Instructional Leadership for Life-Long Learning:
Rigor, Relevance and Reflection

Presented by Peter Pappas
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Note: Videos and images have been removed to reduced file size

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Agenda

- Rigor / Relevance
- Teacher reactions
- Strategies in action
  - Defining
  - Summarizing
  - Comparing

Word Cloud of 100 most frequently used words in my workshops

www.wordle.net

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

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Two Essential Leadership Questions

1. Have we created a shared vision of teaching and learning?

2. How do we organize to achieve the vision?

Key components of the vision

Rigor

Relevance

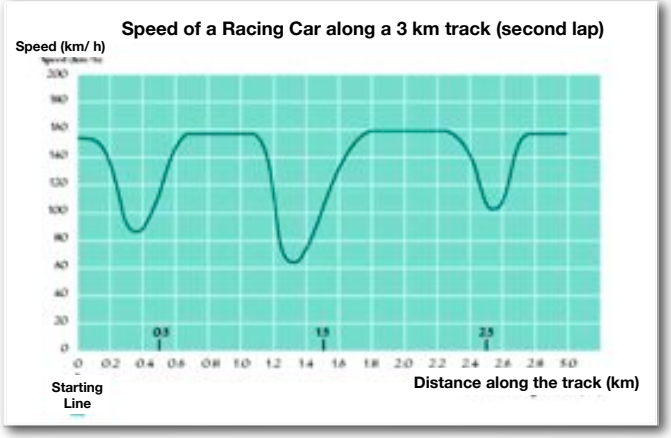
Reflection

What skills will the 21st century workplace require?

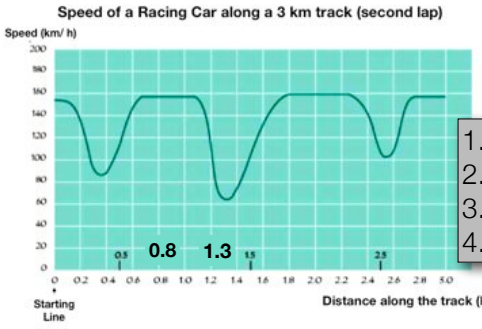
- *Literacy*
- *Numeracy*
- *Self-discipline*

Creativity and adaptability
they must be flexible independent learners

Program for International Student Assessment (PISA) is an assessment (begun in 2000) that focuses on 15-year-olds' capabilities in **reading literacy, mathematics literacy, and science literacy**.



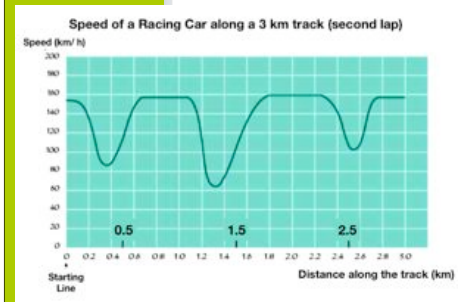
Where was the lowest speed recorded during the second lap?

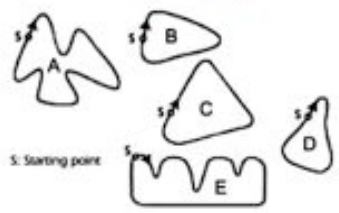


1. At the starting line
2. At about 0.8 km
3. At about 1.3 km
4. Halfway around the track

Correct Answer is 3. 1.3 km
85% Average of all 15-yr-olds

What is the shape of the track?





Correct Answer is B.
30% Average of all 15-yr-olds

Problem solving:
...an individual's capacity to use cognitive processes to **confront and resolve real, cross-disciplinary situations** where the **solution is not immediately obvious**.
… and where the **literacy domains** or curricular areas that might be applicable **are not within a single domain of mathematics, science, or reading**.

Students are motivated by *Rigor*

Creating is the highest form of thinking.

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 elements ... 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* 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.

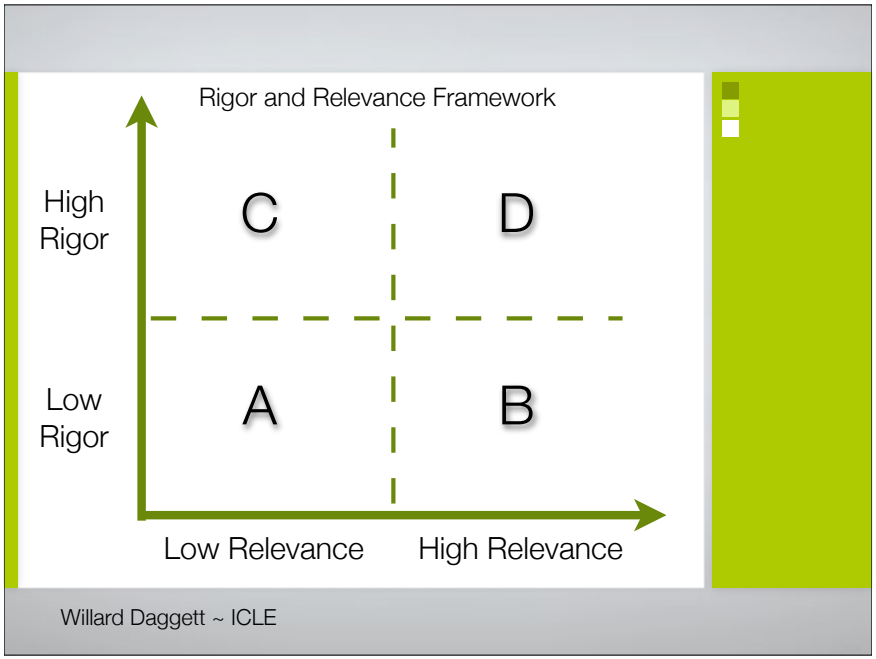
I felt that my **brain** was a way station for **material** going **in one ear** and (after the test) **out the other**."

