

INSTRUCTOR'S GUIDE



Teaching Technique 21

Post-Test Analysis

ACTIVITY TYPE

- Reflecting
- Active/Engaged Learning
- Learning Assessment

TEACHING PROBLEM ADDRESSED

- Surface Learning

LEARNING TAXONOMIC LEVEL

- Learning How to Learn

Post-Test Analysis

A *Post-Test Analysis (PTA)* is a two-stage process that is divided into several steps designed to help students develop greater awareness of their test-preparing and test-taking skills.

- 
- 1** Clarify your teaching purpose and learning goals for the *PTA*
 - 2** Choose a taxonomy and create corresponding test questions
 - 3** Set assignment parameters (such as the specific test analysis prompts)
 - 4** Develop a plan for learning assessment or grading
 - 5** Communicate assignment instructions to students on the test and worksheet
 - 6** Implement the two stages of the *PTA*
 - 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

A *Post-Test Analysis* is designed to help students develop greater awareness of their test-preparing and test-taking skills. It is a two-stage process that is divided into several steps. The first stage occurs after students have completed an exam but before they submit the exam to the instructor. At this stage, students predict their score, list their study strategies, rate their effort, and identify what was easiest and what was most difficult for them about the exam. This process helps students learn to gauge the correlation between their effort and perception of performance and how well specific study strategies prepared them for the exam.

In the second stage—after students have received their graded exams—students are asked to write about their emotional response to their score, compare their score with their prediction, and then go through the exam analyzing each exam question for the thinking skills it required (e.g., recall, application, analysis) and the source of the question (e.g., book, lecture, homework assignments). The second stage clarifies understanding of what is meant by different levels of thinking skills, helps students recognize their strengths and weaknesses, and guides them to specific changes they can make to help them to be more successful on future exams. They then reflect on and decide if they will make any changes in preparation for the next exam. This technique, then, is most useful for helping students reflect upon their learning and see that they can take steps to help them learn more efficiently and effectively.

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

A *Post-Test Analysis* guides students through a process for analyzing the effectiveness of their exam preparations and exam taking.

STEP 3: SET ASSIGNMENT PARAMETERS

The *Post-Test Analysis* technique requires teachers to spend a significant amount of time both to design effective tests and to set up the structure for students to do the post-test analysis. It is helpful to identify a Learning Taxonomy so that you can identify the different levels of thinking that you will use to guide students through an effective *Post-Test Analysis*. Bloom's original "Taxonomy of Educational Objectives" for the cognitive domain is the most widely known taxonomy (Bloom, 1956) and readily accessible on the internet, but there are others, including Anderson and Krathwohl's revision of that taxonomy (Anderson, Krathwohl et al, 2001) and Shulman's "Table of Learning" (Shulman, 2002). Although we like aspects of all of these learning taxonomies, we prefer Fink's "Taxonomy of Significant Learning" (Fink, 2013) because we believe it best reflects the range of learning required for success in today's complex and demanding world.

Step-By-Step Instructions (CON'T)

STEP 4: DEVELOP A PLAN FOR LEARNING ASSESSMENT OR GRADING

Doing a thoughtful *Post-Test Analysis* requires students to put in effort, so you might consider giving students a range of participation points (or some such) to ensure they take the activity seriously.

STEP 5: COMMUNICATE ASSIGNMENT PARAMETERS TO STUDENTS

Instructions for Stage One of a *Post-Test Analysis* are typically included in the exam itself, but you will need to create a separate worksheet for Stage Two.

STEP 6: IMPLEMENT THE TECHNIQUE

- **Stage One:** As you construct your exam, include questions that target each of your learning taxonomy's thinking levels and then label the question appropriately (such as foundational knowledge, application: analysis, integration). Also consider identifying the source of the question (book, lecture, homework assignment). This is for your own use to compare against students' determination of the thinking required and the source for each question. Then add directions for Stage One of this technique at the end of the exam such as the following:

After you have completed the exam but before you submit the exam to me, please:

- › Predict your exam score.
- › Rate your effort in studying for the exam on a scale of 1 (lowest) to 10 (highest).
- › List the specific learning strategies you used to study for the exam, (for example, memorized definitions through flashcards, rewrote and reviewed lecture notes, created outlines of reading assignments, and so forth)
- › Identify what you found easiest and most difficult about the exam and why.

