Motivating Life-long Learners: Rigor, Relevance and 21st Century Literacy for Secondary Teachers

Presented by Peter Pappas
President, Edteck

Agenda
- Rigor / Relevance
- Strategies in Action
  - Defining
  - Summarizing
  - Comparing
- How to use Strategies to Support Literacy

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Note: Videos and images have been removed to reduced file size

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Staff development should model what you expect to see in the classroom.

Students are motivated by **Rigor**. Creating is the highest form of thinking.

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Bloom’s Taxonomy of Thinking Skills

- Creating - generating new ideas
- Evaluating - justifying a decision or choice
- Analyzing - breaking into component parts
- Applying - using information in a new setting
- Understanding - explaining idea or concept
- Remembering - recalling information

Creating

A new combination of old elements

Creating

A new combination of old information, stories, data, art, music, literature, strategies...

Students are motivated by Relevance

Taking responsibility for their learning
Learning is relevant **when the student:**

- understands how this information or skill has some **application in their life.**
- has an opportunity to **follow their own process** rather than just learn “the facts.”
- is not just learning content and skills, but is **learning how they learn.**

Motivating Life-long Learners

#1 factor for improving student motivation is choice.

Not whether the student does the assignment, but how they engage in the work.

~Doug Reeves

Justin, a second grader, talks about math

*From Math Is Language Too: Talking and Writing in the Mathematics Classroom by Phyllis Whitin*

**Question:** A cruise ship carries 200 passengers and crew. Each life boat carries 30 people. How many lifeboats will the ship need?

*Almost one-third of the 8th graders who took the NAEP math test answered “6 remainder 20”*
From a high school valedictorian:

“I could memorize very easily, and became valedictorian. But I was embarrassed that I understood much less than some other students who cared less about grades. I felt that my brain was a way station for material going in one ear and (after the test) out the other.”

~ High School Student quoted in Wiggins and McTighe: Understanding by Design

Move students toward greater relevance

Using skills and knowledge in routine school setting. Work as directed by the teacher.

Using skills and knowledge for myself in the real world. Figuring out my own approaches.

Rigor and Relevance Framework

High Rigor

Low Rigor

Low Relevance

High Relevance

A

B

C

D

Low Rigor

Low Relevance

High Relevance

A

B

C

D
Quadrant A 
Gather and store bits of knowledge and information. 
Primarily expected to remember or understand this knowledge.

Example 
Pick the right definition.
**Quadrant B**  
Apply knowledge in real-life situations.  
Example: Compare car lease to loan

**Quadrant C**  
Use knowledge to analyze and solve school-based problems and create solutions. Work under the specific directions of the teacher.  
Example: Develop categories for types of plants

**Quadrant D**  
Apply knowledge and skills in complex ways to analyze and solve real problems and create solutions. Confront real-world unknowns  
Example: Take part in a classroom role-playing debate.

**It’s not just about Quadrant D ...**  
it’s about using a variety of approaches
Higher and lower-order reflection by students

- Creating
- Evaluating
- Analyzing
- Applying
- Understanding
- Remembering

I can describe patterns, create my own connections, and assess my progress

I can tell you what I did, but don’t expect me to think about it

Reflective Questions for Students
- What am I learning today?
- Why am I learning it?
- How can I use this knowledge and these skills to make a difference in my life?
- How can I work with teachers and other students to improve my learning?
- How am I progressing as a learner?
- How can I communicate what I’m learning with others?

Students are motivated by Reflection

They monitor and assess their own progress as life-long learners.

We’ll focus on three strategies
- Defining: negotiating meaning
- Summarizing: synthesis and judgment
- Comparing: assessing similarities and differences
Robert Marzano:
*What Works in Schools*

“35 years of research concretely identifies the factors that are the primary determinants of student achievement.”

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**Defining**

- Student compares their own definitions to real-world example.
- Student works with peer to apply term in new setting.
- Design graphic organizer to classify words.
- Copy definition from glossary into notebook.

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**Elements for teaching defining**

- Before the dictionary comes out... connect students with their prior knowledge.
- After the term has been defined ... give students chances to more deeply process the term.

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For more: www.edteck.com/read
Pre-dictionary:
Let students work together to compare preliminary definitions.

