



A MIDDLE LEVEL EDUCATION MONTHLY UPDATE

A MICHIGAN MIDDLE START PARTNER ORGANIZATION

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“New Implications for Brain Research”

Let's begin with an idea that seems obvious: When we learn, we change. We do something new or better, or we may stop doing something. Learning makes a difference.

Sometimes learning is incremental, and we don't even notice the changes. At other times, learning transforms our life.

This potential for change is what attracts many of us to teaching. But until recently, our ideas about *how* learning produces change have been unclear.

Now, however, education research and cognitive science have given us deeper insights into the process of learning.

Learning Changes the Brain

Learning produces physical changes in the brain. This concept represents a new way to look at both learning and neuroscience.

We talk about the brain being “plastic,” meaning that the brain changes its own wiring, perhaps almost continuously. Like a piece of silly putty, the brain is molded and reshaped by the forces of life acting on it. Our wiring grows and develops depending on what we experience -- even before birth. As we interact with the world, the world becomes internalized, or mapped, in our brains. The extensive plasticity of the brain continues throughout life.

The following experiment demonstrated change in the human brain generated by learning: young adults were taught to juggle. The training went on for a few weeks, until they all could keep at least three balls in the air at once. MRI images

of the subjects' brains before and after the experiment showed that learning to juggle generated increased density in a small part of the brain associated with vision, especially in the area that responds to movement.

Practice and Emotion

Practice. Neurons (brain cells) possess biochemical pathways that make them grow and reach out to other neurons whenever they are active. When we practice something, the Neuron that control and drive that action fire repeatedly. If a neuron fires frequently, it grows and extends itself out toward other neurons, in much the same way that the branches of bushes in your backyard reach out and touch one another as they grow. Particularly in the cortex, neurons that fire more frequently will also reach out more frequently.

Emotions. To create and change this buzzing network, we need more than just activity -- we need *emotion*. And for the brain, that means such emotion-connected chemicals as adrenaline (fight or flight), dopamine (reward), or even serotonin (sleep and peace). When our network connections are awash with emotion-connected chemicals, synapse strength is modified and the responsiveness of neuron networks can be dramatically changed.

This emotional connection has implications for student motivation. As part of the teacher's art, we must find ways to make learning intrinsically rewarding. Learning should feel good, and students

should become aware of those feelings. To achieve this goal, we need to make two things happen. First, classes and assignments should lead to some progress for students, some sense of mastery and success. Second, students should work on topics and activities that naturally appeal to them.

Extending the Art

Don't Explain

At times in the past, I was seriously disappointed in my ability to help students learn by explaining things to them. Often I noticed that their eyes glazed over shortly after I began my explanations.

So I reduced my explanations and instead turned to demonstrations, metaphors, and stories. As much as possible, I tried to “show” rather than “explain” things. And when explaining seemed inescapable, I asked other students to do it, reasoning that their networks were a better match with those of their peers.

I turned away from explanations for another reason: I realized that explaining negates the emotion needed for changing the brain. Explanation transfers the power from the learner to the teacher. But neuroscience tells us that the positive emotions in learning are generated in the parts of the brain that are used most heavily when students develop their own ideas.

Build on Errors

As I began to explain less, I came up with more ideas that had once seemed counterintuitive. For example, rather than treating student errors as obstacles to learning, I began to welcome them. They became my raw materials for helping students build knowledge. Instead of thinking that my job

was to eradicate error, I sought it out.

Engage the Whole Brain

Another way we can become more artistic in our teaching is to develop ways to engage several regions of the brain in learning. In particular, let's focus on different regions of the cerebral cortex, the part of the brain most closely associated with cognitive functions.

Two decades ago, David Kolb (1984) proposed a cycle of learning that is compatible with these four brain regions. Kolb asserted that deep learning comes through a sequence of *experience, reflection, abstraction, and active testing*. If we ask our students to use these four pillars of learning, they will have a chance to use more parts of their cerebral cortex.

This perspective enables us to see how such deeper learning can happen even in a traditional classroom. For example, we might first expose students to a chemistry idea through reading or a lecture (gathering information), then ask them to think about the idea and write out its meaning in their own words (making meaning), then assign them to work in pairs to develop a theory about the idea (creating new ideas), and finally encourage them to explain their theory to the teacher or the class (actively testing ideas). The last step generates new experience (information and feedback) and the pillars can then be repeated.

Adapted from **Educational Leadership**, September 2004, by James E. Zull.

Good News for Middle Start

Recently, external evaluators Dick Corbett and Bruce Wilson released their second annual analysis of the MEAP Reading scores of Middle Start Comprehensive School Reform (CSR) schools. Corbett and Wilson examined the 2003 and 2004 MEAP Reading scores of the twenty-three Middle Start CSR schools, and compared them with the Reading scores of an analogous group of twenty-three schools which are not working with Middle Start. The Middle Start schools averaged a 5.7% growth in the number of students reading at or above proficient levels. The comparison schools, on the other hand, averaged a 0.4% decline in the same category.

