on cooperative learning is clear: cooperative learning has a powerful effect on learning, more powerful than strategies that employ individual student competition, or individual student tasks (Marzano, Pickering & Pollock, 2001). In many respects, the values and practices of cooperative learning embody the development of a constructive learning community.

There are many decisions that teachers can make if they wish to create a constructive learning community:

1. **Explicitly teach the norms of collaboration** (Garmston & Wellman, 1999), making them 'age-friendly' for the grade level you are teaching. For example, students need to learn what it means to share ideas and pay attention to self

and others; if a group member isn't participating, what might other group members do to invite participation?

Explicit instruction in pausing, paraphrasing and probing also gives students powerful tools to be active members within a group: to listen actively; to ensure comprehension of the group discussion, and to ask questions that will support deeper thought. Collaborative structures allow students to support one another in non-competitive ways.

- 2. Use flexible grouping strategies to organize students into different configurations for learning** – pairs, small groups, whole class direct instruction, grouping around interest, or seeded grouping for problem-solving⁵. In addition to the positive research base for cooperative learning groups, flexible grouping helps to develop the expectation that during the course of the year, each student will work with every other person in the class. This is important in breaking down any notion of an 'in group' (high status) and an 'out group' (low status) for learning. Flexible grouping also offers opportunities for lower achieving students to negotiate status, especially when the teacher carefully architects the grouping and the tasks to give students a chance to "shine" in front of his or her peers (Cohen, 2002)⁶.
- 3. Use instructional strategies such as Jigsaw or Complex Instruction that support learning and interdependence.** The jigsaw strategy was developed by social psychologist Eliot Aronson in the early 1970s in Austin, Texas, when he was asked to help the authorities diffuse a potentially explosive

⁵ Please see *Making the Difference: Learning Guide* for a discussion of considerations for grouping, as well as for ideas for different grouping strategies.

⁶ We have also found paraphrasing to be very powerful in helping low status students negotiate upward status in the classroom. A well-placed paraphrase can serve to dignify the student who made the original comment without the use of praise, which students often see as disingenuous or false.

situation in the Austin schools after desegregation. Jigsaw⁷ is a cooperative learning strategy in which each student plays an essential part in solving a problem or completing an assignment. And because each person contributes an essential part, each student is also essential. Likewise, Complex Instruction⁸, designed by Elizabeth Cohen, is designed to develop higher-order thinking skills using tasks that require a wide array of intellectual abilities at the same time as it requires students to work interdependently in groups. Cohen's background in sociology prompted her to look specifically at how problems of unequal status within the classroom might be treated; the treatment of status problems is a key feature of Complex Instruction. Using instructional strategies like Jigsaw or Complex Instruction allows teachers an opportunity to craft a culture of interdependence, and not leave its development to chance.

4. **Set reflection as a regular feature of classroom life.** In our busy lives as teachers, the first thing to get cut from our schedules is often structured reflection. And yet, reflection is a necessary practice to help us understand the effect of our actions and behavior. From Plato to Solzhenytsin, writers and philosophers have emphasized that human beings do not learn from experience alone. We learn, not from experience, but from reflection on experience. Reflection is the difference between 20 years of teaching, and one year of teaching repeated twenty times. Just as teachers need structured reflection to continue to grow, so do students need frequent and varied opportunities to

⁷ For more information on Jigsaw, see <http://www.jigsaw.org/>

⁸ For further information on Complex Instruction, see <http://cgi.stanford.edu/group/pci/cgi-bin/site.cgi>

reflect on their academic performance as well as how they are performing as members of a group.

Promote Self-Directed Learning

Ultimately, what we would like to teach our students is that learning is lifelong and isn't confined to the four walls of a classroom; that each individual develops the drive and responsibility for that learning. Self-directed learning is what we see when individuals take the initiative for their own learning, for example, when a Middle School student suddenly develops a keen interest in learning everything there is to know about computers – and emerges after a few short months as a self-confident computer geek! We would like to be able to harness this enthusiasm for learning, and train all of our students to develop that internal locus of control.

Teachers who help students develop self-directedness in their learning demonstrate great understanding of learning theory. They help students to gain deeper self-knowledge of their learning styles, strengths and interests and develop strategies to determine their readiness levels in different content areas. They help students develop a sense of their own identities as learners.

