THE
BOB PIKE GROUP Engineer Curiosity

WRITING EFFECTIVE TEST QUESTIONS

Objectives

- Articulate your goals for testing

- Align your testing strategy with your goals

- Match the type of test questions you use to your learning objectives

Presented by
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With more than 15 years as a training professional and two training industry best-selling books on the market, Becky Pluth, The Bob Pike Group's President and CEO, doesn't rest on her laurels. "Continuing education, whether formal or informal, is critical for those of us in education!" Becky said. "And, for many of us in this industry, I think the desire and passion for learning comes naturally."

As proof of her desire to continuously strive for "great," Becky was named one of Training magazine's Top 40 under 40 in 2012.

Becky has more than 17 years of exposure to Bob Pike's Creative Training Techniques® (CTT) and vast experience in cross-functional training design and delivery, project management and business operations. She easily employs a participant-centered approach to classroom training, one-on-one training and blended e-learning. Becky also infused CTT into all of her design and development while working as a corporate trainer for Target Corporation and overseeing the training department at Event Think, a multi-million dollar event management and communications company.

Programs she has particularly enjoyed designing and delivering include Webinars that Work, organizational-change management, systems training, and leadership and team development.

Becky's charismatic personality and facilitation style place participants at ease, and she empowers each learner to leave their training setting and immediately put their insights into action. Sustainable, practical change and strong adult learning principles in practice are her foci.

Becky has helped many Bob Pike Group clients realize cost savings and training efficiencies through utilizing a participant-centered approach. Some Bob Pike Group clients who have consulted with Becky are: Bose, Cisco Systems, Coca-Cola, Hewlett Packard, Intel North America, Interval International, Karl Storz, Kellogg's, Kimberly Clark, Kraft, Medica, Microsoft, Minnesota Education Association, National Park Service, Sepracor, Tampa Electric, Target Corporation, Uline, USA TODAY Education and Wells Fargo.

Becky is a certified K-12 teacher and received her master's degree from St. Mary's University. She is a member of the American Society for Training and Development and the National Speakers Association. She also is the author of the award-winning 101 Movie Clips That Teach And Train and Webinars with WoW Factor.

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Evaluation Word Search

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M  P  D  E  K  Q  P  E  Q  J  A  Y  J  R  R
G  G  Q  I  J  Q  V  Y  N  E  E  O  E  F  S
S  F  A  O  S  T  F  Q  Y  V  N  S  P  L  S
T  M  K  Q  L  T  X  M  L  A  U  D  C  J  X
N  S  I  F  U  Z  R  E  R  L  D  Z  H  U  K
S  O  C  L  C  M  A  A  T  U  R  Y  E  N  X
R  L  I  K  E  R  T  S  C  A  L  E  C  Z  J
U  L  R  T  N  S  U  U  H  T  X  S  K  S  J
P  B  S  K  A  H  R  S  I  E  O  L  K  H
B  V  C  H  W  V  F  E  W  O  Q  R  I  E  N
D  H  C  M  O  R  R  M  E  N  K  N  S  J  Q
N  B  G  T  Y  P  T  E  S  T  S  O  T  F  I
Z  D  T  J  C  J  R  N  S  A  C  V  C  P  I
Q  P  U  A  C  W  C  T  X  B  B  K  P  F  Y
O  U  R  O  V  X  A  V  G  F  O  P  W  H  Y
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Checklist	Likert Scale	Smile Sheet
Distracters	Measurement	Stem
Evaluation	Observation	Tests
Learn	Results	Use
Like	ROI	Yes or No

How we quiz, test or poll depends on WHY we quiz, text, or poll

WHY	HOW
Measure learners' progress	Comparisons of test scores between different versions of a course
Let learners guage their own progress	Informal, unrecorded pre-tests
Assess the success of your training efforts	Frequent, unrecorded quizzes
Certify learners to perform in a profession	Recorded end-of-module tests
Motivate deeper learning	Proctored, legally defensible tests

Comparison of Formative and Summative Assessments		
Formative Assessments		**Summative Assessments**
To improve instruction and provide feedback to learners	Purpose	To measure learner competency or mastery
Ongoing throughout session or course	When administered	End of session or course
To self-monitor understanding and progress towards goals	How data will be used by learners	To gauge achievement of course goals and benchmarks
To check for understanding in order to provide additional instruction or intervention	How data will be used by instructors	For certification or promotion

3 Essential Questions

1. What are the desired objectives/outcomes?

2. What is the current level of knowledge/competency?

3. How will learners close the gap?

Improve this Test Question

1. The Cabassou is an…

   a. Sloth

   b. Sea bird

   c. Fungus

   d. Armadillo

   e. Snake

From a high school course on zoology.