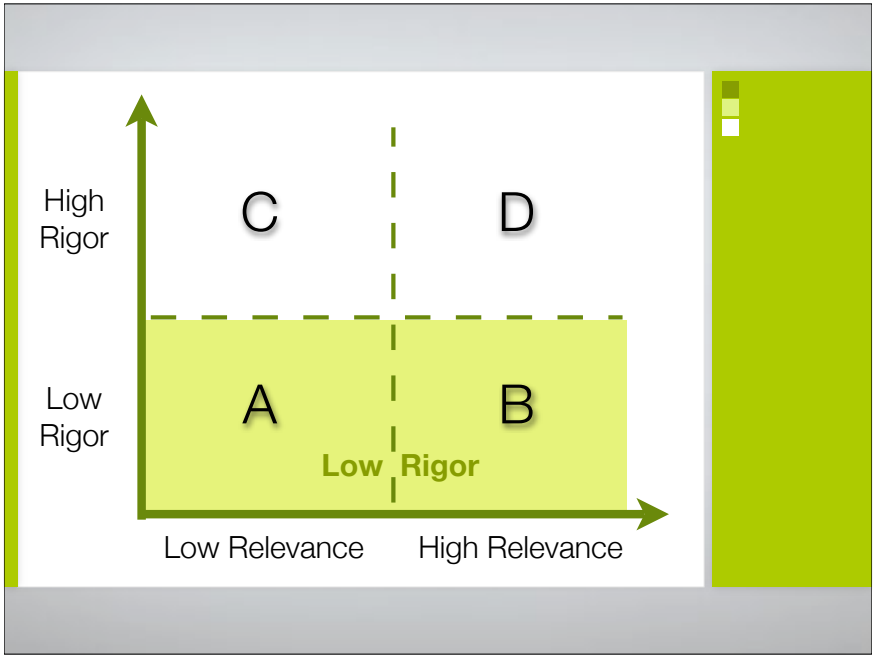
~ High School Student quoted in Wiggins and McTighe *Understanding by Design*

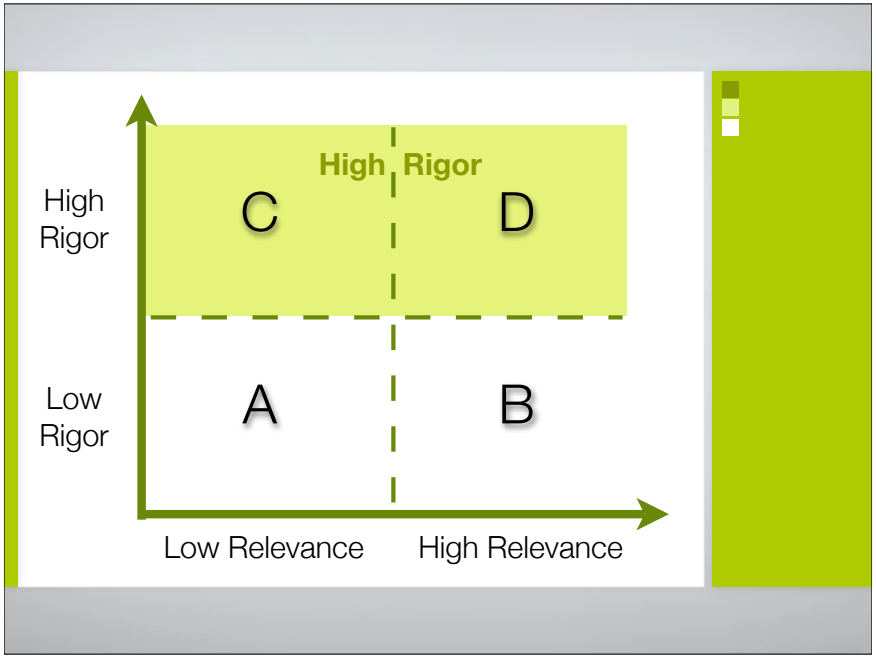
Move students toward greater relevance

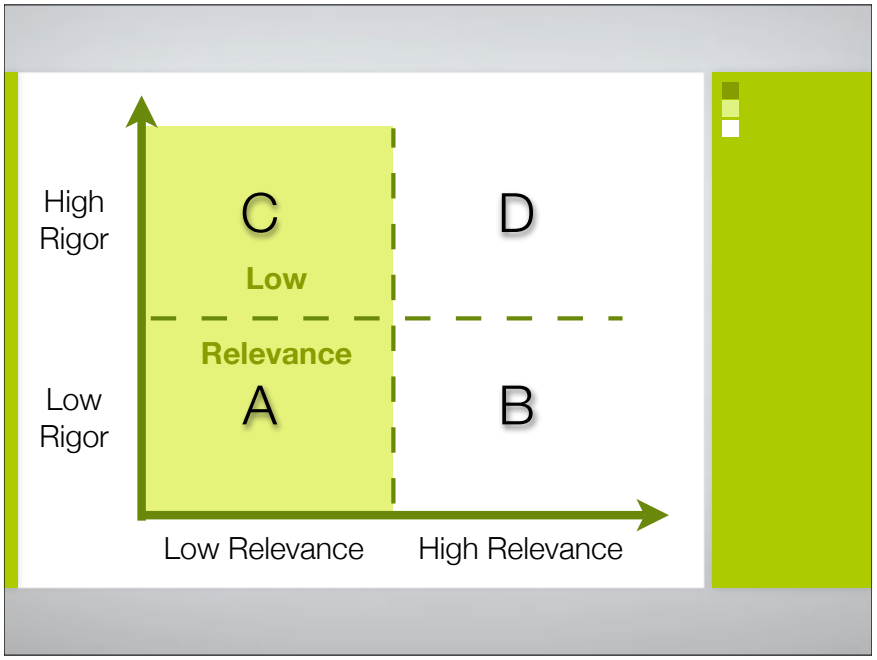
Using skills and knowledge in routine school setting. **Work as directed by the teacher.**

