Slides available at: www.is.gd/will999stuff
## The Decisive Dozen

for Learning Design and Learning Measurement

<p>| | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>1.</td>
<td><em>Content</em></td>
<td>Baseline</td>
</tr>
<tr>
<td>2.</td>
<td><em>Exposure</em></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td><em>Guiding Attention</em></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td><em>Creating Correct Conceptions</em></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td><em>Repetition</em></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td><em>Feedback</em></td>
<td>Engagement &amp; Understanding</td>
</tr>
<tr>
<td>7.</td>
<td><em>Variation</em></td>
<td></td>
</tr>
<tr>
<td>8.</td>
<td><em>Retrieval Practice</em></td>
<td>Remembering</td>
</tr>
<tr>
<td>9.</td>
<td><em>Context Alignment</em></td>
<td></td>
</tr>
<tr>
<td>10.</td>
<td><em>Spacing</em></td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td><em>Persuasion</em></td>
<td>Application</td>
</tr>
<tr>
<td>12.</td>
<td><em>Perseverance</em></td>
<td></td>
</tr>
</tbody>
</table>

http://is.gd/ddResearch
**Learning Maximizers**

<table>
<thead>
<tr>
<th>Letter</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Valid Credible Content</td>
</tr>
<tr>
<td>B</td>
<td>Engaging Learning Events</td>
</tr>
<tr>
<td>C</td>
<td>Support for Basic Understanding</td>
</tr>
<tr>
<td>D</td>
<td>Support for Decision-Making Competence</td>
</tr>
<tr>
<td>E</td>
<td>Support for Long-Term Remembering</td>
</tr>
<tr>
<td>F</td>
<td>Support for Application of Learning</td>
</tr>
<tr>
<td>G</td>
<td>Support for Perseverance in Learning</td>
</tr>
</tbody>
</table>

https://is.gd/maximizers99

https://WorkLearning.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

Why do we teach?
How do we know what to do?

Follow the “Guidebook”

Learn from Training/Education

Ask Our Social Network

Do What Was Done to Us

Learn from the Internet
Question 1
You’ve got a 45 minute elearning program just about developed. Then, the powers that be say they want a 60 minute program instead. For the last 15 minutes, what’s will create more effective learning, 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.


Retrieval Practice – Research

Learning and Forgetting Curves

If our learners start here.

Have we maximized the learning benefits?

But end up here.

Question 2

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.

Glial Grandeur

From Researchers at the University of Edinburgh
http://is.gd/grandeur
Someday, neuroscience may have a ton to teach us about learning.

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

John Medina
Neuroscientist
2015-2018
• “For the time being, we do not really understand all that much about the brain.”

• “More importantly, it is difficult to generalize what we do know into a set of concrete precepts of behavior, never mind devise methods of influencing that behavior.”

“There are no examples of novel and useful suggestions for teaching based on neuroscience thus far.”

Found that the software used to do most neuroscience studies created 70% false positives, not 5% as it was supposed to.
Question 2
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.

Question 3
In designing learning, should we 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; Kampwirth & 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.”


Be careful of learning myths, mistakes, misconceptions.
“Our measures are not perfect, but they should instead be thought of as approximations.”

Deborah L. Bandalos,
Author of the 2018 book:
Measurement Theory and Applications for the Social Sciences

There is no perfect measurement tool!

How would you rate your learner-feedback questions?

1. Terrible
2. Bad
3. Okay
4. Good

Given, that there is NO perfect measurement...
Other names for smile sheets?

- warm/cold evaluation
- reaction sheets
- happy sheets
- evaluation forms
- response forms
- feedback forms
- level 1’s

Reasons for Smile Sheets

**Effectiveness of the Learning**

1. Red-flagging training programs that are not sufficiently effective.
2. Gathering ideas for ongoing updates and revision of a learning program.
3. Judging strengths and weaknesses of a pilot program to enable revision.
4. Providing instructors with feedback to aid their development.

