THE K. PATRICIA CROSS ACADEMY

INSTRUCTOR'S GUIDE

Teaching Technique 31

Background Knowledge Probe

ACTIVITY TYPE

- Writing
- Active/Engaged Learning
- Learning Assessment

TEACHING PROBLEM ADDRESSED

- Insufficient Class Preparation
- Low Motivation/Engagement

LEARNING TAXONOMIC LEVEL

- Caring
- Foundational Knowledge

THE K. PATRICIA CROSS ACADEMY

Background Knowledge Probe

A *Background Knowledge Probe (BKP)* is a focused questionnaire that students fill out at the start of a unit (or course) to help teachers identify the best starting point for the class as a whole.

1. **Clarify your teaching purpose and learning goals for the *BKP***
2. **Prepare questions that will probe students' existing knowledge**
3. **Set assignment parameters (how you'll present questions, time allowed, etc.)**
4. **Develop a plan for learning assessment or grading**
5. **Communicate assignment instructions to students**
6. **Allow students time to complete the *Background Knowledge Probe***
7. **Reflect upon the activity and evaluate its effectiveness**

Step-By-Step Instructions

In this section we provide you with guidance on each of the seven steps involved as you consider this technique.

STEP 1: CLARIFY YOUR TEACHING PURPOSE AND LEARNING GOALS

One of the most important principles in both motivation and learning is working at a level that is appropriately challenging. Activities that are too easy are boring, activities that are too hard are discouraging, and either extreme leads to disengagement. A *Background Knowledge Probe* helps teachers determine the most appropriate level at which to begin instruction. They also identify under-prepared students for whom remedial work may be needed and extremely well-prepared students who may benefit from tasks that are more challenging.

A *Background Knowledge Probe* is therefore a learning assessment activity that can help address problems related to low motivation and insufficient class preparation because it guides teachers in their quest to help students work at their optimal challenge level. Additionally, it can help learners foreground their prior knowledge so that they can better interpret and assign meaning to new information. Helping students to recognize the importance of activating prior knowledge so that they can better connect new information to their existing understanding also can help them become more efficient learners.

A *Background Knowledge Probe* is most typically used to determine foundational knowledge: understanding and remembering the information, ideas, and perspectives that form the basis for other kinds of learning in the subject. However, teachers can also design the probe to assess other levels of learning such as problem solving or critical thinking. Furthermore, if the probe is open ended ("describe what you already know about this topic") it includes aspects of reflection. It is therefore important for you to think through how this technique might work best in your class.

STEP 2: IDENTIFY THE LEARNING TASK'S UNDERLYING PROBLEM AND PROMPT

Before starting instruction on an important new concept, subject, or unit, prepare a few questions that will probe students' existing knowledge or understanding of the content.

STEP 3: SET ASSIGNMENT PARAMETERS

Choose how you will present the questions to students (such as on a presentation slide, in a handout, or in a quiz within an online learning management system), what type of questions to ask (such as objective or short essay) and then create the questionnaire. Determine other parameters such as time allowed for the activity, the deadline, how students should submit responses, etc.

Step-By-Step Instructions (CON'T)

STEP 4: DEVELOP A PLAN FOR LEARNING ASSESSMENT OR GRADING

When used to assess foundational knowledge, a *Background Knowledge Probe* usually consists of a short series of objective questions. Students' answers to these questions can be assessed based on accuracy. If you choose to use this technique to determine other learning levels (such as critical thinking), you will most likely want to create a rubric to assess student responses.

STEP 5: COMMUNICATE ASSIGNMENT PARAMETERS TO STUDENTS

Assure students that their answers will not be graded, and that the point of the exercise is to:

- Help them recall any prior knowledge so that they can better connect this to what you will be teaching them.
- Help them start the process of organizing their knowledge.
- Help you determine the most appropriate level at which to begin instruction.

STEP 6: IMPLEMENT THE TECHNIQUE

- Present the *Background Knowledge Probe* to students.
- Provide students with time to respond to the questions.
- Review the answers so that you can determine the best point to start instruction.

STEP 7: REFLECT UPON THE ACTIVITY AND EVALUATE ITS EFFECTIVENESS

When reflecting on the activity and how effective it was, consider the following questions:

- Did the technique match the course learning goals and objectives?
- Did it meet my goals for this learning module?
- Was it appropriate for the students?
- Did the technique keep the students engaged?
- Did it promote student learning?
- Did it provide me with information about student understanding?

If you answer yes to all or most of these questions, next consider how you might improve the activity for the next use.

Support Materials

The materials in this section are intended to help you with the process of implementing this technique. Because *Background Knowledge Probe* is typically a very simple, straight forward assignment, we provide additional guidance on how to vary it.