Corbett and Wilson also compared the MEAP Reading results for the twenty-three Middle Start schools with the average results for all 812 Michigan middle schools which administered the MEAP test in both 2003 and 2004. The 5.7% gain demonstrated by Middle Start schools compares quite favorably with the overall statewide results, which show a 0.5% drop in the number of students reading at or above proficient levels.

**Middle Start CSR schools, give yourselves a pat on the back!
Your hard work is paying off in increased student achievement!**

As Thanksgiving approaches, please take a few minutes to reflect on all that we have to be thankful for in our lives.

***Happy
Thanksgiving***





Leadership Lifeline

Sustaining Leadership

In their study of eight U.S. and Canadian high schools, researchers Andy Hargreaves and Dean Kink found that sustainable leadership was a key force leading to meaningful, long-term change.

"Most school leadership practices create temporary, localized flurries of change, but little lasting or widespread improvement," the authors write. But their work enabled them to identify seven principles that together define sustainable leadership. Sustainable leadership:

1. Goes beyond temporary gains in achievement scores to create lasting, meaningful improvements in learning.

2. Means planning and preparing for succession - not as an afterthought but from the first day of a leader's appointment.

3. Requires distributing leadership through the school's professional community so others can pick up the torch after the principal is gone.

4. Accepts responsibility for the impact that its schools and students have in the broader community.

5. Takes care of its leaders by providing both intrinsic rewards and extrinsic incentives, and encourages leaders to take care of themselves.

6. Recognizes and promotes many kinds of excellence in learning, teaching, and leading, rather than supporting standardization of practices.

7. Must have an activist dimension that includes using personal and professional networks and forging alliances with the community to preserve the school's mission.

Source: "The seven principles of sustainable leadership," by Andy Hargreaves and Dean Fink, *Educational Leadership*, April 2004 (Vol. 61, No. 7).

Taken from *Results*, October 2004



Teacher Topics

Evaluation

October's Teacher Topics began a series on teaching higher order thinking skills. This month continues with a look at Evaluation. "Evaluation" is concerned with the ability to judge the value of material (statement, novel, poem, research report) for a given purpose. Judgments are based on definite criteria. Judgments are made when clearly there is more than one possible point of view, and the difference between a judgment and a guess is that the student can give reasons to support the judgment she makes. A person's judgment is considered valid when there is evidence to support it.

Making judgments is certainly something which adults do on a daily basis; we make hundreds of decisions based on our evaluation or judgment of a situation or product. Young adolescents are often asked, on standardized tests, to make decisions based on criteria---doing so is evaluation. And evaluation is a higher level thinking skill because it requires many elements of comprehension, analysis, and synthesis.

What are middle-grades students asked to do which requires evaluation? Listed below are some sample "evaluation" assignments from each of the core subject areas:

Language Arts

- Choose which character in a story/novel they would rather be (e.g. Tom Sawyer or Huck Finn) and explain why?
- Use a rubric to assess their own or a peer's writing
- Evaluate the symbolism used in a poem and explain how it supports the central theme of the poem
- Take a position on an issue, write an editorial, and explain why they chose the position they chose.

Science

- Explain how an experiment validates your decision to choose a certain brand of paper towels over another

- Assess a peer's project using the scientific method, and provide the peer with specific feedback regarding the processes he/she used
- Answer the question, "How do you know that the substance/solution is iodine?"
- Discuss the accuracy of data, and explain how they know whether or not the conclusion is valid

Math

- Choose a graph to depict the data and explain why they chose this graph
- Explain why they worked a problem using the steps and order which they did
- Take a stance on whether or not calculators should be used in elementary math classes and support their position
- Assess a peer's work (problem solving)

Social Studies

- Choose a system of government and explain why they think this is the best system of government
- Assess the impact of corporate embezzlement on the economy
- Discuss the advantages of living in another country and explain why they chose that country
- Evaluate the accuracy of a timeline, given text which provides information concerning the given era/time frame

Evaluation or judgment should be supported by the answer to "Why do you think so?" or "How can you tell?" It is a critical thinking skill which students will use throughout their lives. When young adolescents learn to make intentional, informed decisions, they are using criteria to help them evaluate or judge something.

For more information on Evaluation, please call **MSIM at 989-774-7678**



Student Station

Take a Stand!