**Supporting Learners**

5. Helping learners reflect on and reinforce what they learned.
6. Helping learners plan to do with their learning.

**Reputation of the Learning**

7. Capturing learner satisfaction data to understand—and make decisions to improve—reputation of the training and/or the instructors.
8. Upholding the spirit of common courtesy by giving learners a chance for feedback.
9. Enabling learners to vent frustrations—to limit damage from negative back-channel communications.

Modified based on work by Robert Brinkerhoff


1990’s

2000’s

Weak Relationship is below .30 and .09 is VERY WEAK

So...SMILE SHEETS tell us VERY LITTLE about Learning

A. Strongly Agree  
B. Agree  
C. Neither Agree Nor Disagree  
D. Disagree  
E. Strongly Disagree

Sharon Shrock and Bill Coscarelli, authors of the classic text, now in its third edition, Criterion-Referenced Test Development, offer the following wisdom:

"...the resulting scale is deficient in that the [response words] are open to many interpretations." (p. 188)

Likert-like Scales provide Poor Data

Compared to:
- Previous
- Standard
- Others
We’d like to trust our learners...

Research shows that learners don’t always know their own learning...

**Learners are Overly Optimistic**
Zechmeister & Shaughnessy (1980).

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

**Learners Fail to Properly Use Examples**
Renkl (1997).

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

**Two Recent Reviews Emphasize Learners’ Lack of Knowledge of Learning**
Questions?

My Journey in Trying to Create a Better Smile Sheet
### Specific Concepts

<table>
<thead>
<tr>
<th>Learning Concept</th>
<th>Circle One # Below</th>
<th>Circle ONE Below</th>
<th>Circle ONE Below</th>
<th>How well was concept taught?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>How valuable is the concept to you?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Value of this Concept (Circle NUMBER)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Low 1 2 3 4 5 6 High</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>How new was concept to you?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1. Concept was new to me.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Deepened earlier understanding.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Provided nice reminder.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. I already used concept regularly.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Most people already know this.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

A. Two common practices in measurement bias our results. Measuring learning at end of program may bias the results. Similarly, measuring learning in the learning context.

B. Measuring retrieval is essential (even if we measure on-the-job performance and results) because retrieval is required for on-the-job application. It is on the causal pathway from learning to performance and results.
## Helping Learners Calibrate

<table>
<thead>
<tr>
<th>Overall Ratings</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rate the overall value of the learning experience. Circle ONE number (Please Don’t Circle the Words).</td>
<td>Very Little Value</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>Average</td>
<td>4</td>
</tr>
<tr>
<td>Rate your physical comfort during the learning experience. (Consider breaks, food, temperature, furniture, lighting, etc.). Circle ONE number.</td>
<td>Very Uncomfortable</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>Average</td>
<td>4</td>
</tr>
<tr>
<td>Likelihood that you will utilize what you learned in the next two weeks. Circle ONE of the percentages.</td>
<td>0%</td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>40%</td>
<td>50%</td>
</tr>
<tr>
<td>Likelihood that you will share what you’ve learned with a coworker or friend in the next two weeks.</td>
<td>0%</td>
<td>10%</td>
<td>20%</td>
<td>30%</td>
<td>40%</td>
<td>50%</td>
</tr>
</tbody>
</table>

## Best Feedback Comes from Comments

**Overall Comments – Please write your feedback here. Very valuable to us!!**

Thanks for your participation, your feedback, and your ideas! Keep in touch (www.willatworklearning.com)
Performance-Focused Smile Sheets
<table>
<thead>
<tr>
<th>Ultimate Goal</th>
<th>Primary Goals</th>
<th>Secondary Goals</th>
<th>Tertiary Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAXIMALLY EFFECTIVE SMILE SHEET</strong></td>
<td>LEARNING EFFECTIVE? Will the learning be effective in supporting on-the-job performance?</td>
<td>RESULTS ACTIONABLE? Will the Smile-Sheet results communicate with clarity and urgency to guide action?</td>
<td></td>
</tr>
</tbody>
</table>

**Ensuring that we are focused on the science-or-learning factors that matter!**

### Three Key Goals:

1. **Are the Questions Well-Designed?**
2. **Are Learners Making Good Smile Sheet Decisions?**
3. **Are The Data we’re Getting Clear and Actionable?**

### QUATERNARY GOALS

**Traditional Smile Sheets**
- Learners rate instructors as credible and engaging?
- Learners say that classroom environment was conducive to learning?
- Learners satisfied with experience?
- Learners think course was well-organized?