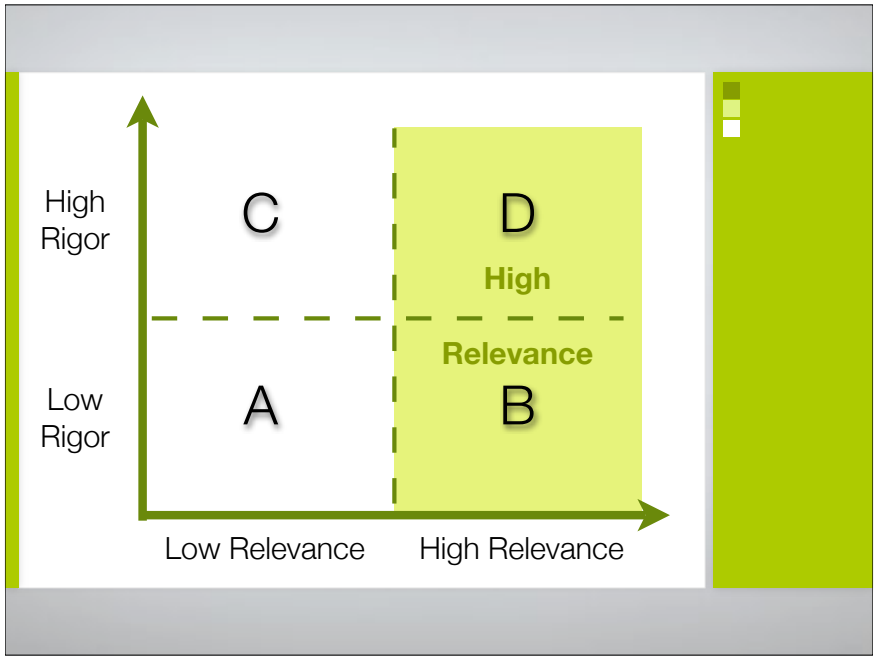
Using skills and knowledge for myself in the real world. **Figuring out my own approaches.**








