The Learning Research Quiz Show

Bridging Gap between Research and Practice
Slides available at: www.is.gd/willstuff

Research
Simplicity is the Ultimate Sophistication

Leonardo da Vinci

The Decisive Dozen

for Learning Design and Learning Measurement

1. Content
2. Exposure
3. Guiding Attention
4. Creating Correct Conceptions
5. Repetition
6. Feedback
7. Variation
8. Retrieval Practice
9. Context Alignment
10. Spacing
11. Persuasion
12. Perseverance

http://is.gd/DecisiveDozen
http://is.gd/ddResearch
Training Maximizers

A. Valid Credible Content
B. Engaging Learning Events
C. Support for Basic Understanding
D. Support for Decision-Making Competence
E. Support for Long Term Remembering
F. Support for Application of Learning
G. Support for Perseverance in Learning

http://Work-Learning.com/catalog
Quite simply, the BEST book on smile sheet creation and utilization, Period!

Karl M. Kapp
Professor of Instructional Technology
Bloomsburg University

Thoughtful and sensible advice for feedback tools that will provide valid and actionable data.

Robert O. Brinkerhoff
Professor Emeritus, Western Michigan University & Director, Brinkerhoff Evaluation Institute

Evidence-based practice at the master level.

Julie Dirksen
Author of Design For How People Learn

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**Question 1**

How much are smile-sheet results correlated with learning outcomes?

A. High marks on smile sheets indicate that the training was likely VERY SUCCESSFUL in creating learning.

B. High marks indicate that the training was likely to be AT LEAST SOMEWHAT SUCCESSFUL in creating learning.

C. High marks on smile sheets tell us VIRTUALLY NOTHING about the success of our training programs in creating learning.
When designing learning, should we base our learning methods on the preferences of our learners?

A. Learners are fairly good judges of their own learning, so we should trust their learning-design intuitions.

B. Learners are not always good judges of their own learning, so we should utilize other design imperatives.

C. Another answer would be obviously better.
We’d like to trust our learners…

But the research shows that they don’t always know their own learning…

Learners are Overly Optimistic
Zechmeister & Shaughnessy (1980).

Learners Fail to Properly Use Examples
Renkl (1997).

Learners can’t always Overcome Faulty Prior Knowledge
Kendeou & van den Broek (2005).

Learners Fail to Give Themselves Retrieval Practice
Karpicke, Butler, & Roediger (2009).

Two Recent Reviews Emphasize Learners’ Lack of Knowledge of Learning
Question 3
You’ve got a 45 minute elearning program just about developed. Then, your client says they want a 60 minute program instead. What’s more potent, EXTRA REVIEW or EXTRA QUESTIONS?

A. Extra Review will better support remembering.
B. Extra Questions (without feedback) will better support remembering.
C. Extra Questions (with feedback) will better support remembering.

Question 4
When should we give learners feedback on quiz questions?

A. Immediately after each question.
B. Immediately after the end of the quiz.
C. After a delay of an hour or more.
D. After a delay of several days or more.

Question 5
If an organization switches from classroom training to elearning, can they expect cost savings in general?

A. Yes. eLearning is generally LESS COSTLY to develop and deploy.
B. No. eLearning is generally MORE COSTLY to develop and deploy.
C. No. eLearning generally COSTS ABOUT THE SAME as classroom training.
While the common wisdom argues that e-learning is less costly:

“Survey data suggest that training costs across organizations remain relatively constant as training shifts from face-to-face to technology-based methods.” (p. 87)

http://is.gd/TrainingResearch2012

Question 6
To brainstorm new ideas, what’s the best way to support creativity?

- Having groups of people brainstorm TOGETHER
- Having groups of people brainstorm AS INDIVIDUALS


Question 7
Is it a best practice that we present learners with learning objectives?

A. YES, by presenting learners with well-designed learning objectives, we give them an ADVANCE ORGANIZER.

B. YES, by presenting learners with well-designed learning objectives, we GUIDE LEARNER ATTENTION to the most critical information.

C. NO, learning objectives are JUST ONE TOOL in the instructional-design toolbox that can accomplish the same exact thing.

Question 8
Compared to NOT giving learning objectives to learners, what is the likely result of presenting objectives targeting half of the content?

A. The content targeted by the learning objectives will be better remembered.

B. The content targeted will be better remembered, but the content not targeted will be less remembered.

C. Both the targeted and non-targeted content will be better remembered.

**Question 9**

Is it okay to present learners with learning objectives that utilize the word “UNDERSTAND?”

A. No, “UNDERSTAND” is not measurable, so it shouldn’t be used.

B. No, “UNDERSTAND” is too general, so it shouldn’t be used.

C. Yes, “UNDERSTAND” is fine to use as long as other words in the objective are clear and specific.
You will UNDERSTAND that WHEAT was once HARVESTED by HITTING it with a FLAIL.