Specific suggestions for helping students develop and internal locus of control for learning include:

1. **Engage students in goal setting.** While teachers must establish curricular goals, Marzano et al. (2001) warn us not to make these goals too specific (e.g. as in behavioral objectives) and allow students opportunities to personalize these goals. Strategies such as K-W-L often illuminate to the teacher and the student what the student wants to learn from a specific unit. Personalizing goal setting provides opportunities for students to determine where they are in the

learning journey in relation to the curricular goal: that is, at what level of readiness they are. This kind of goal setting also provides students with a chance to think about a context for their own learning.

2. **Provide students with opportunities to learn about themselves as learners.**

What are their strengths and preferences as learners? In what media do they prefer to show their understanding or achievement of learning? How does a “least favorite” production style interfere with a demonstration of learning? When we provide students with choices in learning – whether it is on the specific topic, how they learn it, how they might present their learning, we are differentiating instruction. This helps students to know themselves as learners and develop independence in the learning process.

3. **Train students in self-assessment.** Although assessment in many classrooms usually comes from the teacher, there is a sound research base for student self-evaluation and assessment (Wiggins, 1993). Teachers can prepare exemplars for student review and train students to monitor their learning and achievement. This helps students to develop more realistic perceptions of their learning and align their concepts of quality work more closely with that of the teacher.

4. **Provide timely and corrective feedback.** In order for feedback to be effective, it needs to be descriptive and provide students with meaningful information: where they are in the learning continuum, and what they need to do in order to make progress. The feedback also needs to be timely!⁹

5. **Use Cognitive Coachingsm techniques.** The coaching techniques of pausing, paraphrasing and probing are highly effective in working with students,

⁹ Please see Chapter XX on assessment, for a fuller discussion of effective feedback.

especially as we craft questions that help them to reflect on their progress and articulate what they have learned.

Use Student Responses to Inform Instruction

There are a number of different areas in which soliciting feedback from students can provide us with important data: student responses give us a window into what they have understood and learned from our instruction; and their feedback on our teaching allows us to see how we are doing as instructional leaders. Worked into a feedback loop, both kinds of data allow us to improve instruction for students at the same time as it affords us opportunities to grow professionally.

Teaching for understanding requires that we do less didactic teaching and ask more questions (Wiggins & McTighe, 1998; Perkins, 1993). While lecture is an efficient means of delivering content, we recognize that adult (and student!) attention is generally no longer than 10 minutes; while brilliant lecturers can hold our attention for a longer period of time, very few of us are brilliant lecturers. Thus, it is necessary to check frequently for student ‘understanding, in light of the problems of misconception, predictable misunderstanding, and apparent understanding (Wiggins & McTighe, 1998; p. 160).’ Student responses will tell us what we need to review, revise or re-teach.

Students are also experts in being students. They know what works for them and what doesn't. Their feedback on our teaching can let us know how we're doing in terms of our presentation, our instructional methods, our pacing, and what we may need to do more/less of. Teachers who make it a practice of soliciting feedback on their teaching from students often make the purpose explicit: “Your comments and suggestions will be used to improve the learning and working conditions for all of

us.” Of course, the variety in student responses (“more homework;” “less homework;” “more assignments using visual skills;” “less assignments that have anything to do with drawing”) also presents opportunities to help students become more aware that a variety of styles, interests and preferences are represented among the students in the class.

Exit cards are an efficient and effective way to get a quick sampling of student thinking. Students are asked to write on an index card their responses to one or two questions. The questions can be constructed to help the teacher focus on any aspect of the lesson that s/he wants to collect data on, for example:

1. What was your big learning of today?
2. What questions remain?
3. What was most helpful about today’s instruction?
4. How does today’s lesson connect with our Essential Questions for this unit?

Conclusion

The five different meta-strategies:

- Purposeful use of non-verbal cues;
- Mediation of student thinking;
- Deliberate creation of a constructive learning community;
- Promotion of self-directed learning; and
- Use of student responses to inform instruction

provide us with a framework around which we can develop classroom cultures that differentiate instruction and support student learning. When teachers weave these strands into their thinking and planning, students are more likely to feel the invitation to learn.