VARIATIONS

- **Self-Assessment of Knowledge**: Instead of posing questions that include the actual content information, have students self-assess their knowledge. This allows them to take responsibility for determining whether they are in their optimal challenge zone and adjust accordingly by doing additional review, seeking help, or challenging themselves to pursue more advanced work. This approach is sometimes described as a Knowledge Survey (Knufer & Knipp, 2003). An example follows:

  Instructions: Please circle the letter that best represents your current knowledge.

  › **1. Ricercar**
    a. Have never heard of this
    b. Have heard of it, but don't really know what it means
    c. Have some idea what this means, but not too clear
    d. Have a clear idea what this means and can explain it

  › **2. Passacaglia**
    a. Have never heard of this
    b. Have heard of it, but don't really know what it means
    c. Have some idea what this means, but not too clear
    d. Have a clear idea what this means and can explain it

- **Graphic:** Provide a graphic with components to label. For example, a professor introducing a unit on the heart distributed a handout with an image of the exterior and interior structures of the heart, along with fill-in lines and arrows pointing to the different structures. She asked students to independently write in the names of as many of the structures they could recall. They then worked in pairs to pool their knowledge to fill out a single handout, using three different colored pencils to demonstrate individual and shared knowledge.

- **Con-Venn-Tions (Spence, 1997):** Give students index cards and ask them to write individually the 5-8 most significant points they know with respect to a given topic, one idea per card. In pairs, students share and organize their ideas, sorting the cards into three separate piles consisting of unique and shared ideas in order to develop a Venn diagram containing their pooled knowledge regarding a given topic. Although you can use an actual Venn diagram, a simple table created in a word processing program can achieve the activity's basic purpose:

STUDENT 1'S IDEAS	SHARED IDEAS	STUDENT 2'S IDEAS

Online Adaptation

This section is intended to help you with the process of implementing and assessing *Background Knowledge Probe* in your online class.

HOW TO START

- Make a list of questions that probe students' knowledge of course content.
- **In an Asynchronous Setting:** Use these questions to create an ungraded quiz in your Learning Management System.
    - › Explain that it will not be graded for correctness, but rather give points for completion to encourage participation.
    - › A less formal and more collaborative implementation can be achieved by posting a discussion prompt that asks students one or two open-ended questions.
    - › For example, for an Introduction to Archaeology course, you might ask: "What is your experience with Archaeology? Have you read any books, been to any museums, or visited any archaeological sites?"
    - › Encourage students to respond to each other by sharing common experiences.
- **For Use In A Synchronous Session:** Implement a poll that that displays real-time responses so students can see where they fit within the class as a whole.
    - › This also allows you to direct students to appropriate resources for either remedial or more advanced work.
    - › For a more collaborative implementation, ask open-ended questions to small groups of students in breakout rooms.

Technique Template

Following are two templates to assist you as you think through how you might implement this technique in your own class. The first is a completed template, providing an example of how Elizabeth Barkley adapted *Background Knowledge Probe* in her course, *Music of Multicultural America*. The second is a blank template for you to fill out to tailor this technique for your course.

Technique Template

Sample *Background Knowledge Probe* Completed Technique Template:
Content from Elizabeth Barkley

Music of Multicultural America

Course Name

COURSE CHARACTERISTICS

What are the situational factors that impact this course? For example, is it on campus or online? How many students? Is it lower division or graduate? Are there student attributes such as attitudes, prior knowledge, reasons for enrolling, and so forth that should be taken into account as you consider this technique?

My course is the online section of a lower division General Education course and it enrolls several hundred students. These students are quite diverse in terms of their academic preparedness and their prior knowledge of course content.

STEP 1: CLARIFY YOUR TEACHING PURPOSE AND LEARNING GOALS

Why are you choosing this technique? What do you hope to accomplish?

I am looking for an activity that will help students foreground prior knowledge so that they are better prepared to make connections to new content. I am also wanting to increase students' self-reflection skills, since metacognition is a course-level learning outcome.

STEP 2: IDENTIFY THE LEARNING TASK'S UNDERLYING PROBLEM AND PROMPT

What is the question you want learners to address, or problem you want them to solve?

Before starting each content module, I will ask students to write a brief essay on what they already know about that topic.

STEP 3: SET ASSIGNMENT PARAMETERS

What are the assignment logistics? For example, will this be assigned individually or is it group work? How long will the assignment take? Will students be submitting a product? What materials, resources, or additional information do you anticipate needing?

For each content module, students will be asked to reflect on what they already know about the module's topic based on prior learning or their own life experiences. They will respond to the prompt with a brief essay on the course's online learning management system. It will be an individual assignment.