You will UNDERSTAND that WHEAT was once HARVESTED by HITTING it with a FLAIL.


Mager’s Criteria for Instructional Objectives:

1. The performance the learners should be able to do.

2. The conditions under which they should be able to achieve that performance.

3. The criteria for acceptable performance.

“An objective that generally identifies the information to be learned ... will produce robust effects. Including other information (per Mager’s, 1962, definition) will not significantly help and it may hinder the effects of the objectives.”

Who are our objectives for?

Learning Professionals

Learners

Video on Learning Objectives:
www.is.gd/LOBJ_VIDEO

Question 10
In designing learning, we should take learner characteristics into account?

A. YES, We should provide different learning interactions based on learners’ different LEARNING STYLES.

B. YES, We should provide MULTIPLE TYPES of learning interactions to support all learners.

C. YES, We should provide different learning interactions based on learners differing prior knowledge.

D. We should do ALL OF THE ABOVE.
Science has proven, the learning-styles approach is not effective!

“*We conclude therefore, that at present, there is no adequate evidence base to justify incorporating learning-styles assessments into general educational practice. Thus, limited education resources would better be devoted to adopting other educational practices that have a strong evidence base, of which there are an increasing number.*”

Science has proven, the learning-styles approach is not effective!

**Are learning-styles predictions validated by research?**

“No. Several reviews that span decades have evaluated the literature on learning styles (e.g., Arter & Jenkins, 1979; Kumpwirth & Bates, 1980; Kavale & Forness, 1987; Kavale, Hirshoren, & Forness, 1998; Pashler et al., 2009; Snider, 1992; Stahl, 1999; Tarver & Dawson, 1978), and each has drawn the conclusion that there is no viable evidence to support the theory.”


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**Question 11**
Which of the following statements is true?

A. People remember 10% of what they READ.
B. People remember 20% of what they HEAR.
C. People remember 30% of what they SEE.
D. People remember 50% of what they SEE and HEAR.
E. All of the above.
F. None of the above.

*This is bogus data!!*
Involving all senses increases learning effectiveness

*We remember by...*

<table>
<thead>
<tr>
<th>Activity</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reading, discussing and doing</td>
<td>90%</td>
</tr>
<tr>
<td>Reading and discussing</td>
<td>70%</td>
</tr>
<tr>
<td>Seeing</td>
<td>30%</td>
</tr>
<tr>
<td>Hearing</td>
<td>20%</td>
</tr>
<tr>
<td>Reading</td>
<td>10%</td>
</tr>
</tbody>
</table>

Source: Forrester Research
Edgar Dale’s Cone of Experience

People generally remember... (learning activities)

- Read
- View Images
- Attend Exhibits/Sites
- Watch a Demonstration
- Participate in Hands-On-Workshops
- Design Collaborative Lessons
- Simulate, Model, or Experience a Lesson
- Design/Perform a Presentation - "Do the Real Thing"

- 10% of what they read
- 20% of what they hear
- 30% of what they see
- 50% of what they see and hear
- 70% of what they say and write
- 90% of what they do.

People are able to... (learning outcomes)

- Define
- List
- Describe
- Explain

- Demonstrate
- Apply
- Practice

- Analyze
- Define
- Create
- Evaluate

- 10% of what they read
- 20% of what they hear
- 30% of what they see
- 50% of what they see and hear
- 70% of what they say and write
- 90% of what they do.
Will's Note: 
To save paper, I’m omitting the other dozen examples of this learning myth.
Question 4 -- Revisited
When should we give learners feedback on quiz questions?

A. Immediately after each question.
B. Immediately after the end of the quiz.
C. After a delay of an hour or more.
D. After a delay of several days or more.


<table>
<thead>
<tr>
<th>Early in Learning or Complex Material</th>
<th>Later in Learning or Simple Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Immediate Feedback Creates Understanding</td>
<td>• Delayed Feedback Supports Remembering</td>
</tr>
<tr>
<td>• More Feedback Needed</td>
<td>• Less Feedback Needed</td>
</tr>
<tr>
<td>• More Elaborate Feedback</td>
<td>• Less Elaborate Feedback</td>
</tr>
<tr>
<td>• More Emotional Support</td>
<td>• No/Less Emotional Support</td>
</tr>
<tr>
<td>• More Important to Give Feedback on Correct Answers</td>
<td>• Less Important to Give Feedback on Correct Answers</td>
</tr>
</tbody>
</table>

www.work-learning.com/catalog.html
Question 12
Which of the following statements is true?

A. People forget about 90% of what they learn one week after learning it.
B. People forget at a rate first discovered by Hermann Ebbinghaus.
C. People forget about half of what they learn within 24 hours.
D. All of the above.
E. None of the above.