- Students develop their own definition
- Compare to peer definitions
- Similarities
- Differences
- Use visual, verbal and text-based approaches

List, Group, Label

- Give students term
- They individually brainstorm related ideas
- They pair and share
- They put post-its into groups and label
- Turn into a poster

Personal Vocabulary Notebook
Prior knowledge plus processing

1. Term:  
2. Student Definition:  
3. Dictionary Definition:  
4. Student comparison of 2 and 3:  

Personal Vocabulary Notebook
Prior knowledge and processing

1. Term: Segregation  
2. Student Definition: A time when African-Americans used to have separate schools  
3. Dictionary Definition: The policy or practice of forcing racial groups to live apart from each other  
4. Student comparison of 2 and 3: I thought of segregation more as a time period, but the dictionary calls it a practice or policy

Reading for Academic Success ~ Strong and Silver
Students can measure their own progress. Self-evaluation is rigorous and student-centered.

<table>
<thead>
<tr>
<th>Level</th>
<th>Rubric</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>I understand even more about the term than what I was taught. I know multiple meanings.</td>
</tr>
<tr>
<td>3</td>
<td>I understand the term and I’m not confused about any part of what it means.</td>
</tr>
<tr>
<td>2</td>
<td>I’m a little uncertain about what the term means, but I have a general idea.</td>
</tr>
<tr>
<td>1</td>
<td>I really don’t understand what the term means.</td>
</tr>
</tbody>
</table>

My understanding of this term is at rubric level 4

1. Term: Segregation
2. Student Definition: A time when African-Americans used to have separate schools
3. Dictionary Definition: The policy or practice of forcing racial groups to live apart from each other
4. Student comparison of 2 and 3: I thought of segregation more as a time period, but the dictionary calls it a practice or policy

Student Vocabulary Progress
Student Name ___________       Unit _____

Rubric 4 | X | X | X
Rubric 3 | X | X | X | X
Rubric 2 | X | X |
Rubric 1 | X | X |

Use a common academic vocabulary list

Find vocabulary lists by discipline and level at: Building Academic Vocabulary Bob Marzano
Elements for teaching defining

- Before the dictionary comes out... connect students with their prior knowledge
- After the term has been defined... give students chances to more deeply process the term

Defining:

- a chance for reflective writing
  - How is the word related to something else I learned in school?
  - How is the word related to something else in my life?
  - How is the word used in different situations?
  - How has my understanding of the word grown?

Negotiating and sharing meaning in a social context

High Rigor

- Copy definition from glossary into notebook

Low Rigor

Summarizing

Evaluating what's important.
Sharing what you've learned.
I can guess what the teacher thinks is important.

Negotiate a collaborative summary with a peer.

Analyze the elements of an image.

Summarize an opponent’s arguments in a debate.

Research shows student use of summarizing skills results in a 34-percentile gain in student performance.

Classroom Instruction that Works, ASCD, 2001

Group 1: Teacher lectures on the essential characteristics of mammals. 34% gain in content mastery.

Group 2: Teacher lectures, then students do a summarizing exercise on the essential characteristics of mammals.

Six essential summarizing skills:

- **Identify details** – can you identify key symbols, words, visual elements?
- **Recognizing context** – where is this taking place, time period, who’s involved?
- **Identify relationships** – who are these people, what is their relationship to one another?

Continued - Summarizing skills:

- **Identify opinions** – is there a point of view expressed in the source information?
- **Make predictions** – based on the information, what will happen next?
- **Infer meaning** – is there meaning that can be extracted from what’s between the lines?
Summarizing and evaluating

- It's 1936 and you work for Life Magazine.
- Which photo would you use to illustrate an article on the plight of the migrant workers?

Dorothea Lange's "Migrant Mother" 1936

“I saw and approached the hungry and desperate mother, as if drawn by a magnet. I do not remember how I explained my presence or my camera to her, but I do remember she asked me no questions. ....

I did not ask her name or her history. She told me her age, that she was thirty-two. She said that they had been living on frozen vegetables from the surrounding fields, and birds that the children killed. She had just sold the tires from her car to buy food. There she sat in that lean-to tent with her children huddled around her, and seemed to know that my pictures might help her, and so she helped me.”