High Rigor
Low Rigor
C
D
Low
Relevance
A
B
Low Relevance
High Relevance


High Rigor
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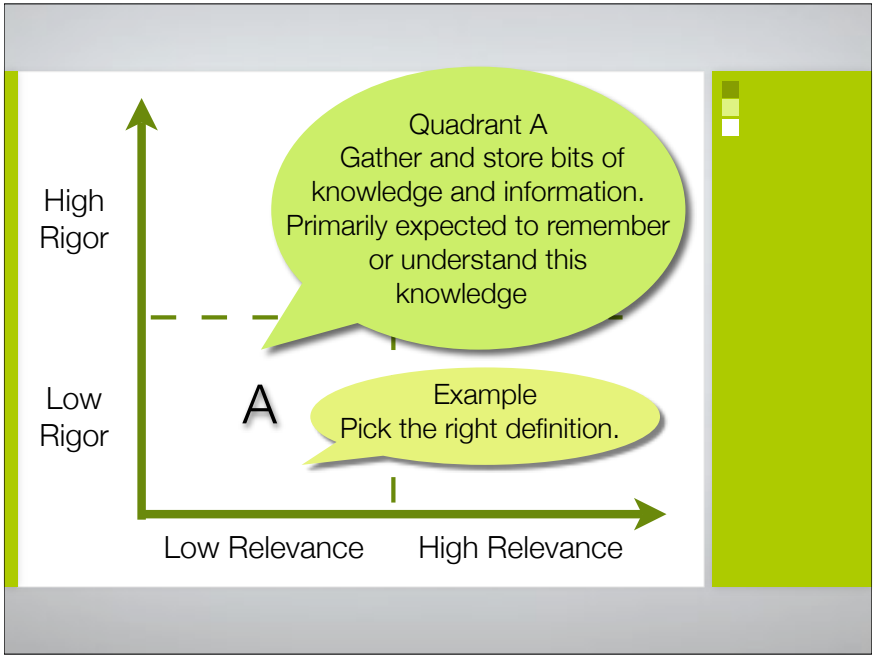
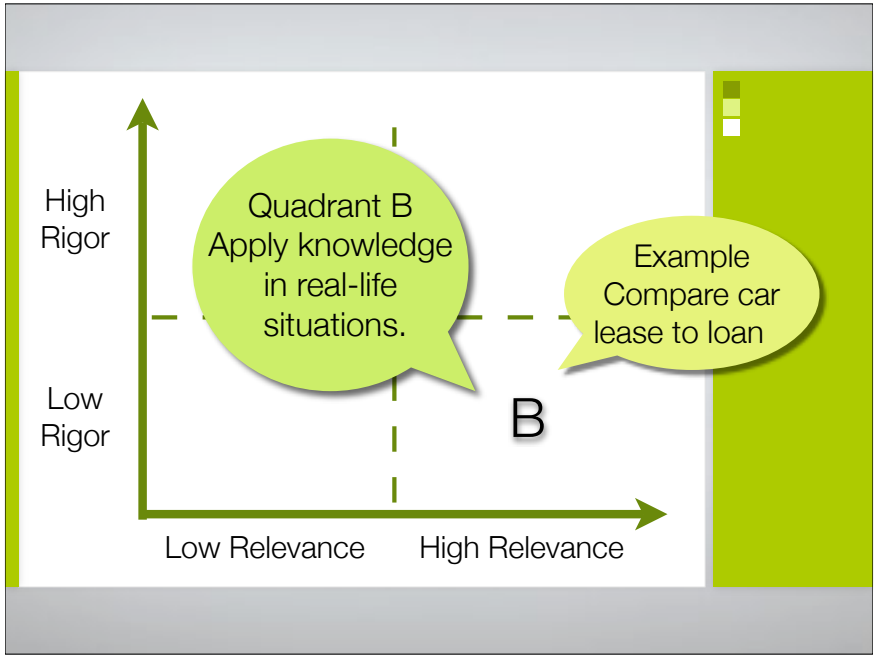
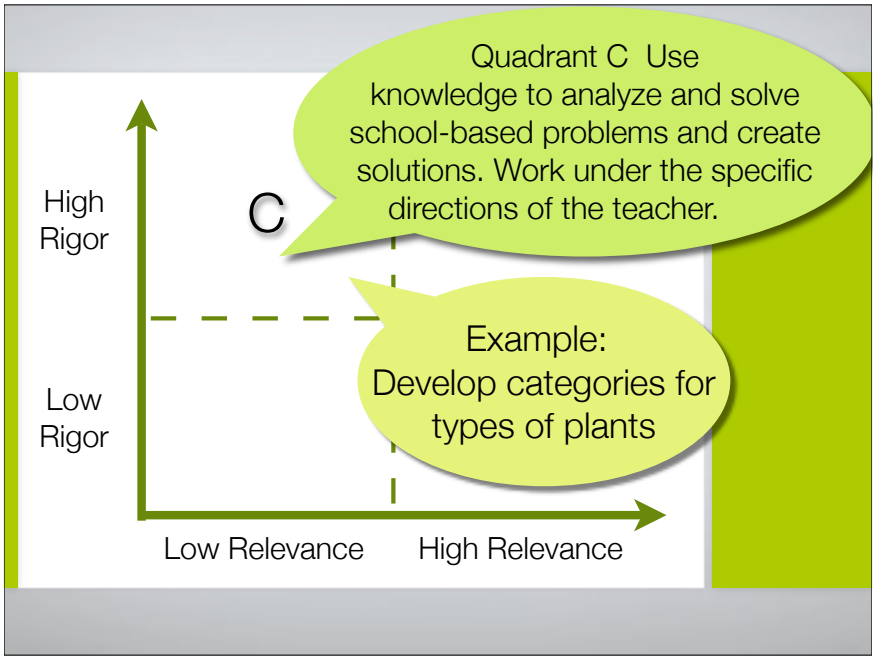
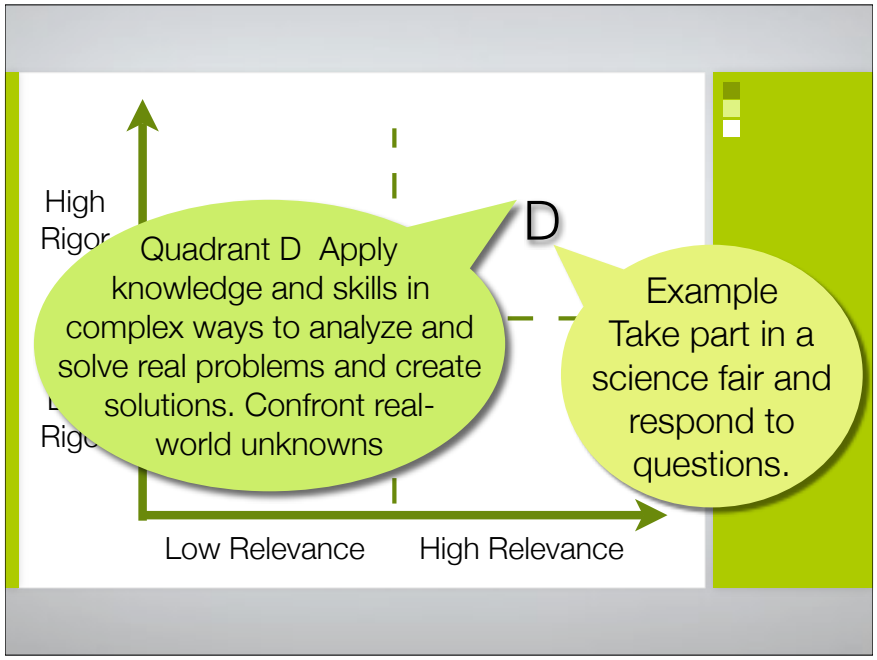
High Relevance

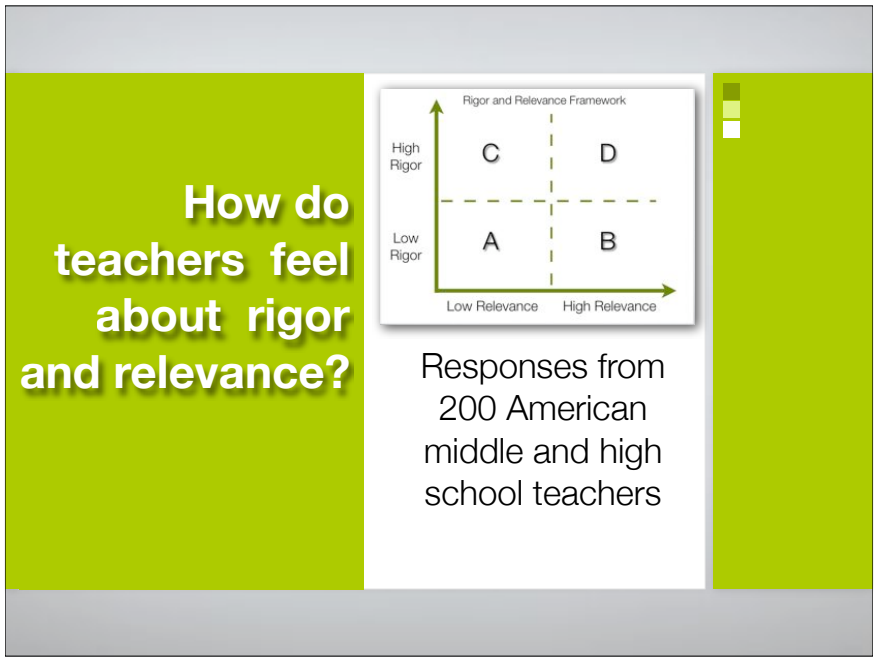

High Rigor
Low Rigor
Quadrant A
Gather and store bits of knowledge and information. Primarily expected to remember or understand this knowledge
A
Example
Pick the right definition.
Low Relevance
High Relevance


