What Works in Schools

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When Schools Account for 20% of Achievement Variance

<table>
<thead>
<tr>
<th></th>
<th>Success</th>
<th>Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Effective School</td>
<td>72%</td>
<td>28%</td>
</tr>
<tr>
<td>Ineffective School</td>
<td>28%</td>
<td>72%</td>
</tr>
</tbody>
</table>

When Schools Account for 50% of Achievement Variance

<table>
<thead>
<tr>
<th></th>
<th>Success</th>
<th>Failure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly Effective School</td>
<td>85%</td>
<td>15%</td>
</tr>
<tr>
<td>Highly Ineffective School</td>
<td>15%</td>
<td>85%</td>
</tr>
</tbody>
</table>

Aspirin Accounts for Less Than 1% of Variance in Heart Attacks \((r = .034)\)


<table>
<thead>
<tr>
<th></th>
<th>Heart Attack</th>
<th>No Heart Attack</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aspirin</td>
<td>48.3%</td>
<td>51.7%</td>
</tr>
<tr>
<td>No Aspirin</td>
<td>51.7%</td>
<td>48.3%</td>
</tr>
</tbody>
</table>

Meta-Analysis of CSR Models


- Average: \(d = .15\) (P gain = 6)
- Range: -2.13 to +7.83
- 35% of effect sizes were below zero

Factors Influencing Achievement

1. Guaranteed and Viable Curriculum
2. Challenging Goals and Effective Feedback
3. Parent and Community Involvement
4. Safe and Orderly Environment
5. Collegiality and Professionalism
6. Instructional Strategies
7. Classroom Management
8. Classroom Curriculum Design
9. Home Environment
10. Learning Intelligence/ Background Knowledge
11. Motivation

The average correlation between principal leadership behavior and school achievement is \(.25\) which means….
The average correlation between principal leadership behavior and school achievement is .25 which means...

a one standard deviation increase in principal leadership is associated with a 10 percentile point gain in school achievement.

### Factors Mediating Leadership Behavior

Focus of the change and Order of the change

### Leadership for Incremental Change

- Emphasize relationships
- Establish strong lines of communication
- Be an advocate for the school
- Provide resources
- Maintain visibility
- Protect teachers from distractions
- Create culture of collaboration
- Look for and celebrate successes

### Leadership for Second Order Change

- Shake up the status quo
- Expect some things to seem worse
- Propose new ideas
- Operate from strong beliefs
- Tolerate ambiguity and dissent
- Talk research and theory
- Create explicit goals for change
- Define success in terms of goals
Factors Influencing Achievement

1. Guaranteed and Viable Curriculum
2. Challenging Goals and Effective Feedback
3. Parent and Community Involvement
4. Safe and Orderly Environment
5. Collegiality and Professionalism

Factors Influencing Achievement

1. Guaranteed and Viable Curriculum

If you wanted to teach all of the standards in the national documents, you would have to change schooling from K-12 to K-22.

- 255 standards across 14 subject areas
- 3,500 benchmarks
- 13,000 hours of class time available
- 9,000 hours of instruction available
- 15,500 hours of instruction needed to cover the 3,500 benchmarks

Factors Influencing Achievement

2. Challenging Goals & Effective Feedback

Models for Standards-Based Design

- External Assessments
- Core Courses
- Projects, Exhibitions, & Portfolios
- Standards-Based Report Cards

Factors Influencing Achievement

2. Challenging Goals & Effective Feedback

Models for Standards-Based Design

• External Assessments
• Core Courses
• Projects, Exhibitions, & Portfolios
• Standards-Based Report Cards
FIGURE 1.1 Percentage of Teachers Reporting Use of Effort, Behavior, Cooperation, and Attendance in Determining Grades

<table>
<thead>
<tr>
<th>Grade Level</th>
<th>Effort</th>
<th>Behavior</th>
<th>Cooperation</th>
<th>Attendance</th>
</tr>
</thead>
<tbody>
<tr>
<td>K (n=79)</td>
<td>31%</td>
<td>7%</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>1–3 (n=110)</td>
<td>29%</td>
<td>8%</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>4–6 (n=151)</td>
<td>30%</td>
<td>9%</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>7–9 (n=142)</td>
<td>36%</td>
<td>14%</td>
<td>9%</td>
<td>18%</td>
</tr>
<tr>
<td>10–12 (n=151)</td>
<td>36%</td>
<td>14%</td>
<td>9%</td>
<td>24%</td>
</tr>
</tbody>
</table>