SETTING CONDITIONS FOR LEARNING: 'META-STRATEGIES' THAT PROMOTE DIFFERENTIATION

Meta-Strategy	IMPACT ON STUDENT LEARNING	TEACHER BEHAVIORS	STUDENT BEHAVIORS	RESEARCH/RESOURCES
Use non-verbal cues	<ul style="list-style-type: none"> ◆ Predictable/safe trusting learning environment ◆ Optimal use of learning time ◆ Equal access for our students including those with special needs, including ESL ◆ Enhanced understanding of learning objectives 	<ul style="list-style-type: none"> ◆ Use silence appropriately ◆ Adjust lesson pacing ◆ Use visual paragraphing ◆ Use space purposefully ◆ Use signals for transitions/behavior cues ◆ Differentiate visual cues with color ◆ Use predictable 'routines' ◆ Use credible and approachable voice appropriately ◆ Demonstrate congruence between verbal and non verbal behaviors 	<ul style="list-style-type: none"> ◆ Demonstrate automatic behaviors ◆ Use learning time efficiently ◆ Understand classroom routines ◆ Read and respond appropriately to teacher non-verbals ◆ Recognize and respond appropriately to non verbal cues, in general 	<p>Costa, A.L & Gamston, R. (2002). Cognitive coaching: A foundation for renaissance schools. Norwood, Mass.: Christopher-Gordon Publishers, Inc.</p> <p>Grinder, M. (1991). Righting the educational conveyor belt. Portland, Or.: Metamorphous Press.</p> <p>"Managing the Differentiated Classroom" ASCD Video.</p> <p>Marzano, R., Pickering, D.J. & Pollock, J.E. (2001). Classroom instruction that works: Research-based strategies for increasing student achievement. Alexandria, Va.: Association for Supervision And Curriculum Development.</p>
Mediate student thinking	<ul style="list-style-type: none"> ◆ Focused and active engagement of all students ◆ Emotional and cognitive support for thinking ◆ Self-regulated learning behaviors ◆ Risk-taking in learning ◆ Increased cognitive confidence and efficacy 	<ul style="list-style-type: none"> ◆ Craft questions that are invitational, with a specific topic and a cognitive focus ◆ Craft open-end questions that can be accessed at multiple level that will generate higher order thinking ◆ Control wait/think time (3 types) ◆ Use mediational paraphrases including the speaker's content, emotional and logic level (3 levels; clarify, organize/summarize, conceptual) ◆ Use praise selectively ◆ Model meta-cognitive reflection 	<ul style="list-style-type: none"> ◆ Paraphrase, summarize, elaborate ◆ Generate 'deep questions' ◆ Employ meta-cognition to guide understanding ◆ Exhibit higher-order/divergent thinking ◆ Demonstrate respectful dialogue/discussion ◆ Construct knowledge focused on lesson objectives ◆ Control impulse 	<p>Lipton, L.E. & Wellman, B. (1998). Pathways to Understanding: Patterns & Practices in the Learning-Focused Classroom, 3rd. Edition. Sherman, Ct. : MiraVia, LLC.</p> <p>Costa, A.L. & Gamston, R. (2002). Cognitive coaching: A Foundation for renaissance schools. Norwood, Mass.: Christopher-Gordon Publishers, Inc.</p> <p>Costa, A. (1991). The school as a home for the mind. Andover, Ma.: Skylight Publishing.</p> <p>Marzano, R. (1997). Dimensions of learning. Alexandria, Va.: Association of Curriculum and Supervision Development.</p> <p>Marzano, R., Pickering, D.J. & Pollock, J.E. (2001). Classroom instruction that works: Research-Based strategies for increasing student achievement. Alexandria, Va.: Association for Supervision and Curriculum Development.</p> <p>Wiggins, G. & McTighe, J. (1987). Understanding by design. Alexandria, Va.: Association of Supervision and Curriculum Development.</p> <p>Brooks J. G. & Brooks, M. G. (1993). In search of understanding: The case for constructivist classroom. Alexandria, Va.: Association for Supervision and Curriculum Development.</p>