Elements for teaching summarizing

- Allow students to make their own judgements about what's important (instead of just repeating the details the teacher highlights)
- Students need to be able to share what they've learned with an audience other than the teacher.

foot [foʊt], noun ( pl. feet [fēt])

(Anat.) The terminal part of the leg of man or an animal; esp., the part below the ankle or wrist; that part of an animal upon which it rests when standing, or moving.
### Elements for teaching summarizing

- Allow students to make their own judgements about what’s important (instead of just repeating the details the teacher highlights).
- Students need to be able to share what they’ve learned with an audience other than the teacher.

### Narrative Frame

<table>
<thead>
<tr>
<th>Narrative Frame</th>
<th>Description</th>
<th>Cue Words</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description</td>
<td>Describes a topic by listing characteristics, features, and examples</td>
<td>for example, characteristics are</td>
</tr>
<tr>
<td>Comparison</td>
<td>Explains how two or more things are alike and/or how they are different.</td>
<td>different; in contrast; alike; same as; on the other hand</td>
</tr>
<tr>
<td>Cause / effect</td>
<td>Lists one or more causes and the resulting effect or effects.</td>
<td>reasons why; if...then; as a result; therefore; because</td>
</tr>
<tr>
<td>Problem / Solution</td>
<td>States a problem and lists one or more solutions for the problem.</td>
<td>problem is; dilemma is; puzzle is solved; question... answer</td>
</tr>
<tr>
<td>Sequence</td>
<td>Lists items or events in numerical or chronological order.</td>
<td>first, second, third; next; then; finally</td>
</tr>
</tbody>
</table>

### Explaining what you’ve learned

- Explaining what you’ve learned is telling a story using a narrative structure.
- Student may need explicit training about narrative structures.
- Recognizing how information is organized helps to analyze original work and summarize it for their audience.

### Narrative Frame Diagram

- **Description:** listing characteristics, features, and examples
- **Features:**
  - Topic
  - Details
- **Cause / Effect:**
  - Cause
  - Effect
Model active viewing, listening, and reading as a foundation for summarizing

- Getting the **visual message** right
  “So what the **artist** is saying is…”
- Getting the **spoken message** right
  “So what you’re saying is…”
- Getting the **written message** right
  “So what the **author** is saying is…”

Use a “4-2-1- free write” to collaborate and reflect on a main idea

- Student 1 Main Idea
- Student 2 Main Idea
- Student 3 Main Idea
- Student 4 Main Idea

Students 1 and 2 negotiate a **common main idea**
Students 3 and 4 negotiate a **common main idea**

All four students meet:
Turn the common main ideas into a **headline**

All four students do a **free write “explaining”** the main idea to someone who wasn’t in the group

**Summarizing**

Evaluating what you think is important. Creating an appropriate summary for an authentic audience

<table>
<thead>
<tr>
<th>High Rigor</th>
<th>Low Rigor</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Relevance</td>
<td></td>
</tr>
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</table>

I can guess what the teacher thinks is important

“Telling Board”
Let student sequence a story in pictures, text, symbols
Roger Essley - Author, Illustrator

Reading for Academic Success – Strong and Silver, 2002
Summarizing: a chance for reflective writing

- What did I think was important?
- How did I share that with my audience? (Did my summary match audience / purpose?)
- Is the summary accurate?
- Did I use my own words and style?
- What did I learn from the summarizing?

Comparing builds content knowledge

Research shows student use of comparing skills results in a 45-percentile gain in student performance. 

Classroom Instruction that Works, ASCD, 2001

Group 1: Teacher lectures on the essential characteristics of mammals

Group 2: Teacher lectures, then students compare the essential characteristics of mammals to birds

45% gain in content mastery

“Compare the animals and climate of the rain forest and desert.”