Making Standards-Based Reporting Work

- 20 or fewer elements per subject, per grade level, per year
- a residual category for teacher supplemental content
- a uniform way of scoring assessments and assignments that is RIGOROUS
Comprehension Grade 9

- While reading grade level appropriate material the student identifies and articulates major explicit and implicit patterns including:
  - Main idea with multiple levels of supporting detail
  - Arguments with complex systems of support
  - Complex causal relationships
  - Complex plots with multiple story lines

Factors Influencing Achievement

6. Instructional Strategies

7. Classroom Management

8. Classroom Curriculum Design

Factors Influencing Achievement

6. Instructional Strategies

- Identifying similarities and differences
- Summarizing and note taking
- Reinforcing effort and providing recognition
- Homework and practice
- Nonlinguistic Representations
- Cooperative Learning
- Setting Objectives and Providing Feedback
- Generating and Testing Hypotheses
- Cues, Questions, and Advance Organizers
Factors Influencing Achievement

6. Instructional Strategies
7. Classroom Management
8. Classroom Curriculum Design

Teacher

7. Classroom Management

8. Classroom Curriculum Design

Findings from 15 Action Research Projects

<table>
<thead>
<tr>
<th></th>
<th>Don't Use</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>No adjustments</td>
<td>50% pass</td>
<td>55% pass</td>
</tr>
<tr>
<td>Ceiling effect adjusted</td>
<td>50% pass</td>
<td>58% pass</td>
</tr>
<tr>
<td>Ceiling &amp; outliers</td>
<td>50% pass</td>
<td>70% pass</td>
</tr>
<tr>
<td>Best case</td>
<td>50% pass</td>
<td>84% pass</td>
</tr>
</tbody>
</table>

Question 1: What will I do to establish and communicate learning goals, track student progress and celebrate success?

Focus area:
I'm going to work on the part of question 2 that deals with elaborating on what students have learned using comparison and contrast.

Reaction:
( Nov. 5 ) This took more time than I thought to get through the comparison activity. It also seemed harder than it should be.
( Nov 7 ) I'm surprised that the kids remembered what we did 2 days ago about polynomials. This might have worked better than I thought.
Setting Objectives

Generalizations from research on Setting Objectives:

1. Instructional goals narrow students’ focus.
2. Instructional goals should not be too specific.
3. Students should be encouraged to personalize the teacher’s goals.

When students know what they are learning, their performance, on average, has been shown to be 27 percentile points higher than students who do not know what they are learning.

The objective is....

I have to complete this by....

Activities/Assignments

Today

Read Chapter 2 in...
Finish Adverb assignment...
Work on myth...

Activities/Assignments or Learning Goals?????

• Add and subtract fractions.
• Understand the various components of culture.
• Make a travel brochure for a region.
• Make a simple machine.
• Understand the relationship between fractions and decimals.
• Write a report on Charles Dickens.
• Design a menu that includes a balance of foods from the food pyramid.
• Know states and their capitals.

Learning Goals

As a result of what we do today, you will be able to demonstrate that you:

Understand the technique of foreshadowing in mysteries.
Can revise writing to improve use of descriptive adverbs.

Add and subtract fractions.
Understand the various components of culture.
Make a travel brochure for a region.
Make a simple machine.
Understand the relationship between fractions and decimals.
Write a report on Charles Dickens.
Design a menu that includes a balance of foods from the food pyramid.
Know states and their capitals.
Formats for homework that clarify purpose:

<table>
<thead>
<tr>
<th>Assignment Notebook</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language Arts</td>
</tr>
<tr>
<td>Math</td>
</tr>
<tr>
<td>Science</td>
</tr>
<tr>
<td>Social Studies</td>
</tr>
</tbody>
</table>

**Assignment:**

**Due:**

**Learning Goal:** As a result of doing this assignment, I should

- Know more about…?
- Understand better…?
- Be more skilled at…?

On this writing task, I will be working on, and would like to receive feedback on,

______________________________.

______________________________.

______________________________.

In my next writing assignment, I need to work on___________________.

---

How effective am I when I set objectives?

**When I set objectives, to what extent do I believe that my students**

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td>✓</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>✓</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Not at all | To a great extent

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Setting Objectives and Providing Feedback

**Generalizations from research on Providing Feedback**

1. Feedback should be “corrective” in nature.
2. Feedback should be timely.
3. Feedback should be specific to a criterion.
4. Students can effectively provide their own feedback.