Unless you have been hiding under a very large rock for the past three months, you probably know that November, 2004 is Election Month -- the month when adults all over the country go to the polls to vote on a wide variety of issues and to elect the U.S. President and other political leaders. By now, you are probably thoroughly sick of all the TV commercials trying to get your parents to vote for this Presidential candidate, or for that Senator, or for so-and-so who wants a seat on the City Commission. You are probably delighted that the campaigning is finally over and that we can get back to business as usual.

But, what's behind all the election-year hype? What are the important issues that affect you, your family, your school, your community, your state and nation, and your world? How do you cut through all the commercials and speeches and debates, and figure out what it really means when candidates talk about "protecting the environment" or "cutting taxes" or "making the world a safer place"?

Try this: write down a few questions that you have about your world. Last year, Michigan Schools in the Middle asked students at middle schools all over Michigan to do this, and we got over 1,500 responses. The following are just a few of those responses:

- ◆ Why is there war?
- ◆ Will my Mom get her job back?
- ◆ What is global warming, and is it going to affect the world?
- ◆ Is there really a God?
- ◆ What's wrong with watching violence on TV?
- ◆ Why can't we wear bandanas to school anymore?

Write down three or four of your own questions -- questions that you'd really like to have answered. Then, pick the one that you'd most like to know more about, and really think about that question. Listen to what your head tells you (what you THINK about the issue, and what FACTS you have about it); and also listen to what your heart tells you (how you FEEL about the issue). Then go on a Facts and Feelings Quest -- find

facts by examining articles or books or video documentaries about the issue; and find feelings by talking with people who have been directly affected.

After you've gathered as much information as you can find, spend some time processing it, and then listen again to your head and to your heart. You now know quite a bit more about the question or issue -- in fact, you are probably a bit of an expert! So, what do you do with your new knowledge? It may be that you'll be satisfied simply to have an answer to your question or a better understanding of the issue. It may be that you'll decide that you feel so strongly about an issue that you must act. If so, talk with a trusted adult who can support you as you take action. Together, you and your adult mentor might decide to sponsor a clothing drive, to volunteer in a soup kitchen, to start a community garden, or even to try to change the laws of your town, your state, or your country. The possibilities are endless -- listen to your head and to your heart!



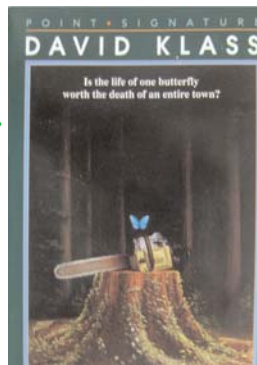
Student Book Review

California Blue

Author: David Klass

"I don't know why running through a redwood forest has always made me think of death," reflects seventeen-year-old John Rodgers, the narrator of this powerful book. John is a high school cross-country star who has grown up in the shadow of his dad, Henry, the greatest prep football player in the history of Kiowa High School. But now Henry, who has always been a pillar of strength, is being tested for leukemia, and the Rodgers family is in danger of falling apart. John keeps his own world together by running every day and by collecting live butterflies for his terrarium.

One day, deep in the woods, John nets a beautiful blue butterfly and takes it home with him. As he examines it, he realizes that it is unlike any butterfly he has ever seen before. With the help of his science teacher, who is also a collector, John figures out that he



has discovered a butterfly that exists nowhere else in the world!

When news of his discovery is made public, the town of Kiowa is thrown into turmoil. Because the butterfly exists only in the forest around the town, environmentalists want the local lumber mill to stop cutting down the redwoods in the area. But if the lumbering stops, most people in the town will lose their jobs, because most people work at the mill.

Now John must make a decision: will he join the environmentalists who want to shut down the mill in order to protect the butterfly, or will he stand with his family and his neighbors whose livelihood depends on keeping the mill open? Pick up *California Blue* today, and find out!

Want to read more books about young adolescents who take a stand? Try *The Chocolate War*, by Robert Cormier; *Sky: A True Story of Courage during World War II*, by Hanneke Ippisch; or *The Giver*, by Lois Lowry.



Family Focus

Letting Go: Independence and Your Young Adolescent

As kids leave childhood and enter early adolescence, they often begin to ask for more freedom and independence. As parents, you probably walk a tightrope... you want your kids to grow into confident and capable young adults who feel secure in facing the world, but you also know that there are many dangers in the world which your young adolescents may not be ready to handle yet. How do you find a balance between holding on and letting go? How do you give your kids the right kinds of freedom, at the right times?

Research shows that young adolescents do best when they keep close connections with their parents, but are also given the freedom to hold their own opinions, even when their opinions are different from those of their parents. Keeping your kids close means setting limits (and sticking to them), stating the limits clearly and explaining exactly what you mean, and establishing consequences (both positive and negative) for

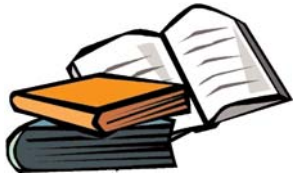
behaviors. Letting go means providing reasonable options and allowing your young adolescent to choose from among them, and granting independence in stages -- as your child demonstrates the ability to make mature and positive choices, give her progressively more freedom to make choices.

