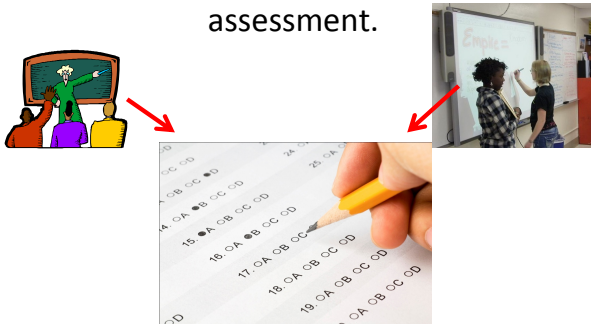




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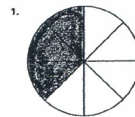
Action Research: How Does an Interactive White Board Affect Student Achievement and Engagement?

Measure achievement with a common assessment.



Write the correct answer.

For 1–2, write a fraction for the shaded part. Then write a fraction for the unshaded part.



For 3–4, use the figure below.



For 5–7, write an equivalent fraction for each.

5. $\frac{4}{5}$

6. $\frac{7}{9}$

7. $\frac{8}{12}$

For 8–10, write each fraction in simplest form.

8. $\frac{7}{21}$

Why are bees important to flowers?

Name 3 things that plants need to grow.

Why did some of the plants not live?

Put these 4 words in the correct order for a plant life cycle.

Common Assessment Tool: Invertebrate Quiz (below)

Multiple Choice

Identify the letter of the choice that best completes the statement or answers the question.

- ___ 1. Living in groups
 a. attracts predators. c. helps animals find food.
 b. helps prey spot predators. d. All of the above
- ___ 2. Warning coloration is
 a. a kind of camouflage.
 b. a way to warn predators away.
 c. always black and white.
 d. always a sign that an animal is poisonous to eat.
- ___ 3. Reading is an example of
 a. an innate behavior. c. a learned behavior.
 b. a behavior controlled by genes. d. an inherited behavior.
- ___ 4. All ___ lack a skull and a backbone.
 a. vertebrates c. multicellular organisms
 b. eukaryotes d. invertebrates
- ___ 5. The use of ___ is an example of chemical communication.
 a. camouflage c. hibernation
 b. pheromones d. estivation
- ___ 6. Any animal with a skull and a backbone is classified as
 a. a vertebrate. c. a mammal.
 b. a consumer. d. multicellular.
7. A natural sponge is a(n)

Scores on a common assessment were 7% higher when an IWB was used to prepare for it.

Overall	90+	80-89	70-79	60-69	0-59	Assessment Mean
SMARTboard	45%	19%	12%	9%	15%	81%
Past Practice	30%	20%	17%	13%	20%	74%

There were 15% more A's when an IWB was used to prepare for it.

Overall	90+	80-89	70-79	60-69	0-59	Assessment Mean
SMARTboard	45%	19%	12%	9%	15%	81%
Past Practice	30%	20%	17%	13%	20%	74%

There were 16% more A's when the IWB was used to prepare for the assessment.

Elementary	90+	80-89	70-79	60-69	0-59	Assessment Mean
SMARTboard	47%	19%	13%	8%	14%	80%
Past Practice	31%	19%	17%	13%	19%	75%

In track 1, there were almost twice as many A's on the assessment when the IWB was used to prepare for it.

	90+	80-89	70-79	60-69	0-59	Assessment Mean
Middle Track 1						
SMARTboard	60%	40%	0%	0%	0%	94%
Past Practice	33%	56%	7%	2%	2%	87%
Middle Track 2						
SMARTboard	0%	9%	17%	33%	41%	77%
Past Practice	2%	5%	14%	26%	53%	68%

Measure engagement with a simple survey.

Rate how well you were able to pay attention in class today by circling one of the numbers.

1
2
3
4
Hard to pay attention
Easy to pay attention

23% more students rated the lesson a 4 when an IWB was used.

	1	2	3	4
Total IWB	2%	5%	33%	60%
Total Traditional	9%	18%	35%	37%

25% more elementary students rated the lesson a 4 when an IWB was used.

Elementary	1	2	3	4
IWB	1%	6%	29%	64%
Traditional	10%	18%	32%	39%

42% more middle level students rated the lesson a 4 when an IWB was used.

Middle	1	2	3	4
IWB	3%	6%	34%	57%
Traditional	14%	29%	42%	15%

We did not see a significant difference in engagement at the high school level.

