Module 6: Assessing Creativity and Creative Thinking

1	Title Slide	Welcome to the Assessing Creativity and Creative Thinking module in the Assessing Higher-Order Thinking series. To advance to the next slide, select the "forward" arrow located on the play bar at the bottom of your screen.
2	Introduction	Brookhart defines creative thinking as a means of putting things together in new ways - either conceptually or artistically, as well as observing things others might miss, constructing something new, or using unusual or unconventional imagery to make an interesting point. Before we get started, let's consider the following quote: "Many will discredit the existence of creativity in the rank of higher-order thinking skills, however creativity requires many of the same conditions for learning as other higher-order thinking skills, such as that learning processes are either enhanced by supportive environments or weakened when students are exposed to environments in which fears, insecurities, and low self-esteem exist" (Crowl et al., 1997).
3	Learning Objectives	At the completion of this module, the learner will be able to incorporate and assess creativity and creative thinking.
4	Assessing Creative Thinking	Creativity is certainly something that teachers want to encourage in their students, and yet it's one of the most poorly handled aspects of classroom assessment. Many teachers want their students to be creative but are not entirely sure what to look for. Or, many teachers use the word "creativity" as a dimension in a rubric that doesn't really assess creativity at all. One common misconception by teachers is that being creative means being artistic or interesting. In this module, we will discuss ways to assess creativity and creative thinking.
5	Assessing Creative Thinking	Many view creative thinking and critically thinking as separate entities, assuming that creative thinking is the brainstorming or putting together of new ideas, and then critical thinking takes over and evaluates how successful the new ideas are. However, it is possible for both creative and critical thinking to occur simultaneously. For example, creative thinking may result in a brainstormed list of possible activities, but critical thinking is needed to prioritize them and evaluate which one would be the best to do. In most assignments, creative and critical thinking go hand in hand in work that would be categorized at the Create level of Bloom's taxonomy. Students come up with responses to your assignments, and they also present them to you as finished work, presumably after exercising some critical judgment as to whether their response – in the form of a project, essay, poem, or term paper -- fulfills the assignment's requirements and shows what they can do. As you assess students' creativity, you yourself are using critical judgment.
6	What is Required for Creativity?	What is required for creativity? According to the Partnership for 21st Century Skills, there are certain characteristics required in order to think creatively. For example, creative students can:

		• Recognize the importance of a deep knowledge base and continually work to learn new things, • Are open to new ideas and actively seek them out, • Find "source material" for ideas in a wide variety of media, people, and events, • Look for ways to organize and reorganize ideas into different categories and combinations, and then evaluate whether the results are interesting, new, or helpful, • And finally, use trial and error when they are not sure of how to proceed, viewing failure as an opportunity to learn.
7	Creative Problem Solving Examples	A particularly interesting kind of creativity occurs when students define problems in new ways, or "think outside the box." Creative problem solving involves identifying a problem with fresh eyes. The problem may end up being about something completely different than originally thought. Brookhart provides two examples of creative problem solving. Click on the tabs to learn more. [Read themselves] The Elevator Story (NPR) "Skyscrapers only became possible after safe commercial elevator technology became available, because skyscrapers were too tall for people to be able to routinely take the stairs. In one office building, a problem arose. People became annoyed and impatient waiting for the elevator to arrive. Grouchy employees felt their time was being wasted. The building owners called in the engineers and asked them to solve the problem of making the elevators faster. But they couldn't do that; the elevators were already traveling as fast as was safe. An employee of the company solved the problem by redefining it. The problem wasn't that the elevators were too slow, it was that people thought they were too slow and got bored waiting for the elevator. The employee suggested installing mirrors by the elevator so that people had something else to do while they were waiting. Instead of waiting, people checked their ties, hair, or makeup. They were no longer bored or impatient, and the time passed quickly."
7	Creative Problem Solving Examples	Folds & Wrinkles (NPR) Another example of creative problem solving involves a mathematics professor at Harvard who had been named the 2009 MacArthur Foundation fellow, where each awardee gets half a million dollars to use any way he or she wishes. "Mahadevan applies mathematical theory to questions about nonlinear but common physical and biological events such as: How does the cloth fold or drape? How does skin wrinkle? And how do flags flutter? In addition, Mahadevan said he tried to explain common observations with mathematical theory. He explained how he and his colleagues studied flowers blooming, using time-lapse photography and then explaining the observations. They found that

		the petals grow along the edge more than they grow in the center. "So we made a mathematical theory for it," he says. "We tried to essentially connect that to experiments and empirical observations in the laboratory, which are easy to do, because you go to a florist and you buy a half dozen lilies, and you just watch them" (NPR, 2009). In other words, Madadevan looks at what might seem like normal, non-problematic events, and wondered about them. He also hopes to pass along his knack for problem finding to others.
8	Promoting Creativity in the Classroom	Many common classroom activities and procedures foster students' creative work. Mathematics teachers, for example, sometimes teach students to use "guess and check" as a strategy for problem solving. The process of generating the guesses and then evaluating how close their guesses got to solving the problem encompasses both the "create" and "critique" aspects of creativity discussed previously.