<table>
<thead>
<tr>
<th>Rain Forest</th>
<th>Desert</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ave rainfall 450 centimeters /year</td>
<td>Ave rainfall 15 centimeters /year</td>
</tr>
<tr>
<td>High Humidity</td>
<td>Low humidity</td>
</tr>
<tr>
<td>No frosts</td>
<td>Frequent frosts</td>
</tr>
<tr>
<td>Little variation in temp-average 26°C</td>
<td>Big variation in temp</td>
</tr>
<tr>
<td>Ave low 17°C</td>
<td>Low 13°C</td>
</tr>
<tr>
<td>Spider Monkey</td>
<td>High 48°C</td>
</tr>
<tr>
<td>Pit Viper</td>
<td>Bats</td>
</tr>
<tr>
<td>Three-toed Sloth</td>
<td>Iguana</td>
</tr>
<tr>
<td>Jaguar</td>
<td>Ants</td>
</tr>
<tr>
<td>Giant River Otter</td>
<td>Tarantula</td>
</tr>
<tr>
<td>Bats</td>
<td>Coyote</td>
</tr>
<tr>
<td>Iguana</td>
<td>Desert Tortoise</td>
</tr>
<tr>
<td>Ants</td>
<td>Rattlesnake</td>
</tr>
</tbody>
</table>
Do you give students chances to develop their own comparative models?

- They could select items to compare from a teacher-produced list.
- They could independently decide what to compare.
- Can include some combination of selecting both the items and / or characteristics.

How is the comparison useful? What does it enable us to do or see?

Students can do comparisons in every class.

What’s more important in a sport … strength or agility?
Move students from comparing to classifying

- We typically ask students to take someone else's classification system and apply it.
- We rarely ask students to generate a classification system of their own.

List, group, label strategy
Students create classification systems with Post-its.

Elements for teaching comparing and classifying

- We must ask students to develop the comparison, not just learn and repeat the model that we present to them.
- Student must share what they learned from the comparison.

Rigor and relevance in practice: Student-designed classifying exercise

- What do I want to classify?
- What things are alike that I can put into a group?
- Does everything fit into a group now?
- Would it be better to split up any of the groups or put any groups together?

Comparing and Classifying: a chance for reflective writing

- What did I compare?
- How did I structure the comparison?
- How was the comparison useful to me?
- What did I learn from it?
- How did others design their comparisons?
6th graders write ABC book

- Students study the organs of the body
- Develop a comparison
- Create an ABC book

What process did you use to complete the project?

We organized and decided who was going to do what and how. Then we read everything over to see if everything made sense to our audience.

Analyzing components. Evaluating schema. Creating a comparison to share what you’ve learned with an authentic audience.

When do we stop modeling for students and let them take responsibility for their learning?

Comparing

High Rigor

Low Rigor

Low Relevance

High Relevance

I can repeat someone else’s comparison
Redefining the roles of teacher and student

Teachers work to create and assess learning activities. The student may be a passive learner.

Students work applying knowledge and skills in real-world tasks.

Students think in complex ways: analyze, compare, create, and evaluate.

Students think, create, evaluate in more complex and unscripted settings. They take more responsibility for monitoring their learning.

High Rigor

Low Rigor

Low Relevance High Relevance

Move teacher from dispensing information to instructional designer

- **Rigor** - analyzing, evaluating, creating
- **Relevance** - students select their strategy
- **Reflection** - student evaluates their progress

Product that asks students to communicate their thinking

Motivating Life-long Learners

#1 factor for improving student motivation is choice.

Not whether the student does the assignment, but how they engage in the work.

~Doug Reeves

<table>
<thead>
<tr>
<th>Traditional Writing is Assigned</th>
<th>Writing Assigned with Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students are asked to write only on the teacher's topics.</td>
<td>Students can develop topics that matter to them.</td>
</tr>
<tr>
<td>Student writes for the teacher.</td>
<td>Audience and purpose for writing is identified.</td>
</tr>
<tr>
<td>Teacher grades their writing.</td>
<td>Students are asked to reflect on their growth.</td>
</tr>
</tbody>
</table>
New digital technologies have put **students** in charge of the information they access, store, analyze and share.

**Digital age** gives students access to information and higher-order thinking **tools**.

**Bloom's Higher-Order Skills**
- Creating - generating new ideas
- Evaluating - justifying a decision or choice
- Analyzing - breaking into component parts

What skills will the 21st century workplace require?
- Literacy
- Numeracy
- Self-discipline

Creativity and adaptability; they must be **flexible independent learners**

Our goal – **students** who will be able to function in an **unpredictable world**.

Learn to research, think, problem-solve and write like a - scientist, engineer, coach, artist, historian, writer, mathematician, musician ....