2. You cannot insert a table within a table in Microsoft Word.

   a. True

   b. False

From a course on formatting pages in Microsoft Word.

3. PDQ Corporation offers hourly employees which of these benefits:

   a. Medical

   b. Prescription

   c. Dental

   d. Optical

   e. None of the above

   f. All of the above

From an orientation course for new employees.

4. What are the colors of the standard BX-1000 snowboard?

   a. Red and green

   b. Blue and yellow

   c. Pink and purple

   d. Crazy carmine and Yowzah yellow

   e. Gray and blue

From a course for ski-shop sales personnel.

5.   A customer asks to speak to a supervisor. What do you say?

   a.   Are you sure?

   b.   No. I think I can help you.

   c.   Certainly. I'll page one if you'd like. It'll take a couple of minutes. But first, why don't you let me see if I can solve your problem.

   d.   Good luck finding one.

> **From a course for phone support technicians.**

6.   From the Diagram Gallery menu, you can create …

   a.   Venn diagrams, organization charts, and pyramid diagrams

   b.   Pie charts, bar charts, and organization charts

   c.   Radial charts, pyramid charts, and organization charts

   d.   Target charts, venn diagrams, and pie charts

   e.   Cycle diagrams, organization charts, pie charts

   f.   Bar charts, organization charts, radial charts

> **From a course on using Microsoft PowerPoint.**

7.   Differentiate two minerals,

   a.   Although both biotite and hornblende can be black in color and both occur in granite, only hornblende contains sodium.

   b.   Although both biotite and hornblende can be black in color and both occur in granite, crystals are triclinic and those of biotite are monoclinic.

   c.   Although both biotite and hornblende can be black in color and both occur in granite, hornblende is harder than biotite.

   d.   Although both biotite and hornblende can be black in color and both occur in granite, biotite cleaves in one dimension while hornblende cleaves in two dimensions.

> **From a freshman geology course.**

Common Types of Test Questions

Does granite contain biotite?
○ Yes ○ No

True/False

Question 1:
In the storage shed plan, how many calendar days does it take to frame the structure (Task 8)?

7

Fill-in-the-blanks

Your best customer want to cut heating costs. What feature of the ThermoKAV would you disable?

○ Instant-on
○ Heat boost
○ Precision thermostat
○ Humidifier option
○ Particulate filter

Pick-one

Rank these minerals by their hardness on the Mohs scale. Put the hardest mineral at the top and the softest at the bottom. You have three tries to get it right.

Highest

Benitoite   Kunzite
Emerald   Zircon
Ruby

Click on the Check Answer button.   Lowest

Check Answer   Reset

Sequence

What chemical is responsible for each color in autumn leaves? Click a color and then the chemical that creates this color.

Red	Chlorophyll
Green	Phosphate
Orange	Anthocyanin
Purple	Carotenoids
Yellow	Protein

Matching-list

Practice your understanding

Practice developing information products

Which of the following statements describing the process of developing information are true and which are false?

☑ Development is a cyclical process.
☑ The design phase is primarily top-down.
☐ Testing is best done at the end of the building phase.
☐ The building phase is primarily top-down.
☐ The project 'architect' is most active during the analysis phase.

Pick-multiple

Geography: Peru

Why should the UN locate its South American office for Aid to Education in Lima, Peru?

Write a 150-word to 250-word argument in favor of the choice of Lima.

Send to instructor   Erase the form

Composition

ODBC Data Source Administrator

You should have clicked **System DSN**
You scored no points for this step.