Brainstorming, in any subject, is a classic creative activity. In a typical brainstorming session, all ideas are accepted and listed. Evaluation of the ideas comes later. This approach has the effect of generating a maximum number of ideas. It also exposes all students in the group to everyone's ideas, which can help stretch students' thinking and help them see how being open to ideas from others is useful.

Lastly, writing reader-response logs is a creative activity for students. In a typical reader-response log, students are asked to describe their thoughts, feelings, surprises, and other reactions after reading a text or selection. There are many ways to respond to literature, and students have an opportunity to connect elements of their own lives with those in the text – a "reorganizing" activity that can generate new insights. |
| 9 | Promoting Creativity in the Classroom | The very best way to stimulate creativity is to inspire it by making assignments that are, in their own right, creative. To assess creative thinking, an assessment should do the following:
• Require student production of some new ideas or a new product, or require students to reorganize existing ideas in some new way. Juxtaposing two different content areas or texts is one way to do this.
• Allow for student choice on matters related to the learning targets to be assessed.
• And if graded, evaluate student work against the criteria students were trying to reach, where appropriate, as well as conventional criteria for real work in the discipline.

The trick to designing creative assessments is to find the balance between giving students enough specific direction that they can work toward the learning target, yet open-ended enough to leave room for students to generate their own ideas.

On the next slide, we will observe different levels of creativity with the Taxonomy of Creative Design. |

10	Taxonomy of Creative Design	[insert Taxonomy Creative Design] Take just a moment to analyze the graphic on your screen. Notice the difference between "imitation" and "original creation" in terms of novelty in form and content. If you wanted to use this model in your assessments, you could decide what level of creativity on which students are performing. To determine what level students are being creative, you could use the following tool: • Is the creation the same or virtually the same as something that already exists? The student is using imitation. • For variation: Is the creation a slight change to an existing object, such that it is different, but still retains the identity of the original object? • Combination: Is it a mixture of two or more things, such that it can be said to be both or all? • Transformation: Is it a re-creation of something in a new context, such that it has some characteristics of the original object, but it cannot be said to still *be* that kind of object? • And finally, does it appear to have no discernible qualities of pre-existing objects or ideas? This student has created an original creation. If you wanted to assess student's creativity by this taxonomy, an example of a rubric with similar criteria has been provided. [insert below rubric]
11	Missing the Point	Many scoring schemes miss the point about creativity. For an example, an instructor for an animal science course asks students to do a research project over the history and characteristics of a breed of beef cattle, and then present it on a poster. The instructor designs their scoring scheme so that students will receive 10 points for Information and Content, 10 points for Creativity, and 10 points for Directions Followed. This is contradicting assignment because one-third of the points is awarded toward creativity when the assignment asked students to research and report a predetermined list of facts. Instead, the instructor could revise the assignment so that students must answer an analysis-type research question, such as: "Choose a cattle breed and describe how the cattle's origins reflect the current breed characteristics and purpose."
12	Missing the Point	Another contradicting assignment example would be an instructor asking students to write a term paper and then assessing students for Content – which is worth 20 points, Organization – also worth 20 points, and Creativity for 10 points. If Content meant accuracy and completeness of information and Creativity meant using higher-order thinking to discuss the content, and also that the paper was presented in a neat, aesthetically-pleasing way, then a better way to assess what was intended is to alter the assignment to reflect a question that requires student thinking, or that requires students to come up with their own research question and not just a topic. Then you would revise the grading

		scheme to reflect the following: Thesis clear and supported – 20 points Content accuracy – 20 points Organization of paper – 10 points Presentation – 5 points (or 0 points if the assignment is not graded and just for feedback)
13	Review	As we come to a close, let's review. We started this module by addressing misconceptions of creative thinking, and then we examined what is required by students for creative thinking. We also looked at two examples of creative problem solving and then discussed the Taxonomy of Creative Design. Lastly, we analyzed some common mistakes that could lead to assignments and the criteria for which we assess to be contradicting.
14	Sources	Brookhart, S.M. (2010) How to Assess Higher-Order Thinking Skills in Your Classroom. Alexandria, VA: ASCD. http://www.senseandsensation.com/2012/03/assessing-creativity.html#!/2012/03/assessing-creativity.html http://www.cala.fsu.edu/files/higher_order_thinking_skills.pdf http://www.ascd.org/publications/educational-leadership/feb13/vol70/num05/Assessing-Creativity.aspx
15	Credits	Thank you for viewing this module.