### A Better Smile Sheet Question

**HOW ABLE ARE YOU to put what you’ve learned into practice on the job? Choose One.**

A. I am NOT AT ALL ready to use the skills taught.

B. I have GENERAL AWARENESS but will NEED MORE GUIDANCE to put the skills into practice.

C. I need MORE HANDS-ON EXPERIENCE to be GOOD at using these skills.

D. I am FULLY COMPETENT in using these skills.

E. I am CAPABLE at an EXPERT LEVEL in using these skills.
HOW ABLE ARE YOU to put what you’ve learned into practice on the job? Choose One.

- NOT AT ALL READY
- HAVE AWARENESS, NEED MORE GUIDANCE
- NEED MORE HANDS ON EXPERIENCE
- FULLY COMPETENT
- COMPETENT AT EXPERT LEVEL

A Question About Motivation...

In regard to the concepts taught in the course, how motivated WILL YOU BE to UTILIZE these skills in your work?

A. I will NOT MAKE THIS A PRIORITY when I get back to my day-to-day job.

B. I will make this a PRIORITY—BUT A LOW PRIORITY when I get back to my day-to-day job.

C. I will make this a MODERATE PRIORITY when I get back to my day-to-day job.

D. I will make this a HIGH PRIORITY when I get back to my day-to-day job.

E. I will make this ONE OF MY HIGHEST PRIORITIES when I get back to my day-to-day job.
A Question About Follow-Through…

After the course, when you begin to apply your new knowledge at your worksite, which of the following supports are likely to be in place for you? 
Select as many items as are likely to be true.

A. I will have my PROGRESS MONITORED BY MY SUPERVISOR in applying the learning.
B. I will have someone available TO COACH OR MENTOR ME in applying the learning.
C. I will have easy access to a COURSE INSTRUCTOR to contact for guidance and support.
D. I will have JOB AIDS to guide me in applying the learning to real job tasks.
E. I will be PERIODICALLY REMINDED of key learning concepts/skills over the next few months.
F. I will NOT get much direct support, but will rely on my own initiative.

But won’t learners dislike these new type of questions?

Percentage saying NEW QUESTIONS BETTER: 80%
Percentage saying NEW QUESTIONS EQUAL OR BETTER: 90%
Smile Sheets should be ONLY ONE PART of our learning evaluation efforts

- **Smile Sheets**
  - Understanding
  - Remembering
  - Motivation to Apply
  - After Supports

- **Learners able to:**
  - Understand?
  - Remember?
  - Make Decisions?
  - Apply the Learning?

- **Supports:**
  - Management Support?
  - Workplace Obstacles?
  - Reinforcement?
  - Reminders?

- **Meeting Target Goals?**
  - Job Performance
  - Organizational Results
  - Learner Expectations
  - Other Expectations

Performance-Focused Smile Sheets:

What Questions Do You Have?
I am clear about what is expected of me as a result of going through this training.

A. Strongly Disagree  
B. Disagree  
C. Neutral  
D. Agree  
E. Strongly Agree

How READY are you TO WRITE SCENARIO-BASED QUESTIONS?

CIRCLE ONE OR MORE ANSWERS AND WRITE YOUR REASONING BELOW

A. I’m STILL NOT SURE WHERE TO BEGIN.  
B. I KNOW ENOUGH TO GET STARTED.  
C. I CAN TELL A GOOD QUESTION FROM A BAD ONE.  
D. I CAN WRITE MY OWN QUESTIONS, but I’d LIKE to get SOME FEEDBACK before using them.  
E. I CAN WRITE MY OWN QUESTIONS, and I’m CONFIDENT they will be reasonably WELL DESIGNED.

In your own words, how ready do you feel you are in being able to write scenario-based questions?
What messages does a traditional smile sheet send?

What messages does a performance-focused smile sheet send?

What Messages Are Being Sent?

