

Expanding the Bridging Question Strategy (BQS) to Higher Education

James Pelech, Ed.D. , Benedictine University
Richard Singer, MS., Webster University (retired)

Abstract

This is the third in a series of articles that examine the use of a Constructivist teaching strategy referred to as the Bridging Question Strategy (BQS). The first article (Fall 2007) examined the overall nature of the BQS and provided two examples from high school mathematics. The second article (Fall 2008) not only provided more examples from high school mathematics, it presented examples from elementary mathematics, reading and history. This article applies the BQS to higher education, specifically test reliability. Test reliability measures the degree to which a test can be produce consistent scores when repeated. Test reliability is not only important for standardized tests, it is important for classroom teachers when constructing their own tests.

Introduction

One characteristic of an effective teaching strategy is its flexibility; an educator must ask whether a strategy can be used across domains and across age levels. Another characteristic of an effective teaching strategy is the degree to which it flows into or complements a teacher's other strategies. This article examines how the BQS satisfies both parameters; specifically, it shows how the BQS can be used in a teacher education course in assessment.

A Review of the Bridging of the Bridging Question Strategy

The basic BQS is the process of connecting ordinary knowledge that is not especially content-related to an upcoming content-related topic. The general bridging question asks, "What is going on here?" in reference to some activity or situation. This is an open-ended question, which calls for more than a simple description. BQS begins with knowledge of an everyday activity or situation. It bridges from this to a topic that is

related via some easily understood concept or principle. In the original article the BQS used the concept of wrapping and unwrapping a package to bridge to concepts and processes used in solving equations; it also discussed how deciding what new car to buy can be related or bridged to classifying polygons. The previous article presented the process for implementing the BQS. These steps, in abbreviated form, are:

1. Present a bridging activity to bring the concept or topic into focus.
2. Fully activate the bridging question by using group work, using different modes and having students develop their own bridging questions.
3. Bridge to a more remote concept. This can be done by having students predict the relationship between the bridging question and the more remote concept. This may also involve the teacher applying coaching techniques.

**An Illustration from Measurement and Evaluation:
Bridging from Features of our ordinary Reliability Concept
to the Concept of Test Reliability**

Principle: The ordinary concept of reliability can help to understand forms of test reliability.

Test reliability is a key concept in my college class on Measurement and Evaluation.

There are five types of reliability that one of the authors discusses in his class, and each can be related to ordinary ways of thinking about reliability. They are described below.

1. Test-retest reliability: this type of reliability involves administering the test to the same group of people at least twice. The two sets of scores are then correlated to each other.
2. Equivalent-forms reliability: this involves administering Test A to a group and then administering Test B to the same group after a very short period of time.
3. Test-retest with equivalent forms: this involves administering Test A to a group and then administering Test B to the same group after an extended period of time.
4. Split-half reliability: the test is split into two halves and the results of each half are correlated.
5. Inter-rater reliability: in this form of reliability, scores from different raters are compared.

Example: While it would be very easy to have students just memorize the definitions, the BQS can be used to develop a deeper understanding of these types of reliability. Students can examine different types of reliability from everyday thinking, examine their characteristics, and then connect these characteristics to reliability in testing.

Activity: One of the authors uses cooperative learning activities, comparing and contrasting activities, and writing activities as part of his Constructivist pedagogy. The following activity blends those strategies with the bridging process to create a Constructivist learning environment.

The instructor passes out the worksheet below. The worksheet is part of the interactive lecture process the author uses; it is a guide for embedding Constructivist activities into the daily classroom procedure. In this example, the interactive lecture is used as part of the bridging process. Editorial comments are inserted to help the reader understand the process.

Step I: Form groups of two and pass out worksheet (below).

RELIABILITY WORKSHEET

1. Consider the word 'reliability'. Is there another word that can be substituted for it? Take some time to quietly think about this, and then write down in the space provided [*Here students can begin the process of activating their prior knowledge*].