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Feedback Research

Students assessed, Group A received feedback, Group B did not; Both groups assessed again

<table>
<thead>
<tr>
<th>Type of Feedback</th>
<th># of studies</th>
<th>Group A performance compared to Group B</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right/wrong answers</td>
<td>6</td>
<td>-3</td>
</tr>
<tr>
<td>Correct answers</td>
<td>30</td>
<td>+9</td>
</tr>
<tr>
<td>Repeat until correct</td>
<td>4</td>
<td>+20</td>
</tr>
<tr>
<td>Explain</td>
<td>9</td>
<td>+20</td>
</tr>
</tbody>
</table>

---

How do you provide feedback in a way that students

- Know what they are learning and how well they are progressing
- Can explain what they need to do to get better.
Feedback should be corrective.
Feedback should be specific to a criterion.

What is the focus of the criteria?

On this writing task, I will be working on, and would like to receive feedback on, _______________________.

In my next writing assignment, I will be working on _____________________.

How effective am I when I provide feedback?
When I provide feedback, to what extent do I believe that my students

Understand:
✓ How well they are progressing toward specific learning goals when compared to a consistently applied standard,
✓ How much they have improved over time, and
✓ How to improve their performance.

Not at all To a great extent

1 2 3 4
Question 2: What will I do to help students interact with the new knowledge?

Ensuring Students Interact with the Content

- **Preview**
- **Encode**
- **Elaborate**
- **Summarize**
- **Reflect**

Preview
- Ways to see big picture (classroom outline or graphic organizer)
- Questions relating old knowledge to new knowledge
- Direct links between old and new knowledge

Encode
(in pairs, triads, small groups)
- Restate or rephrase
- Identify explicit patterns/relationships
- Nonlinguistic representations

Elaborate
(in pairs, triads, small groups)
- Infer relationships/patterns
- Identify similarities and differences with other content
  - Comparison
  - Classification
  - Metaphors
  - Analogies
Comparing
Identifying and describing similarities and differences among items.

A and B are similar because they both

________________
________________
________________

A and B are different because
A is ________, but B is ________.
A is ________, but B is ________.
A is ________, but B is ________.

Fun and Enjoyment are similar because they both

________________.
________________.
________________.

Fun and Enjoyment are different because
Fun is ___, but Enjoyment is ________.
Fun is ___, but Enjoyment is ________.
Fun is ___, but Enjoyment is ________.

A win and a victory are similar because they both

________________.
________________.
________________.

A win and a victory are different because
Win is ___, but Victory is ________.
Win is ___, but Victory is ________.
Win is ___, but Victory is ________.

Fractions and Decimals are similar because they both

________________.
________________.
________________.

Fractions and Decimals are different because
Fractions ___, but Decimals ___.
Fractions ___, but Decimals ___.
Fractions ___, but Decimals ___.

A monarchy and a dictatorship are similar because they both

________________.
________________.
________________.

A monarchy and a dictatorship are different because
a monarchy___, but a dictatorship_____.
a monarchy___, but a dictatorship_____.
a monarchy___, but a dictatorship_____.

Fractions and Decimals are similar because they both

________________.
________________.
________________.

Fractions and Decimals are different because
Fractions ___, but Decimals ___.
Fractions ___, but Decimals ___.
Fractions ___, but Decimals ___.
## Summarize

(individually or in pairs, triads, small groups)

- Short oral summaries
- Short written summaries
- Nonlinguistic representations
- Formal notes

### Similarities and Differences

<table>
<thead>
<tr>
<th>Item 1</th>
<th>Item 2</th>
<th>Item 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Characteristic 1</td>
<td></td>
<td>Similarities and Differences</td>
</tr>
<tr>
<td>Characteristic 2</td>
<td></td>
<td>Similarities and Differences</td>
</tr>
<tr>
<td>Characteristic 3</td>
<td></td>
<td>Similarities and Differences</td>
</tr>
<tr>
<td>Characteristic 4</td>
<td></td>
<td>Similarities and Differences</td>
</tr>
</tbody>
</table>

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*Rhinos are big. They are powerful. Baby rhinos are little. They are growing. They grow a horn.*
Plants and animals have life cycles—growth, reproduction, and death. Reproduction can happen with seeds or without; when there are no seeds, there are spores. With seeds—conifers, and flowering plants.

Conifers have 2 cones, male contains pollen; female has ovules. When the pollen fertilizes the ovules, they become seeds.

Seeds have a new plant embryo.

Reflect

- What was new?
- About what was I right/wrong?
- About what am I sure/not sure?