High Rigor
Low Rigor
Quadrant B
Apply knowledge in real-life situations.
Example
Compare car lease to loan
B
Low Relevance
High Relevance


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


Quadrant D Apply knowledge and skills in complex ways to analyze and solve real problems and create solutions. Confront real-world unknowns
D
Example Take part in a science fair and respond to questions.
High Rigor
Low Relevance
High Relevance

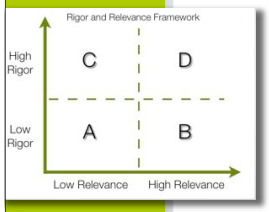

High Rigor
Low Rigor
It's not just about Quadrant D ...
it's about using
a variety of approaches
Low Relevance
High Relevance

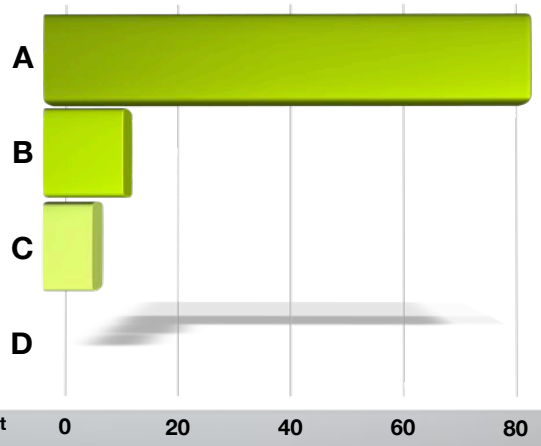

How do teachers feel about rigor and relevance?
Rigor and Relevance Framework
High Rigor
Low Rigor
C
D
A
B
Low Relevance
High Relevance
Responses from 200 American middle and high school teachers

Look for answers to these questions in the data

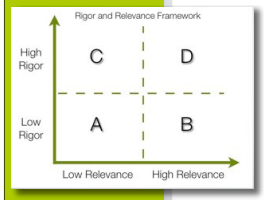
- Where are the opportunities?
- What holds teachers back?

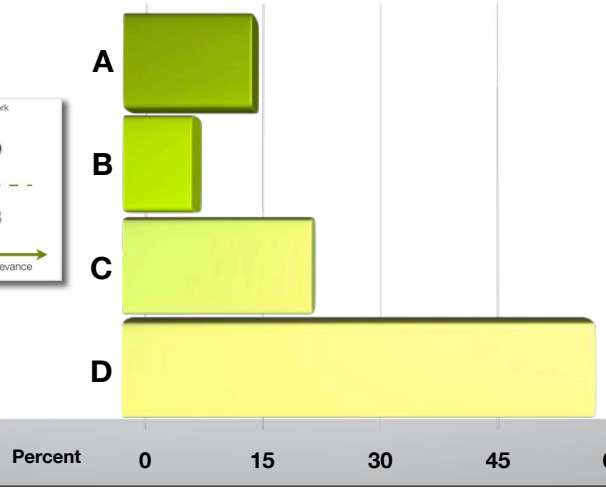
The teachers said ... most lessons are taught