Performance

Quiz, Poll or Test Questions

When to Use Them	Tips
True/False Questions • To test ability to make categorical judgments • For novice learners • To cover a wide area	• Ask enough questions to discourage guessing • Phrase questions in neutral terms • Phrase the "question" as a simple statement • Phrase questions so only the two choices are possible
Pick-One Questions • Test ability to classify items • Test recognition, but not recall • Make testing familiar	• Include at least four plausible choices • Include nearly-right answers • Phrase wrong answers to represent common mistakes
Pick-Multiple Questions • For sophisticated questions with more than one right answer • To test ability to make precise discriminations • To test recognition of characteristics of an item	• Tell learners they can pick multiple answers • Include nearly-right and barely-wrong answers • Give more points
Fill-in-the-Blank Questions • Recall names, numbers, and other bits of textual information • Spell and type correctly • Complete a piece of work	• Phrase question to limit the number and form of correct answers • Accept synonyms and grammatical variants • Ask only one question per input blank

Quiz, Poll or Test Questions

When to Use Them	Tips

Matching-List Questions
• Assign items to categories
• Recall relationships among items
• Construct a whole from its pieces
	• Keep the lists short so they both appear in the same display
	• Do not mix categories within a list
	• Discourage process-of-elimination guessing:
	  • Make one list longer than the other.
	  • Let some items have multiple matches.
	  • Let some items have no match.

Sequence Questions • Rank items by value • To organize steps of a procedure or phases of a process • Recall relative values along well-defined scales	• Specify a single clear criterion for the sequence • Use only distinct items familiar to learners • Score fairly
Composition Questions • Create original solutions • Resolve conflicting opinions and contrary evidence • Recognize and express complex relationships	• Tell learners they can pick multiple answers • Include nearly-right and barely-wrong answers • Give more points
Performance Questions • Apply skills rather than just recall knowledge • Exercise judgment • Meet standards of speed and accuracy • Qualify for a legal certification	• Test but do not teach • State the goal clearly • Specify what resources the learner can use • Spell out scoring rules

14 Tips for Writing Good Questions

Writing effective questions takes time and practice. Whether your goal is to measure knowledge and skills, survey opinions and attitudes, or enhance a learning experience, poorly worded questions can adversely affect the quality of the results. Here are a few tips to keep in mind when you write and review questions:

14. Avoid providing _____ to the answer of one question in another question.

13. Avoid providing cues to _____ answer in the stem (a or an).

12. Avoid syllogistic reasoning choices (e.g. "both a and b are correct") unless absolutely necessary.

11. Avoid vague pronouns (e.g. it, they).

10. Avoid "All of the above," "Pick all that apply" instead, and use of "None of the above" with caution.

9. Avoid unnecessary _____, especially absolutes (e.g. always, never, etc.).

8. Avoid _____. ("Which of the following is not true?")

7. List choices in a _____ order.

6. Maintain grammatical consistency to avoid cueing.

5. Use questions whenever possible (What, Who, When, Where, Why and How).

4. Keep _____ and statements as short as possible and use clear, concise language.

3. Always use _____ distracters (wrong answers)!

2. Randomly _____ the correct answer among the distracters.

1. _____ the language level to your audience – not too high or low.

Clues	distribute	questions	plausible
	clues	modifiers	correct
	logical	match	negatives

Stem	
Key	
Distracter #1	
Distracter #2	
Distracter #3	

Stem	
Key	
Distracter #1	
Distracter #2	
Distracter #3	

Webb's Depth of Knowledge Question Stems

APPENDIX

Recall & Reproduction	Skills & Concepts
1. Can you recall…?	1. How would you compare…?
2. Can you select…?	2. How would you contrast…?
3. Can you identify…?	3. What steps are needed to…?
4. How would you describe…?	4. How would you summarize…?
5. What is the meaning of…?	5. How could you organize…?
6. What would you include in a list of…?	6. How would you estimate…?