Question 3: What will I do to help students review, revise and practice new content?

Power Law
Question 4: What will I do to help students apply new knowledge?

EXPERIMENTAL INQUIRY
People who were in high school and college during the 1960's are now in their forties and fifties. Consider this population. Some would say that it is interesting that there seems to be no lasting effect of the '60's on these people. One possible explanation for this is that the effect is there, but it is very subtle. Try to determine what effects the experiences of the '60's are having on the lives of these people now. Test your hypothesis and report on…

OR

EXPERIMENTAL INQUIRY—Continued
During the late '80's, there was a renewed interest in the Vietnam War (movies, books, documentaries). Hypothesize a possible explanation for this. Set up an experiment or other activity to test your hypothesis. Report on…

a) your hypothesis and how you tested your hypothesis
b) your findings
c) your conclusions

DECISION MAKING
It is 1969. You are on the Board of Time Magazine. For the cover of the December issue, your want to select a “Person of the Decade.” Your job is to decide which person should be selected and then justify your decision to the publishers by listing the people that were considered, the criteria you used, and how each person was rated under each criterion. Report on

a) The criteria you used and the importance you placed on each;
b) The individuals you considered and the extent to which they met your criteria; and
c) Your final selection

PROJECTIVE INVESTIGATION
Select a major movement from the '60's that involved civil disobedience. Consider what would have happened if there had been no civil disobedience as part of the movement. Identify a different method of seeking change. Describe

1) how the movement during the decade might have played out differently, and
2) how the present would be different.

if there had been no civil disobedience and, instead, the method of change you identify had been used exclusively.
### Problem Solving

1. Identify the **goal** you are trying to accomplish
2. Describe the **barriers or constraints** that are preventing you from achieving your goal—that are creating the problem.
3. Identify **different solutions** for overcoming the barriers or constraints and hypothesize which solution is likely to be the most effective.
4. **Try your solution**—either in reality or through a simulation.
5. **Explain whether your hypothesis** was correct. Determine if you want to test another hypothesis, using a different solution.

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<table>
<thead>
<tr>
<th>Question 5: What will I do to engage students and keep their energy level up?</th>
</tr>
</thead>
</table>
| - Games, puzzles, simulations  
- Inconsequential competition  
- Friendly controversy  
- Possibility of being put on the spot  
- Physical movement  
- Opportunity to talk about myself  
- Unusual information  
- Contextual variety |

<table>
<thead>
<tr>
<th>Question 6: What will I do to ensure effective pacing and flow of activities?</th>
</tr>
</thead>
</table>
| Monitor input overload  
Use effective transitions |

<table>
<thead>
<tr>
<th>Question 7: What will I do to establish or maintain classroom rules and procedures?</th>
</tr>
</thead>
</table>
Typical Areas for Rules and Procedures

- General classroom behavior
- Beginning the day or period
- Transitions and interruptions
- Materials and equipment
- Group work
- Seatwork
- Base group behavior

Question 8: What will I do to establish or maintain consequences for not following classroom rules and procedures?

Question 9: What will I do to establish and maintain effective relationships with students?

Dominance (guidance & control)

- Assertive message content
- Assertive body language

7. Classroom Management

<table>
<thead>
<tr>
<th>High Dominance</th>
<th>High Submission</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clarity of purpose, strong guidance</td>
<td>Lack of clarity, purpose, or direction</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>High Cooperation</th>
<th>High Opposition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concern for needs of others, team member</td>
<td>Active antagonism, thwart others’ goals</td>
</tr>
</tbody>
</table>

Behavioral Indicators of Assertiveness

- Eye contact
- Body posture
- Gestures
- Facial expressions
- Voice tone
- Follow-through on agreements
- Message content
Cooperation (concern and cooperation)
- Flexible learning goals
- Personal interest in students
- Equitable and positive behavior
- Appropriate response to incorrect response
- Practice “being with” people

Question 10: What will I do to maintain an appropriate mental set?