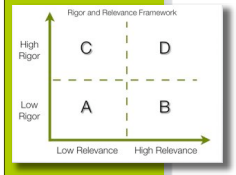


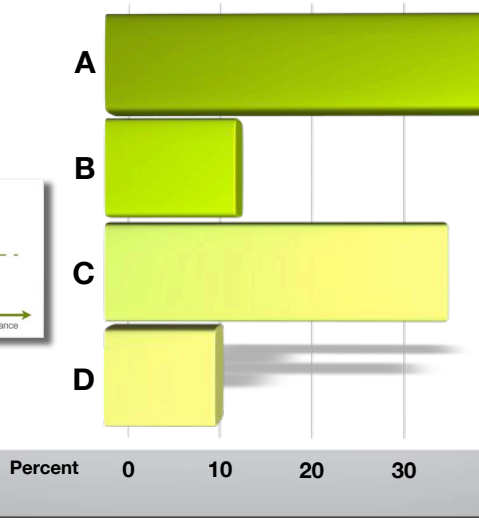
The teachers said .. hardest to prepare



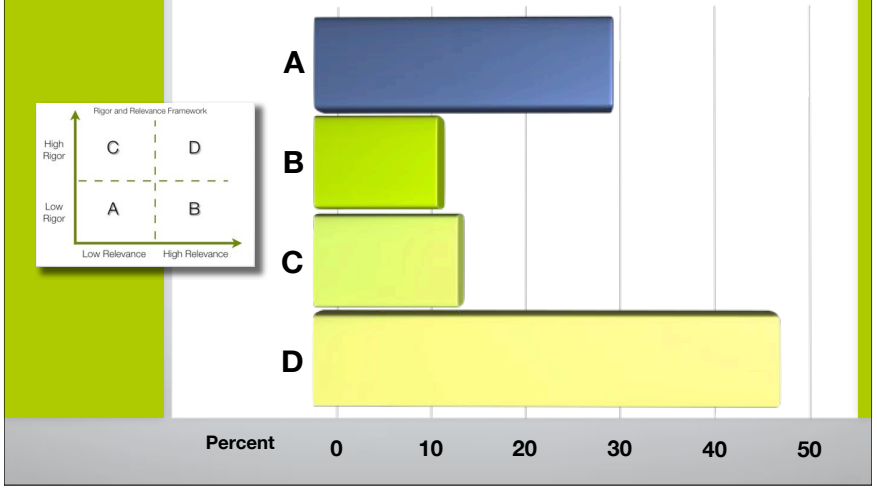


The teachers said ... hardest to teach

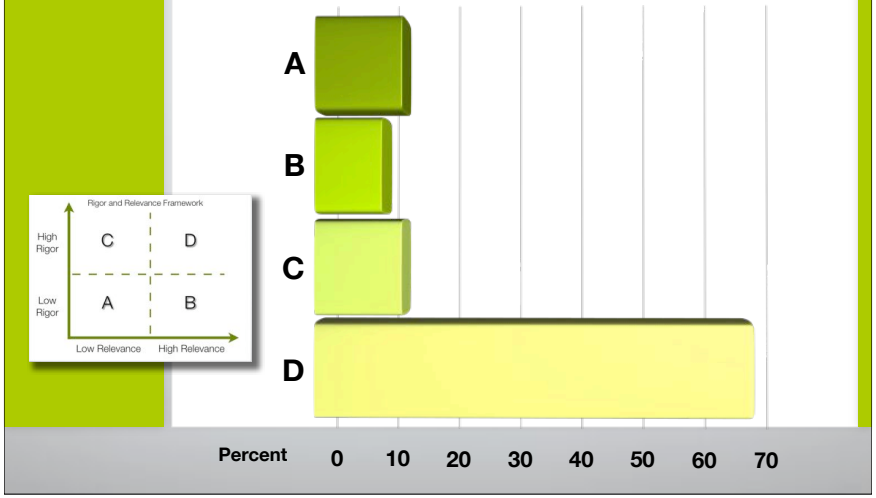




The teachers said ... hardest to manage the classroom



The teachers said ... hardest to evaluate



If instruction is student centered...

Shouldn't students be involved in evaluating their own progress?

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.

Rigor, relevance, reflection - when using three strategies

- **Defining**: negotiating meaning
- **Summarizing**: synthesis and judgment
- **Comparing**: assessing similarities and differences

for more: www.edteck.com/read

Robert Marzano:
What Works in Schools

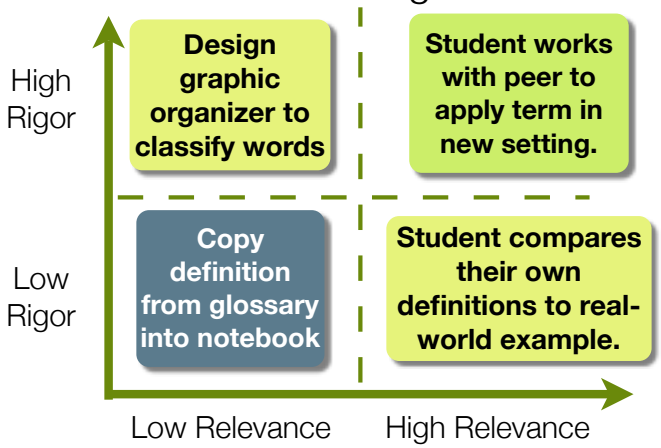
"35 years of research concretely identifies the factors that are the primary determinants of student achievement."

Robert J. Marzano, *What Works in Schools: Translating Research into Action*, 2003

Defining

negotiating meaning.

Defining



Key look fors when 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

Personal Vocabulary Notebook

Prior knowledge plus processing

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

Students use prior knowledge to generate a preliminary definition. Then use their definition to explore the dictionary definition.

Reading for Academic Success ~ Strong and Silver

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**

Level	Rubric
4	**I understand even more about the term than what I was taught. I know multiple meanings.**
3	**I understand the term and I'm not confused about any part of what it means.**
2	**I'm a little uncertain about what the term means, but I have a general idea.**
1	**I really don't understand what the term means.**

Building Academic Vocabulary Bob Marzano

Personal Vocabulary Notebook

Prior knowledge and processing

My understanding of this term is at rubric level **4 | 3 | 2 | 1**
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				

Building Academic Vocabulary - Bob Marzano

word of the day

Use a common academic vocabulary list

Find vocabulary lists by discipline and level at:
Building Academic Vocabulary
Bob Marzano

Sun	Mon	Tue	Wed	Thu	
					1
3	4 endure *verb*	5 endurance *noun*	6 durable *adj*	7 duration *noun*	8
10	11 Columbus Day	12 pendant *noun*	13 pendulum *noun*	14 pending *adj*	15
17	18 nature *noun*	19 natal *adj*	20 native *adj*	21 nativity *noun*	22
24	25 magnificent *adj*	26 magnify *verb*	27 magnanimous *adj*	28 magnitude *noun*	29
31					

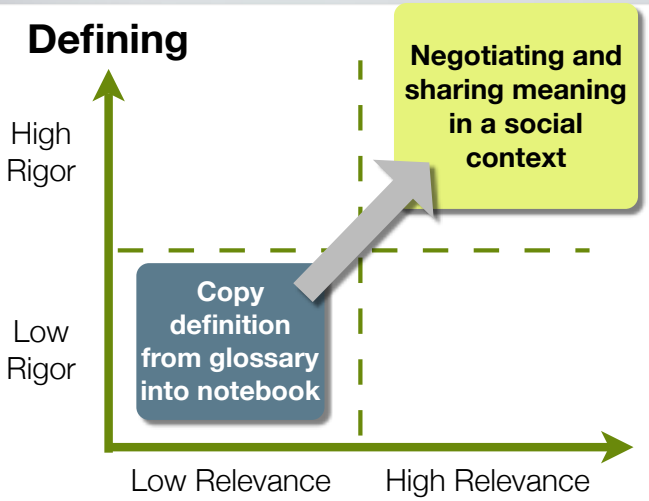
Check for understanding - 4th graders midpoint in unit on electricity

If you were discussing electricity, what **words would you use**?
What **words might you find in a book** about electricity?

In 15 minutes teacher got insight into what students knew, recognized (with some uncertainty) or never made it on either list.
"They know more than I thought about electricity!"

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?