High School	1	2	3	4
IWB	1%	4%	40%	55%
Traditional	2%	4%	33%	62%

6 classes did better, 7 did the same, and 6 did worse than the average in their school.

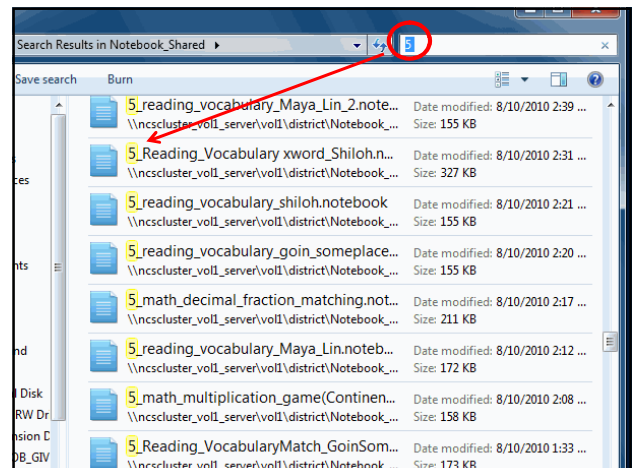
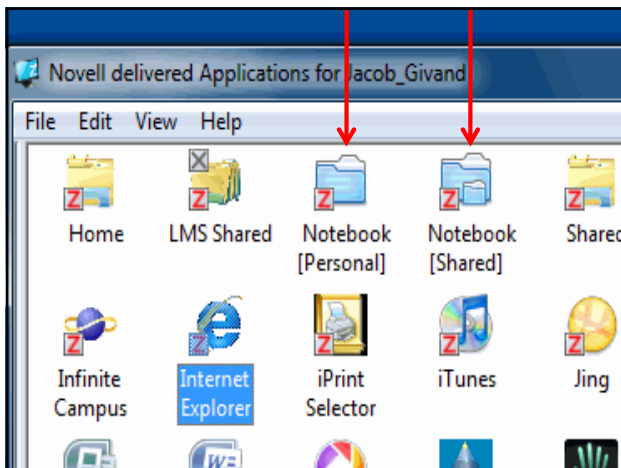


10 classes did better, 5 did the same, and 4 did worse than the average in their school.

The real difference came among my English Language Learners. Several students seemed to grasp the concept of subatomic particles far better than I ever remember. Perhaps it was because they could see words attached to concepts in a concrete way that they could see manipulated - and manipulate themselves until they got the idea.

Though I didn't use the SMARTboard as an interactive tool today, students still came up to the board and asked to use it. They create interactions on their own.

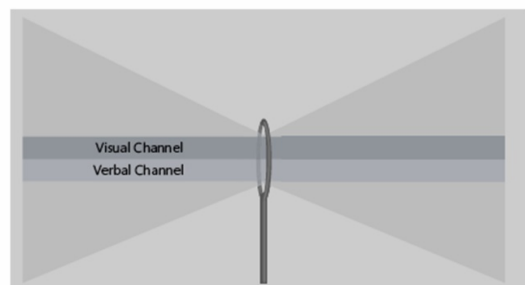
How do we help teachers use the interactive white board effectively?



Self-Assessment

Basic	Intermediate	Proficient
Use the board as you would a whiteboard	Lessons include some multimedia learning (video, audio, etc)	Lessons are interactive with regular use of multimedia
Use the board as you would any projector screen (i.e. project your Power Point)	Adapt existing curriculum to flipcharts	Create original curriculum and adapt other's files, Notebook pages are designed using best practices (non-linguistic)
Students passively view the activities of the teacher	Students sometimes use the board	Students use the board regularly during class

Take advantage of visual and verbal channels as you teach.



If they're reading,
they're not listening

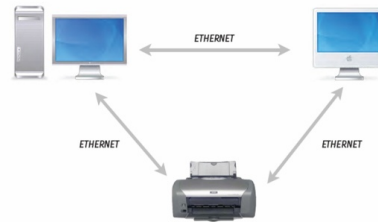
If they're copying,
they're not doing either



Consider the effect of
images and animation on
your pages/slides.

How it works

- The original ethernet has been described as communication over a single cable shared by all other devices on the network.
- Once a device is attached to this cable, it has the ability to communicate with any other attached device.



A Yes! Connect your computers and printer together with **ETHERNET!**

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