2. Consider the following HYPOTHETICAL SITUATIONS. Which of the following situations represent the concept of reliability? You and your partner will be assigned a specific example, and you will be expected to decide if the case represents reliability. You must be ready to explain your answer to the rest of the class (this includes putting your response on the board). Also, write your response in the space provided.
[In this situation students work with a partner to determine if their particular assigned example represents reliability. This exercise presents the Constructivist activity of putting thoughts into words, and connecting to the thoughts of another in order to come to a consensus (create a new mental construct). It is very important to assign each case to more than one pair; in this manner the class can compare and contrast different interpretations of the same case, and then come up with a class consensus.]
 - A. You hire a painter to paint your house. He does a great job. You are a little fickle, and want the house to be a different color. You rehire the same painter, and he again does a great job.
 - B. You own two houses that are very similar to each other. The painter does a great job on house A, and then a few days later he paints house B and does a great job.
 - C. You own two houses that are very similar to each other. The painter does a great job on house A, and then a year later he paints house B and does a great job.
 - D. You hire the painter to paint $\frac{1}{2}$ of your house. Then the next day he paints the other half. In both cases the painter does a great job. Your neighbor asks if you think the painter could do a great job on all of her house, and you emphatically say, "YES!"
 - E. You hire the painter to paint your house, and have four of your neighbors to rate the job that is done. All four of your neighbors say that the painter did a great job.

Step II: Class share.

Each group will select a partner to come up to the board and write out the reasons for determining if their case represents reliability. As always, the person who did not come to the board, is expected to explain what was written on the board. Be sure to write the responses of the other groups in the space provided.

[Here the instructor can lead a class discussion on the common characteristics for each case. It is through examining different interpretations of the same case that an intensive Constructivist environment is created.]

Step III: Bridging to Test Reliability.

The class now begins the process of connecting a case of everyday reliability to that of test reliability. The instructor can do this through a class discussion or through cooperative learning activities. Here the instructor provides students with the opportunity to predict what they think their example looks like in terms of test reliability. As an example, the instructor coaches the class to articulate that Case A is equivalent to students taking a test, and then retaking the same test. Even if students do not make a perfect connection, there are opportunities for learning – the instructor can have students then compare their notes with the book’s example of the types of reliability (another opportunity to compare and contrast).

Step IV: Closing activity.

Here the instructor uses Constructivist activities to summarize the lesson. One activity that the author uses is called “The Tollbooth Pass” (This is also known as “Ticket out the Door”). It has proven to be very effective and it blends nicely with the BQS. Students take out a ½ sheet of paper, and write out their response to

the prompt on it. As they leave class, they “pay toll” by handing their “pass” to the teacher. This topic blends well with a “Toll Booth” pass because many students have very often commented on whether the house painting reliability and test reliability have a perfect one to one correspondence. This construct presents an opportunity for the student to create an even deeper understanding of test reliability. The prompt for this class is:

We have “bridged” from everyday reliability to test reliability. Choose one of the types of reliability and discuss/explain whether the connection between the house painting reliability and its counterpart in test reliability is a “perfect match.” You are to back up your decision with three to four sentences.

Summary

The use of BQS provides the teacher with a flexible tool that can be used in elementary classrooms, in secondary classrooms, and in college classes. The BQS focuses on the premise that the activation of prior knowledge involves the activation of an interconnected system. The BQS process involves connecting everyday knowledge to the content-related topic being studied by the class. The example in this article demonstrates how BQS can be used in a higher education environment and how BQS blends with other Constructivist activities to create a learner-centered platform for college-level learners.

References

- Pelech, J. & Singer, R. (2007). The Bridging Question Strategy. *Journal for the Practical Application of Constructivist Theory in Education*, 2(1).
- Pelech, J. & Singer, R. (2008). Making Connections: Expanding the Bridging Question Strategy. *Journal for the Practical Application of Constructivist Theory in Education*, 3(2).