Mental Set
- Withitness
- Emotional objectivity

Mental Set
- Withitness
- Emotional objectivity

Emotional Objectivity
- Acting as if the following statements are true:
  - “I take nothing that occurs in this classroom personally.”
  - “Nothing can alter my calm demeanor.”
  or

Mastering the art of little discernable reaction.
Factors Influencing Achievement

9. Home Environment
10. Learned Intelligence/Background Knowledge
11. Motivation

9. Home Environment

<table>
<thead>
<tr>
<th>Socio-Economic Indicators</th>
<th>% of Variance Explained</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income Only</td>
<td>10</td>
</tr>
<tr>
<td>Education Only</td>
<td>3</td>
</tr>
<tr>
<td>Occupation Only</td>
<td>4</td>
</tr>
<tr>
<td>Home Atmosphere Only</td>
<td>33</td>
</tr>
<tr>
<td>Income and Education</td>
<td>5</td>
</tr>
</tbody>
</table>

Vocabulary Terms & Phrases

Generalizations from Research
1. Students must encounter words in context more than once to learn them.
2. Instruction in new words enhances learning those words in context.
3. One of the best ways to learn a new word is to associate an image with it.
4. Direct vocabulary instruction works.
5. Direct instruction on words that are critical to new content produces the most powerful learning.

Chances of Learning New Words in Context

<table>
<thead>
<tr>
<th>Factor</th>
<th>Chances of Learning Word</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ability</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>8%</td>
</tr>
<tr>
<td>Medium</td>
<td>12%</td>
</tr>
<tr>
<td>High</td>
<td>19%</td>
</tr>
<tr>
<td>Grade Level</td>
<td></td>
</tr>
<tr>
<td>Grade 4</td>
<td>8%</td>
</tr>
<tr>
<td>Grade 11</td>
<td>33%</td>
</tr>
<tr>
<td>Text Density</td>
<td></td>
</tr>
<tr>
<td>1 new/10 words</td>
<td>7%</td>
</tr>
<tr>
<td>1 new/74 words</td>
<td>14%</td>
</tr>
<tr>
<td>1 new/150 words</td>
<td>30%</td>
</tr>
</tbody>
</table>
Students read new information; comprehension assessed:

If there is some regular vocabulary instruction--
12%ile gain

If the direct instruction is for words in the passage that is being read,
33%ile gain

Vocabulary Terms & Phrases

Classroom Practice:
1. Identify critical terms and phrases
2. Use a research-based process for teaching new terms and phrases

3rd Grade Mathematics

- angle
- area
- average
- bar graph
- congruent
- difference
- estimation
- hexagon
- length
- width
- octagon
- parallel
- perimeter
- product
- rhombus
- square
- symmetry
- triangle
- vertical
- horizontal

3rd Grade Science

- predict
- compare
- observe
- investigate
- analyze
- amplify
- frequency
- vibration
- Newton
- properties
- pitch
- food web
- life cycle
- living organism
- structure
- inherent
- reproduction
- environment
- characteristics
- hypothesis

3rd Language Arts

- actor
- animation
- audience
- cause & effect
- commercial
- conclusion
- cue
- detail
- directions
- drama
- ending
- facial expression
- humor
- minor character
- main character
- plot development
- role playing
- central idea
- mood
- myth

3rd Social Studies

- prairie
- Oregon Trail
- lariat
- oxen
- expedition
- territory
- homestead
- settlement
- pioneer
- farm/ranch
- Native American
- legacy
- stampede
- fertile
- wagon trails
- cabin
- cattle
- seasonal dwelling
- plateau
- frontier
A Six-Step Process for Teaching New Terms

Step 1: Provide a description, explanation, or example of the new term.
Step 2: Ask students to restate the description, explanation, or example in their own words.
Step 3: Ask students to construct a picture, symbol, or graphic representing the term or phrase.
Step 4: Engage students periodically in activities that help them add to their knowledge of the terms in their notebooks.
Step 5: Periodically ask students to discuss the terms with one another.
Step 6: Involve students periodically in games that allow them to play with terms.

Mutualism
The interaction of organisms within an ecosystem in a manner that significantly benefits both, although the resulting relationship is not critical to the continued existence of either.
Periodically have students review the explanations and representations?

Establish personal vocabulary records

Have fun with words

Factors Influencing Achievement

9. Motivation

Books Related to This Presentation

- What Works in Schools (ascd.org)
- Building Background Knowledge for Academic Achievement (ascd.org)
- Building Academic Vocabulary Teacher's Manual (ascd.org)
- Classroom Management That Works (ascd.org)
- A Handbook for Classroom Management That Works (ascd.org)
- Classroom Instruction That Works (ascd.org)
- A Handbook for Classroom Instruction That Works (ascd.org)
- The Pathfinder Project (pathfinderusa.com)
- School Leadership That Works (ascd.org)
- Transforming Classroom Grading (ascd.org)
- Excelsiorsoftware.com
- Classroom Assessment and Grading in a Standards-Based System (ascd.org)
- Designing a New Taxonomy of Educational Objectives (Corwinpress.com)