- **Stage Two:** This occurs after students have received their graded exams. Students can complete the steps for this stage in class immediately after the return of their exams, or they can complete the steps outside of class time during the following week. Your separate worksheet can include the taxonomy and the following procedural steps.

Now that you have received your graded exam, please:

- › Describe your emotional response to your exam score (surprised? disappointed? relieved? etc.)
- › Compare your actual score with your predicted score.

Step-By-Step Instructions (CON'T)

- › Go back through each exam question and identify the level of the learning taxonomy used in each exam question
- › Calculate the proportion of items you answered correctly or incorrectly at each classification level
- › Determine the source of each question (book, lecture, homework assignment).
- › Reflect upon and describe any changes in strategies or amount of time studying you plan to do to prepare for the next exam
- › Offer me any feedback on how your peers or I could help you better prepare for the exam.

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. For *Post-Test Analysis*, we provide you with an example of questions excerpted from a quiz Elizabeth Barkley created for her class so that we can demonstrate the correlation between question and learning taxonomy level.

EXAMPLE OF POST-TEST ANALYSIS QUIZ QUESTIONS

On page 7 are example questions from a quiz Elizabeth Barkley created that correlates to the Taxonomy of Significant Learning (Fink, 2013) along with the Stage One and Stage Two questions for the *Post-Test Analysis* activity.

EXAMPLE QUIZ EXCERPT

Below are example questions from a quiz Elizabeth Barkley created that correlates to the Taxonomy of Significant Learning (Fink, 2013) along with the Stage One and Stage Two questions for the *Post-Test Analysis* activity.

PART ONE: FOUNDATIONAL KNOWLEDGE

The following questions check your understanding and remembering of the information, ideas, and perspectives from this module, which corresponds to the Foundational Knowledge domain of the Taxonomy of Significant Learning.

1. **When music is learned primarily through listening and watching, music is said to be transmitted to the next generation through:**
 - a. oral tradition
 - b. improvisatory tradition
 - c. performance practice
 - d. notation

2. **A piece of music that contains one or more sections in a different meter is said to be in:**
 - a. polymeter
 - b. prolongation
 - c. multimeter
 - d. heterometer

PART TWO: APPLICATION

The following questions check your ability to apply foundational knowledge so that foundational knowledge becomes useful, which corresponds to the Application domain of the Taxonomy of Significant Learning.

11. **Listening to "Kule Kule" from the album Congotronics, what is the Audio Player's timing for when you first hear a non-verbal but vocal background accompaniment?**
Audio Player's Timing: _____

12. **Listening to "Kaba Mansa" from the album Kasse Kasse by Kasse Mady Diagate, what is the Audio Player's timing for when you hear the shift to responsorial texture?**
Audio Player's Timing: _____

PART THREE: HUMAN DIMENSION (ESSAY)

The following question checks your understanding of the personal and social implications of what you learned in this module, which gives your learning more significance and which corresponds to the Human Dimension domain of the Taxonomy of Significant Learning.

Traditional African music performance values are very different from European-based music performance values.

- a. Compare the idea of a composed "masterpiece" with an on-the-spot "master" improvisation. What skills do you think are important for each one?
- b. If you had to choose between becoming a renowned composer/songwriter or a renowned improviser/performer, which one would you choose and why?

PART FOUR: POST TEST ANALYSIS (STAGE ONE)

You are participating in a teaching technique known as "Post Test Analysis," which is designed to help you develop greater awareness of your test preparing and test taking skills. It is a two stage process. In this first stage, which is completed after you have taken the exam but before you submit it to me, I am asking you to answer the following questions. This process will help you learn to gauge the correlation between your effort and perception of performance and how well specific study strategies prepared you for the exam.