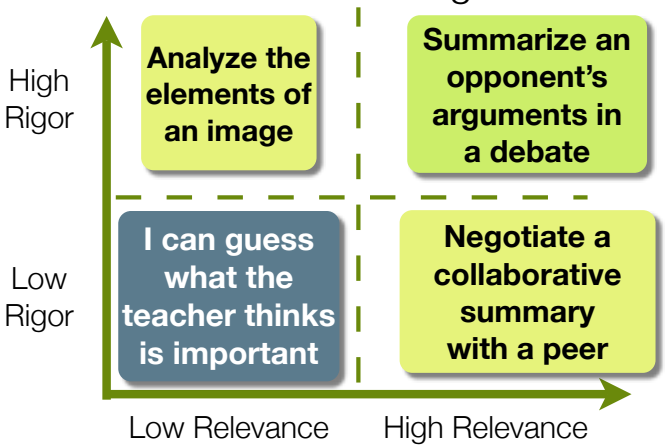


Summarizing

Evaluating what's important.

Sharing what you've learned.

Summarizing



Summarizing builds content knowledge

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

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

Classroom Instruction that Works, ASCD, 2001

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?

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.

What do you see?
What's important?

foot |foŏt|, 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

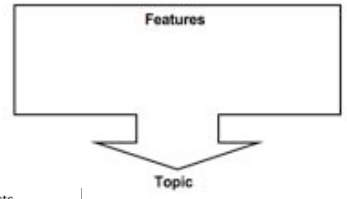
- Allow students to make their own judgements about what's important (instead of just repeating the details the teacher highlights)
- Students need to be able to share what they've learned with an audience other than the teacher.

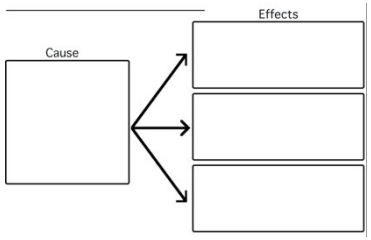
Explaining what you've learned is telling a story using a narrative structure.

- Student may need **explicit training** about **narrative structures**.
- Recognizing **how information is organized** helps to **analyze original** work and **summarize it** for their **audience.**

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

Description: listing characteristics, features, and examples



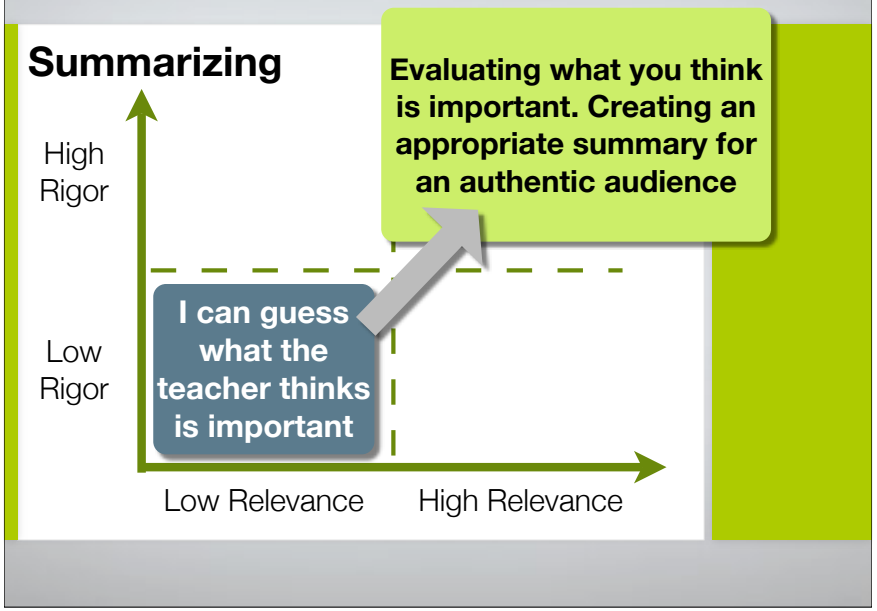


Cause / Effect: one or more causes and the resulting effect or effects

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?

Summarizing



Comparing
Classifying

Evaluating similarities and differences.

Sharing what you learned.

Comparing builds content knowledge

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

Group 1: Teacher lectures on the essential characteristics of mammals

45% gain in content mastery

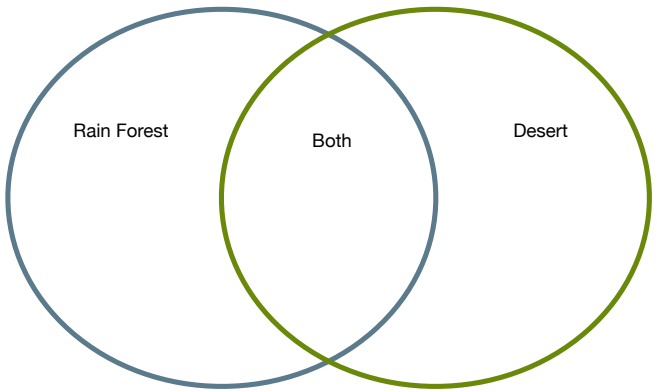
Group 2: Teacher lectures, then students compare the essential characteristics of mammals to birds

Classroom Instruction that Works, ASCD, 2001

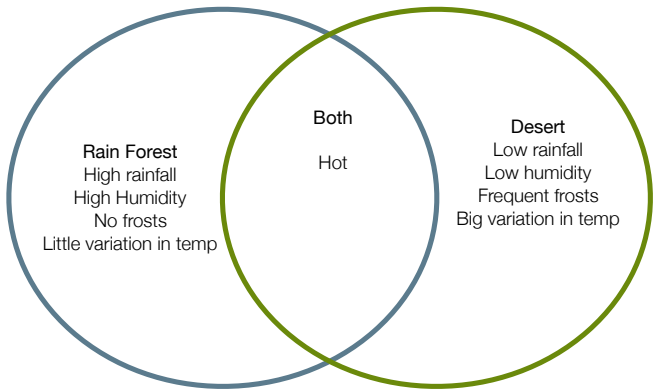
"Compare the animals and climate of the rain forest and desert."