STEP 4: DEVELOP A PLAN FOR LEARNING ASSESSMENT OR GRADING

If you decide to assess learning, how will you determine that learning has occurred? For example, will you use a simple +/check/- grading system? If you use a rubric, will you use an existing one or create one? What will be your criteria and standards?

I will award up to 10 participation points if the student's response is a minimum of 75 words, uses appropriate college-level language and grammar, and if it represents a thoughtful self-assessment of current knowledge.

STEP 5: COMMUNICATE ASSIGNMENT PARAMETERS TO STUDENTS

How will you communicate assignment parameters to students? For example, through a handout? A prompt on a presentation slide? Assignment instructions in your online course?

I will include instructions both in the Syllabus under "Course Learning Activities" as well as in the assignment's instruction pane of the online learning management system.

STEP 6: IMPLEMENT THE TECHNIQUE

How will you adapt steps/procedures for your students? Are there any additional logistical aspects to consider?

I changed from specific, objective content questions to an open-ended brief essay question. I have also decided to use this as a "pre- and post" assignment, asking students first to write what they already know about a module's topic. Then, after they have completed all of the module's learning activities, I will ask them to write an additional brief essay outlining what they learned that they hope to remember long after the course is ended.

STEP 7: REFLECT UPON THE ACTIVITY AND EVALUATE ITS EFFECTIVENESS

Note: This step will be completed after you have implemented the technique.
Did this technique help you accomplish your goals? What worked well? What could have been improved? What might you change if you decide to implement the activity again?

After I implemented this technique and evaluated outcomes, I realized that several students wrote full responses to the "post" reflect, but too brief responses to the "pre" reflect. I therefore decided to add in the following instructions: "If you know little about the chapter's topic, challenge yourself to reflect deeper to find related knowledge. For example, you might know little about the 'roots' of Asian American music, but you can probably offer some insights or observations regarding Asian culture or Asian immigration into the United States."

Technique Template

This template is intended for use when planning to implement ***Background Knowledge Probe*** in your class. Fill in the blanks below, and use the information provided elsewhere in the Instructor's Guide to assist you in your thinking.

Course Name

COURSE CHARACTERISTICS

What are the situational factors that impact this course? For example, is it on campus or online? How many students? Is it lower division or graduate? Are there student attributes such as attitudes, prior knowledge, reasons for enrolling, and so forth that should be taken into account as you consider this technique?

STEP 1: CLARIFY YOUR TEACHING PURPOSE AND LEARNING GOALS

Why are you choosing this technique? What do you hope to accomplish?

STEP 2: IDENTIFY THE LEARNING TASK'S UNDERLYING PROBLEM AND PROMPT

What is the question you want learners to address, or problem you want them to solve?

STEP 3: SET ASSIGNMENT PARAMETERS

What are the assignment logistics? For example, will this be assigned individually or is it group work? How long will the assignment take? Will students be submitting a product? What materials, resources, or additional information do you anticipate needing?

STEP 4: DEVELOP A PLAN FOR LEARNING ASSESSMENT OR GRADING

If you decide to assess learning, how will you determine that learning has occurred? For example, will you use a simple +/check/- grading system? If you use a rubric, will you use an existing one or create one? What will be your criteria and standards?

STEP 5: COMMUNICATE ASSIGNMENT PARAMETERS TO STUDENTS

How will you communicate assignment parameters to students? For example, through a handout? A prompt on a presentation slide? Assignment instructions in your online course?

STEP 6: IMPLEMENT THE TECHNIQUE

How will you adapt steps/procedures for your students? Are there any additional logistical aspects to consider?

STEP 7: REFLECT UPON THE ACTIVITY AND EVALUATE ITS EFFECTIVENESS

Note: This step will be completed after you have implemented the technique.
Did this technique help you accomplish your goals? What worked well? What could have been improved? What might you change if you decide to implement the activity again?

References and Resources

PRIMARY SOURCE

Content for this download was drawn primarily from "Student Engagement Technique 1: Background Knowledge Probe" in *Student Engagement Techniques: A Handbook for College Faculty* (Barkley, 2010), pp. 156–160. It includes material that was adapted or reproduced with permission. For further information about this technique, including examples in both on campus and online courses, see the primary source:

Barkley, E. F. (2010). *Student Engagement Techniques: A Handbook for College Faculty.* San Francisco, CA: Jossey-Bass.

CITATIONS AND ADDITIONAL SUGGESTIONS FOR FURTHER READING

- Nuhfer, E., & Knipp, D. (2003) The knowledge survey: A tool for all reasons. *To Improve the Academy, 21,* pp. 59–78. Retrieved from http://www.isu.edu/ctl/facultydev/KnowS_files/KnowS.htm

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