The Truth:
Forgetting depends on many things!

www.work-learning.com/catalog.html
I’ve learned that people will forget what you said, people will forget what you did, but people will never forget how you made them feel.

Carl W. Buehner

You know what's right, just do right. You don't really have to ask anybody. The truth is — right may not be expedient, it may not be profitable, but it will satisfy your soul...

Maya Angelou
Rhetorical Question
What did Robert Frost mean when he wrote, “Good fences make good neighbors”?

A. Good fences make good neighbors.
B. Good fences make bad neighbors.
C. Good neighbors make good fences.
D. Some other answer?
E. He meant for us to think more deeply before jumping to conclusions.

Question 13
Today, which type of research offers the most critical information for learning design?

A. Research surveys of learner preferences.
B. Research examining learning methods and their outcomes.
C. Research on brain-based learning and neuroscience.
D. Training needs analysis, especially cognitive task analysis.
Someday, neuroscience may have a ton to teach us about learning.
"I don't think brain science has anything to say for business practice."

"We still don't really know how the brain works."

"The state of our knowledge [of the brain] is childlike."

"The human brain was not built to learn. It was built to survive."

John Medina
Neuroscientist
June 2015

November 2012:

“Neuroscience Applied to Education: Mostly Unimpressive”

January 2014:

“I’ve often written that it’s hard to bring neuroscientific data to bear on issues in education…. Hard, but not impossible.

Daniel Willingham
Research Psychologist
Daniel Busso & Courtney Pollock:

“There is little doubt that our knowledge of the developing brain is poised to make important contributions to the lives of parents, educators and policymakers…

Some have voiced concerns about the viability of educational neuroscience, suggesting that neuroscience can inform education only indirectly...

“Others insist that neuroscience is only one small component of a multi-pronged research strategy to address educational challenges, rather than a panacea…”


“As the first review of its type [looking at the intersection of neuroscience and elearning], it is perhaps unsurprising that we find few, if any, examples of replication…

“Caution is, therefore, required in relating such findings to real-world contexts involving other types of participant[s]…

“The relevance of cognitive neuroscience to education is increasingly undisputed, and it may be within the field of [elearning] that its early impact will be greatest.”

Question 14
Are we as learning professionals more susceptible to recommendations if they mention “neuroscience” or “brain science?”

A. Yes, there is scientific evidence that people are more likely to believe arguments if they use scientific terminology.

B. Yes, there is scientific evidence that people are more likely to believe arguments if they use the term “neuroscience.”

C. No, this is an urban legend.

“Powerful, often self-interested, commercial forces serve as mediators between research and practice, and this raises some pressing questions for future work in the field: what does responsible [research-to practice] translation look like?” (p. 12).


“Several highly cited studies have shown that superfluous neuroscience information may bias the judgement of non-experts….”

“However, the idea that neuroscience is uniquely persuasive has been met with little empirical support….

Nevertheless, excitement about neuroscience is concerning because it can be exploited by unscrupulous consumer–product manufacturers.” (p. 4)
Question 15
Repetition has powerful benefits for learning, if it isn't rote, boring, or irrelevant. What's the best way to support remembering with repetitions?

A. Repeat concepts fairly close in time so that learners can easily process the material.

B. Repeat concepts at fairly wide intervals to strengthen long-term memory.

C. Repeat concepts at a slight delay, getting the benefits of both short and long delays.

Research Example


### Question 16
At the end of your elearning program, what’s the best way to get learners to actually put what they’ve learned into practice in their work?

A. Have the learners make a written commitment to implement a few key goals.

B. Have the learners make a commitment to a few key goals, and have them commit to a time and place where they’ll work on the goals.

C. Have the learners make a commitment to a few key goals and inform their manager of those goals.
Goal Setting vs. Trigger Setting

♦ Setting a Goal = “I intend to Lose Weight”

♦ Setting a Trigger =

“I intend to Walk for 30 Minutes on Monday, Wednesday, and Friday as soon as I wake up.”

♦ IF Situation, THEN Action


Reviewed 94 separate experiments and found a medium-to-high magnitude \(d = .65\) for the benefits of implementation intentions. 92 of 94 experiments showed positive results!!

Attending a workshop, self-examination, buying organic, recycling, exercise, diet, solving law cases, taking vitamins.
Last Question
What’s your current practice in terms of the scientific research on learning?

A. I am a ravenous reader of research-related sources.
B. I try to keep abreast of the major research findings.
C. I don’t always pay close attention.
D. I learned what I need to know in my graduate program, in other schooling, or in my work.
E. I don’t believe research is very valuable.

Try to live your life in a way that you will not regret years of useless virtue and inertia and timidity. Take up the battle. Take it up. It's yours, this is your life. This is your world...

Maya Angelou

https://www.youtube.com/watch?v=bxrV2J_OjGo
The Learning Research Quiz Show

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