Rain Forest	Desert
Ave rainfall 450 centimeters /year High Humidity No frosts Little variation in temp-average 26°C Ave low 17°C Spider Monkey Pit Viper Three-toed Sloth Jaguar Giant River Otter Bats Iguana Ants	Ave rainfall 15 centimeters /year Low humidity Frequent frosts Big variation in temp Low 13°C High 48°C Bats Iguana Ants Tarantula Coyote Desert Tortoise Rattlesnake

Climate



Climate



Do you give students chances to develop their 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 do you learn from it?

Students can do comparisons in every class.

What's more important in a sport … strength or agility?

Key look fors when 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.

Comparing and Classifying: a chance for reflective writing

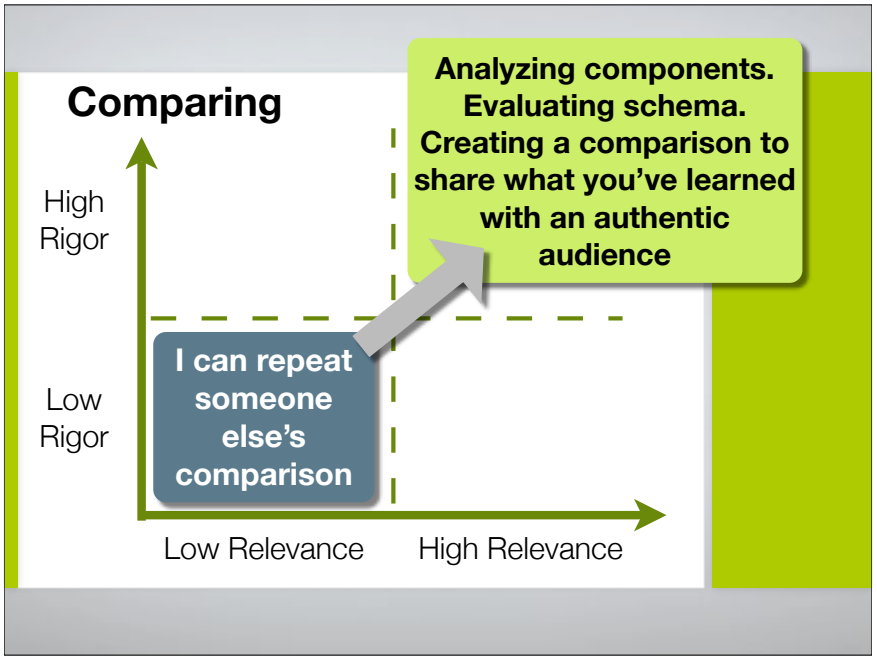
- What did I compare?
- How did I structure the comparison?
- How was the comparison useful to me?
- What did I learn from it?
- How did others design their comparisons?

6th graders write ABC book

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

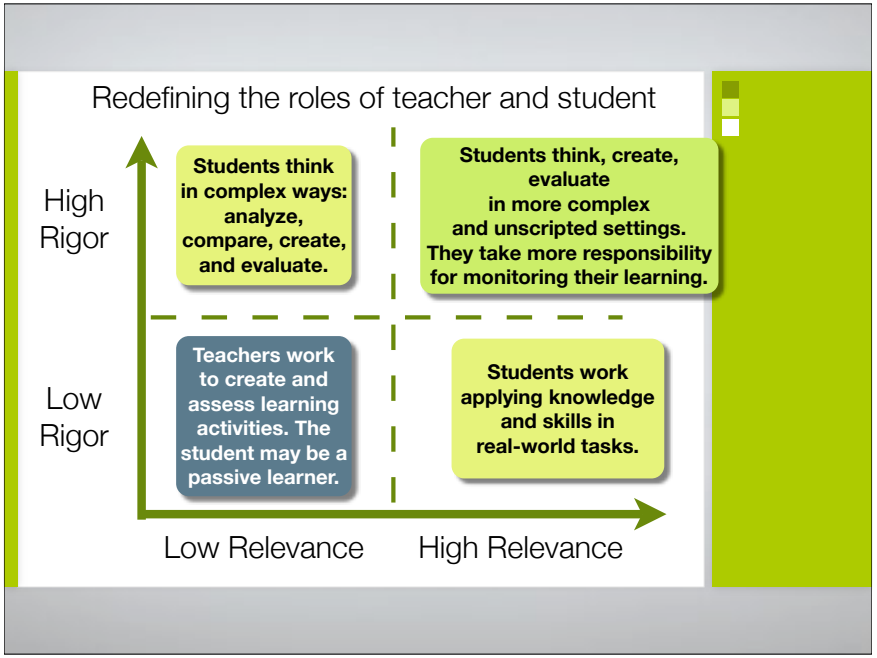
What process did you use to complete the project?

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**



When do we stop modeling for students

and let them take responsibility for their learning?



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

Traditional Writing is *Assigned*	Writing Assigned with *Choice*
Students are asked to write only on the **teacher's topics**.	**Students** can **develop topics** that matter to them.
Student **writes for the teacher**.	**Audience and purpose** for writing is identified.
Teacher grades their writing.	**Students** are asked to **reflect on their growth**.

Information is everywhere. It's not "what" you know, it's what you can do with it.

Tough Choices or Thought Times

Report on Employability in 21st Century

"**Creativity, innovation, and flexibility** will not be the special province of an elite.

It will be **demanded of virtually everyone** who is making a decent living."

Our students will also need marketable "soft skills"

- Problem-solving
- Collaboration
- Communicating
- Networking

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 ….

Two Essential Leadership Questions

1. Have we created a shared vision of teaching and learning?

2. How do we organize to achieve the vision?