It is critical to remember that your most important job as a parent is to protect the health and safety of your child. There are some decisions which your young adolescent is simply not mature enough to be able to make well. He needs to know that your love for him requires you to "put your foot down" and prohibit choices and activities that threaten his health and safety. This can be tough for young adolescents to accept, because they tend to feel that "nothing bad could happen" to them. Choices that cut off future options for your kids -- skipping school, for example, or taking up smoking -- are also choices that you, as a parent, have both the right and the

responsibility to veto.

As younger children, your kids needed and welcomed firm parental control. It gave them a sense of security, a feeling that their parents were there to protect them. Young adolescents, by contrast, thrive on parenting which "guides" them but does not seek to "control" them. Young teens need opportunities to try out new hairstyles, different roles, new personalities, and a variety of activities. They need to be allowed to experiment and to make mistakes, and they need their parents to support them and to encourage them to bounce back after they fail. Don't hesitate to put your foot down if your child is experimenting with dangerous things, but on smaller issues, give her the chance to try, fail, bounce back, learn, grow, and succeed.





Resource Review

Winning Strategies for Classroom Management

Author: Carol Cummings

Do your students have the skills and work habits they need to reach high levels of academic performance? Do you waste valuable instructional time each day dealing with discipline and management problems? Do you wish you knew of better ways to meet the learning needs of all your students, and to keep them all engaged and eager to learn?

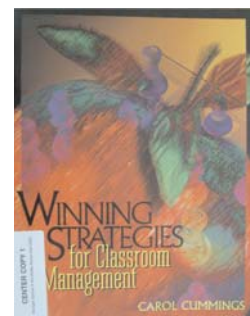
If you are looking for concrete suggestions for effective classroom management, then this book is for you. Cummings, a teacher educator and former teacher, visited 35,000 classrooms over a period of many years as she compiled the classroom management material found in *Winning Strategies*. In this comprehensive and cohesive guide, she first makes the case for devoting time and attention to classroom management, which research shows to be a crucial factor in students' learning.

Increasing diversity and inclusiveness in classrooms has meant that educators must pay more attention to classroom management, and the erosion of behavioral norms within

many families has forced schools to take on much of the burden of guiding students to develop the self-directedness and empathy that are crucial to their success as adults. Cummings argues that teachers must, first and foremost, connect with their students at a personal, one-on-one level. This link encourages students to "buy in" to the concept of developing internal control of their own thinking, actions, and learning.

Classroom management, Cummings asserts, has become much more than simply enforcing discipline. Instead, it is an intricate effort to build students' engagement in learning by guiding them toward a sense of self-efficacy, internal motivation, and control of their own futures.

To check out a copy of this book, call MSIM at (989) 774-7678, and ask to borrow Resource Number CCM-43.





CELEBRATING OUR CSR SCHOOLS



Central Elementary Mt. Morris, Michigan

Principal: Monica Deloney **Grade Configuration:** 4-6
Assist. Principal: Scott Holman
Coach: Dave Nizinski **Students:** 621

Central Middle School is "The Happening Place," with many ongoing activities as a result of the CSR Grant and working with Middle Start. Some of the ongoing activities are as follows:

- ❖ Strategies in Action with Toby Kahn Loftus
- ❖ High Performing Teams with Dave Nizinski
- ❖ School Improvement Plan with SMART goals and Action Plan
- ❖ Blending of NCA with Middle Start
- ❖ Weekly Leadership Team Meetings
- ❖ "Brown Bag Lunch" book study
- ❖ Parent Library/Books to Go
- ❖ Mini-network opportunities with Bendle and AuGres Middle Start Leadership Teams.



Evart Middle School Evart, Michigan

Principal: Al Kullman **Grade Configuration:** 5-8
Coach: Toby Kahn-Loftus **Students:** 428

Evart Middle School is in the third year of CSR work and the staff members are extremely focused on putting into place their new internal expert groups to help them continue and maintain the success they've achieved since becoming a Middle Start school in 2002.

The entire EMS staff is taking charge of their Accountability for Learning by immersing themselves in the work of Douglas B. Reeves. They are designing and implementing their new internal expert groups, the WildCATs (Critical Accountability Teams). Each WildCAT group will take on a critical piece of work for sustaining their CSR success into the future.

They are also excited to continue implementing their schoolwide novels and have begun using the schoolwide writing rubric that they designed collaboratively during the last school year.

Powerful Quote

"Aim for success, not perfection. Never give up the right to be wrong, because then you will lose the ability to learn new things and move forward with your life".

Dr. David M. Burns

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