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Meta-Strategy	IMPACT ON STUDENT LEARNING	TEACHER BEHAVIORS	STUDENT BEHAVIORS	RESEARCH/RESOURCES
Create a constructive learning community	<ul style="list-style-type: none"> ◆ Predictable/safe/trusting learning environment ◆ Interdependent learners 	<ul style="list-style-type: none"> ◆ Teach cooperative learning strategies explicitly ◆ Conduct class meetings regularly to teach social skills and resolve issues ◆ Develop class norms with students ◆ Practice active and reflective listening ◆ Teach the norms of collaboration ◆ Ask students to reflect on their participation in group work ◆ Use jigsaws and other strategies that rely on interdependence 	<ul style="list-style-type: none"> ◆ Demonstrate respect for the needs and skills of peers ◆ Exhibit positive and productive attitudes towards cooperative learning 	<p>Gamston, R. & Wellman, B. (1999). <i>The adaptive school: A sourcebook for developing collaborative groups</i>. Norwood, Mass.: Christopher-Gordon Publishers, Inc.</p> <p>Barth, R. (1990). <i>Improving Schools from Within</i>. San Francisco: Jossey-Bass, Inc.</p> <p>Rudduck, J., Day, J. & Wallace, G. (1997). <i>Students Perspectives on School Improvement</i>. In A. Hargreaves, (Ed). <i>Rethinking educational change with heart and mind</i>: ASCD Yearbook. Alexandria, VA.: Association of Supervision and Curriculum Development.</p>
Promote self-directed learning	<ul style="list-style-type: none"> ◆ Independent/self-motivated learners ◆ Internal locus of control and efficacy ◆ Internationalized self-assessment and goal setting ◆ Development of student self-regulation with regard to academic work 	<ul style="list-style-type: none"> ◆ Construct thoughtfully instruction and directions ◆ Provide assessment models and criteria in advance ◆ Teach and infuse self-assessment and goal setting throughout the learning process ◆ Provide opportunities to practice self and peer assessment ◆ Differentiate instruction (content/process/product) ◆ Insist on follow-up and closure on student assignments ◆ Use cognitive coaching techniques ◆ Teach explicitly rubrics ahead of assessment ◆ Know students well/conduct interest inventories ◆ Use clinical observation strategies ◆ Encourage student choice ◆ Use conferences and regular feedback to promote extended learning 	<ul style="list-style-type: none"> ◆ Use self/peer assessment and goal setting ◆ Self-direct work habits/projects ◆ Generate 'deep questions' ◆ Understand expectations for assignments as per rubric 	<p>Costa, A. L. & Gamston, R. (2002). <i>Cognitive coaching: A foundation for renaissance schools</i>. Norwood, Mass.: Christopher-Gordon Publishers, Inc.</p> <p>"Count Me In! Developing Inclusive International Schools" "Interestalyzer" , Renzulli "Multiple Intelligences in the Classroom" ASCD "Sternberg's Intelligence Preferences" ASCD Video</p> <p>Dunn, R. & Dunn, K. <i>Teaching students through their individual learning styles: A practical approach</i>.</p> <p>Tomlinson, C. A. (1997). <i>How to differentiate instruction in mixed-ability classroom</i>, 2nd ed. Alexandria, VA.: Association for Supervision and Curriculum Development.</p>

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Meta-Strategy	IMPACT ON STUDENT LEARNING	TEACHER BEHAVIORS	STUDENT BEHAVIORS	RESEARCH/RESOURCES
Use student response to inform instruction	<ul style="list-style-type: none"> ◆ Targeted and differentiated learning ◆ Constructive learning community ◆ Development of academic interests ◆ Teacher/student learning partnership 	<ul style="list-style-type: none"> ◆ Align planning with S & B based on student needs ◆ Align record-keeping of student achievement with curriculum and performance standards ◆ Analyze common assessments to inform instruction ◆ Use a variety of student grouping ◆ Target 'mini lessons' ◆ Plan using a reflection/inquiry cycle ◆ Obtain feedback from students on instruction ◆ Analyze/anticipate misunderstandings ◆ Balance teacher/student talk (interactional analysis) ◆ "Uncover" student thinking so that it is explicit ◆ Provide students with exemplars/models of work ◆ Uncover student thinking so that it is explicit and can be used to plan instruction 	<ul style="list-style-type: none"> ◆ Learn in ZPD ◆ Learn in flexible groups ◆ Think out loud ◆ Is familiar with examples and exemplars of grade level expectations ◆ Is able to use rubrics in self-assessment 	Powell, W. & Kusuma-Powell, O. (in press). Seeing Ourselves: The Student Perspective.

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