Short-term Strategic Thinking	Extended Thinking
1. What conclusions can you draw…?	1. Write a thesis.
2. What would the outcome be if…?	2. Write a research paper.
3. Can you elaborate on…?	3. Design and conduct an experiment.
4. How would you test…?	4. Gather information to develop alternative explanations for…
5. Can you formulate a theory for…?	5. Gather information to support your idea about…

14 Fun Formative Assessments – Classrooms

Effectiveness Grid	Learners rate themselves on subject matter clarity using a Likert scale of 1–5 or 1–10.
Human Line Up	Learners line up 1–10; 1=know nothing to 10=could teach the class.
Scavenger Hunt	Learners look for answers to questions in their resource materials or from other learners.
Whiteboard Wizards	In pairs, learners respond to questions, open-ended statements, problems, etc. on a hand-held whiteboard.
Mindmap	Learners work in groups of three to create a poster that shows a global overview of the content presented using circles, lines, graphics, words and phrases.
Why Cards	Cards with questions beginning with "WHY" are passed out to half of the learners. They ask the questions to the other half to generate discussions
Beat the Clock	Learners are timed while performing a skill and then they repeat the skill and try to beat their time.
Question Cards	Learners write a question on an index card that they know the answer to. They give the card to another person who writes the answer on the back and gives it back.
Sequence Shuffle	Learners create and then put cards with steps in a sequence in proper order.
Four Corners	Verbal multiple choice options are given and students go to A, B, C, D corner representing their answer.
Find & Fix	Scatter errors in a document, list, process or problem with assignment to find errors and fix them.
High Five	Learners pair up to answer instructor questions and give each other a high five when they have the answer.
Matching Mix-Up	Learners are given a card and must find their match (words/definitions, problems/solutions, cause/effect).
Snowball Toss	Learners write a question on a sheet of white paper, crumple it into a ball and toss it across the room. Each learner then picks up someone else's "snowball" and answers the question.

References

Chappuis, J. 2009. *Seven Strategies of Assessment for Learning.* Boston, MA: Pearson Education, Inc.

Chappuis, S., Commodore, C., Stiggins, R. 2011. *Assessment Balance and Quality.* Boston, MA: Pearson Education, Inc.

Fisher, D., Frey, N. 2014. Checking for Understanding: Formative Asses*sment Techniques for Your Classroom*, 2nd Edition. Alexandria, VA: ASCD

Stiggins, R. 2007. *Assessment for Learning: An Essential Foundation of Productive Instruction.* In Douglas Reeves (ed.) Ahead of the Curve (pp. 59-76). Bloomington, IN: Solution Tree.

Wiliam, D. 2011. *Embedded Formative Assessment.* Bloomington, IN: Solution Tree.
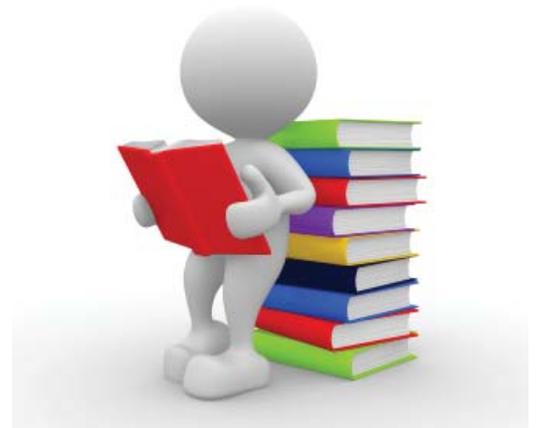
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The Bob Pike Group's Creative Training Techniques™ help people learn twice as much in half the time. Each project is designed from the ground up using activities that have attendees participating in their own learning. These tools allow learners to "catch" what's being taught while having fun.Participants take ownership of their learning and quickly discover on-the-job applications for their training.

Our participant-centered approach is successful because it focuses on the needs of learners. We understand that attention spans are short, so we routinely capture people's interests. Even television directors understand this challenge, and they change camera angles every six seconds to keep viewers hooked.

Our techniques, grounded in adult learning theory and brain-based research, create buy-in, enthusiasm, and ultimately change behavior. After all, learning doesn't occur until behavior changes. Companies large and small work with us to save time and money on training while improving measurable results.

The Bob Pike Group design and training consultants are experts with real-world experience so they know what it's like to be on the frontlines of industries like technology, healthcare, government, and manufacturing.

We are the industry-leading firm to train your trainers, design your training programs and develop your leaders. Over 300,000 people on five continents have changed the way they train forever because our interactive methods achieve more with less.

If you would like to discuss any training or consulting topic in more detail or you would like more information on The Bob Pike Group's comprehensive system of performance solutions, please fill out the form or call us at 1-800-383-9210 and ask for one of our Client Solution Directors. We would like to assist you in your on-going personal and professional development goals for your organization.

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