

13th Annual

Thinking & Learning Conference

DR SUSAN BROOKHART

Sunday 22 May

**Assessment of Higher-order
Thinking Skills**

Session 1

MELBOURNE

DR SUSAN BROOKHART

Dr Susan M Brookhart is a consultant, author and speaker. Her interests include the role of formative and summative classroom assessment in student achievement and the connection between classroom and large-scale assessment.

A former primary and middle school teacher, Susan was a faculty member at Duquesne University from 1989 to 2003. She continues to serve as senior research associate at the Center for Advancing the Study of Teaching and Learning at Duquesne.

Susan has been a columnist for Phi Kappa Phi's *National Forum* journal and editor of *Educational Measurement: Issues and Practice*. She is author or coauthor of several books and over 50 articles on classroom assessment, teacher professional development and evaluation.

Susan holds a master's degree in religion from Lutheran Theological Seminary and a doctorate in educational research and evaluation from Ohio State University.



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Assessment of Higher-order Thinking Skills

Sue Brookhart

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Session Summary

Goals for student learning typically require students to not only understand a body of knowledge but also be able to use it in some way. Participants will develop skills in designing questions and tasks that require students to use higher-order thinking. Participants will use a framework to vary three aspects of a task – cognitive level, task structure, and difficulty – in order to assess intended knowledge and skills precisely.

Objectives and Outcomes:

- Defining higher-order thinking for classroom purposes
- Designing questions and tasks that require students to use higher-order thinking
- Incorporating criteria for assessing thinking into rubrics

Session Outline

- What is higher-order thinking?
- Designing tasks that assess higher-order thinking
 - Task design process
 - Varying cognitive level, task structure, and difficulty
- Using scoring criteria that specifically look for student thinking

For More Information:

How to Assess Higher-order Thinking Skills in Your Classroom, by Susan M. Brookhart, 2010, ASCD

How to Design Questions and Tasks to Assess Student Thinking, by Susan M. Brookhart, 2014, ASCD

Language Arts Example

Write a short poem about night. Use at least two forms of imagery. Then, explain in an essay how you used the images in your poem to convey a message or feeling about night.

Identify the cognitive level of this task:

Students have to _____ something.

- Analyze
- Evaluate
- Create

Identify the how open or closed this task is:

	OPEN	← →	CLOSED
Problem/question	Not provided	Guided	Provided
Strategies/materials	Not provided	Guided	Provided
Solution, final product	Not provided	Guided	Provided

Identify how difficult this task would be for students:

- Easy
- Medium
- Difficult

Now revise the task to change at least one of these task features. Be able to explain what has changed and why.

Mathematics Example

Mei baked 12 cookies. She will give each of her friends 2 cookies. How many friends will eat Mei's cookies?

Show your work in two of these ways:

Numbers Pictures Words

Identify the cognitive level of this task:
Students have to _____ something.

Analyze
Evaluate
Create

Identify the how open or closed this task is:

	OPEN	← →	CLOSED
Problem/question	Not provided	Guided	Provided
Strategies/materials	Not provided	Guided	Provided
Solution, final product	Not provided	Guided	Provided

Identify how difficult this task would be for students:

Easy
Medium
Difficult

Now revise the task to change at least one of these task features. Be able to explain what has changed and why.

Science Example

Design and conduct an investigation to determine which of three brands of microwave popcorn leaves the fewest un-popped kernels. Be sure to state your research question, the method and materials you will use, the data you will collect, and how you will analyze it and draw your conclusions. Write up your results in a lab report [using a conventional format students have been taught].

Identify the cognitive level of this task: Students have to _____ something.			
Analyze			
Evaluate			
Create			
Identify the how open or closed this task is:			
	OPEN	← →	CLOSED
Problem/question	Not provided	Guided	Provided
Strategies/materials	Not provided	Guided	Provided
Solution, final product	Not provided	Guided	Provided
Identify how difficult this task would be for students:			
Easy			
Medium			
Difficult			

Now revise the task to change at least one of these task features. Be able to explain what has changed and why.

Social Studies Example



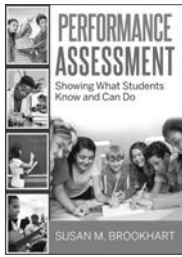
Compare this 1910 one-room school with your classroom. Find at least five things that are different today. Choose one of them, and write an essay about how the aspect you chose affects your own learning.

Identify the cognitive level of this task: Students have to _____ something. Analyze Evaluate Create			
Identify the how open or closed this task is:			
	OPEN	← →	CLOSED
Problem/question	Not provided	Guided	Provided
Strategies/materials	Not provided	Guided	Provided
Solution, final product	Not provided	Guided	Provided
Identify how difficult this task would be for students: Easy Medium Difficult			

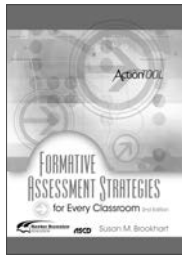
Now revise the task to change at least one of these task features. Be able to explain what has changed and why.

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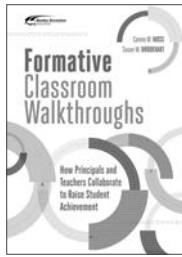
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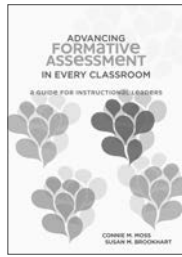
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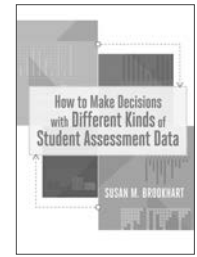
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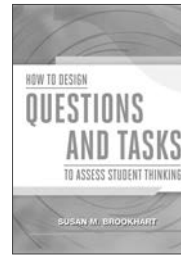


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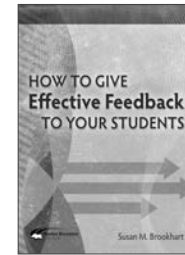


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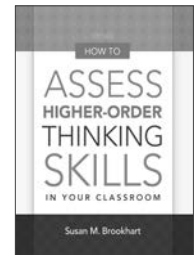
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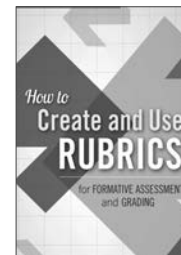
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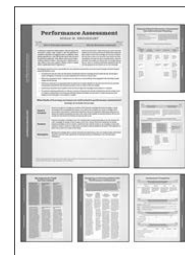
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