After the course, when you begin to apply your new knowledge at your worksite, which of the following supports are likely to be in place for you? Select as many items as are likely to be true.

A. I will have my PROGRESS MONITORED BY MY SUPERVISOR in applying the learning.

B. I will have someone available TO COACH OR MENTOR ME in applying the learning.

C. I will have easy access to a COURSE INSTRUCTOR to contact for guidance and support.

D. I will have JOB AIDS to guide me in applying the learning to real job tasks.

E. I will be PERIODICALLY REMINDED of key learning concepts/skills over the next few months.

F. I will NOT get much direct support, but will rely on my own initiative.
What Messages Are Being Sent?

Compared to most webinars (online meetings), how well did the session keep YOUR attention? Select ONE choice.

---

A. I had a HARD TIME STAYING FOCUSED.
B. My attention WANDERED AT A NORMAL LEVEL.
C. My attention RARELY WANDERED.
D. I was very much SPELLBOUND throughout the session.

What Message Is Being Sent?

<table>
<thead>
<tr>
<th>RESEARCH/EVIDENCE</th>
<th>HOW MUCH RESEARCH/EVIDENCE WAS SHARED?</th>
<th>QUALITY OF RESEARCH/EVIDENCE SHARED?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>☐ ZERO OR VERY LITTLE RESEARCH/EVIDENCE was shared.</td>
<td>☐ I didn’t know the research well enough to answer this question.</td>
</tr>
<tr>
<td></td>
<td>☐ A SMALL AMOUNT OF RESEARCH/EVIDENCE was shared.</td>
<td>☐ Too often, the concepts presented seemed to conflict with the most-trusted research.</td>
</tr>
<tr>
<td></td>
<td>☐ A SUBSTANTIAL AMOUNT OF RESEARCH/EVIDENCE was shared.</td>
<td>☐ The concepts presented were generally supported by solid research.</td>
</tr>
</tbody>
</table>
Things
No Time For

Are You Using What You Learned? Yes!!

What Enabled You to Apply What You Learned?

What is Holding You Back?

Feedback to: Management Learners Us

Delayed Smile Sheet — Feedback for Improvement
Analyzing Results

Calculating an Acceptability Index

<table>
<thead>
<tr>
<th>Standards</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptable</td>
<td>50%</td>
</tr>
<tr>
<td>Acceptable</td>
<td>10%</td>
</tr>
<tr>
<td>Unacceptable</td>
<td>10%</td>
</tr>
<tr>
<td>Unlikely</td>
<td>0%</td>
</tr>
</tbody>
</table>

Now that you’ve taken the course, how well do you feel you understand the concepts taught in the course?

A. I have some significant CONFUSIONS AND/OR BLIND SPOTS. **Unacceptable 10%**

B. I have a BASIC FAMILIARITY with the concepts. **Unacceptable 30%**

C. I have a SOLID UNDERSTANDING of the concepts. **Acceptable 50%**

D. I have a COMPREHENSIVE UNDERSTANDING of the concepts. **Acceptable 10%**

E. I have an EXPERT-LEVEL UNDERSTANDING of the concepts. **Unlikely 0%**

Acceptability Index: 60%
How To Write

New Evaluation Model

Available at: www.is.gd/LTEM999
Want to give your smile sheet a checkup?
Smile-Sheet Imperatives

to get Feedback for Improvement

- LTEM Report and Model — [https://is.gd/LTEM999](https://is.gd/LTEM999)
- Katzell’s Contribution — [https://is.gd/Katzell](https://is.gd/Katzell)
- Updated Smile-Sheet Questions 2018 — [https://is.gd/Questions2018](https://is.gd/Questions2018)
- A Better Net Promoter Question — [http://is.gd/replaceNPS](http://is.gd/replaceNPS)
- Be Careful When Benchmarking — [https://is.gd/DoNotBenchmark](https://is.gd/DoNotBenchmark)
- Debate About Kirkpatrick Model — [http://is.gd/epicbattle](http://is.gd/epicbattle)
- Better Responses on Smile Sheets — [https://is.gd/betterresponses](https://is.gd/betterresponses)

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