- Predict your quiz score.
- Rate your effort in studying for the quiz on a scale of 1 (lowest) to 10 (highest).
- List the specific learning strategies you used to study for the quiz, (e.g., rewrote and reviewed lecture notes, created outlines of reading assignments, and so forth).
- Identify what you found easiest and most difficult about this quiz and why.

PART FIVE: POST TEST ANALYSIS (STAGE TWO)

You are participating in a teaching technique known as "Post Test Analysis," which is designed to help you develop greater awareness of your test preparing and test taking skills. It is a two stage process. You completed Stage One before you submitted your quiz for evaluation. Now that you have received your graded exam, please respond to the following prompts, which comprise Stage Two.

- Describe your emotional response to your exam score (surprised? disappointed? relieved? etc.).
- Compare your actual score with your predicted score.
- Describe how well you did on each of the three parts:
 - › Part I: Foundational Knowledge
 - › Part II: Application
 - › Part III: Human Dimension
- Reflect upon and describe any changes in strategies or amount of time studying you plan to do to prepare for the next quiz.

Online Adaptation

This section is intended to help you with the process of implementing and assessing *Post-Test Analysis* in your online class.

HOW TO START

- First, choose a learning taxonomy, such as Bloom's or Fink's. The exam created in your Learning Management System should include questions that target each of the taxonomy's thinking levels.
- **Stage One** At the end of the exam, but before students submit, create prompts in your Learning Management System that ask students to:
 - › Predict their score.
 - › List their strategies.
 - › Rate their effort.
 - › Identify what was easiest and most difficult about the exam.
- **Stage Two** After students receive their grades, prompt students to:
 - › Write about their emotional response to their score.
 - › Compare their score with their prediction.
 - › Analyze each exam question for the thinking skills it required and the source of the question.
- In addition to the written assignments submitted in your Learning Management System, consider having students share and discuss their responses on a discussion forum.

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 *Post-Test Analysis* 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 *Post-Test Analysis* 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 an on campus, Honors Institute section of a lower division General Education course. The course meets my institution's United States Cultures & Communities requirement and also the Humanities requirement. It enrolls about 25-30 students. A significant number are international students. We are also trying to recruit more first generation students. Honors students typically have good academic skills and are highly motivated.

STEP 1: CLARIFY YOUR TEACHING PURPOSE AND LEARNING GOALS

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

One of the learning outcomes for my course is that students will develop metacognitive skills. This is one of the learning activities that I hope will help students develop these skills and provide me with a visible learning artifact that I can assess.

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?

The Stage One questions require students to predict their score, list their study strategies, rate their effort, and identify what was easiest and what was most difficult for them about the exam. The second stage helps students clarify understanding of what is meant by different levels of thinking skills, helps them to recognize their strengths and weaknesses, and guides them to specific changes they can make to help them to be more successful on future exams.

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?

Since the purpose of this technique is to help students improve their skills in preparing for and taking exams, I will implement it early enough in the academic term to allow students to apply what they have learned to subsequent exams. I will use the Taxonomy of Significant Learning as my corresponding learning taxonomy, and then I will use the technique instructions to create the Stage One and Stage Two questions.

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 assess students' work on this using a simple plus, check, or minus that is correlated to a 5/3/0 point system that I will apply toward the Metacognitive Behaviors portion of their final grade.

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 the Stage One questions in the quiz itself, and then create a handout that I will distribute in class when I return the graded quizzes that includes the Stage Two questions.

STEP 6: IMPLEMENT THE TECHNIQUE

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

I will use the technique instructions to create the Stage One and Stage Two questions, and beyond that, this technique seems very straight forward.

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, I found that it was a useful technique to help students gain better awareness of their test taking approaches.

Technique Template

This template is intended for use when planning to implement **Post-Test Analysis** 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

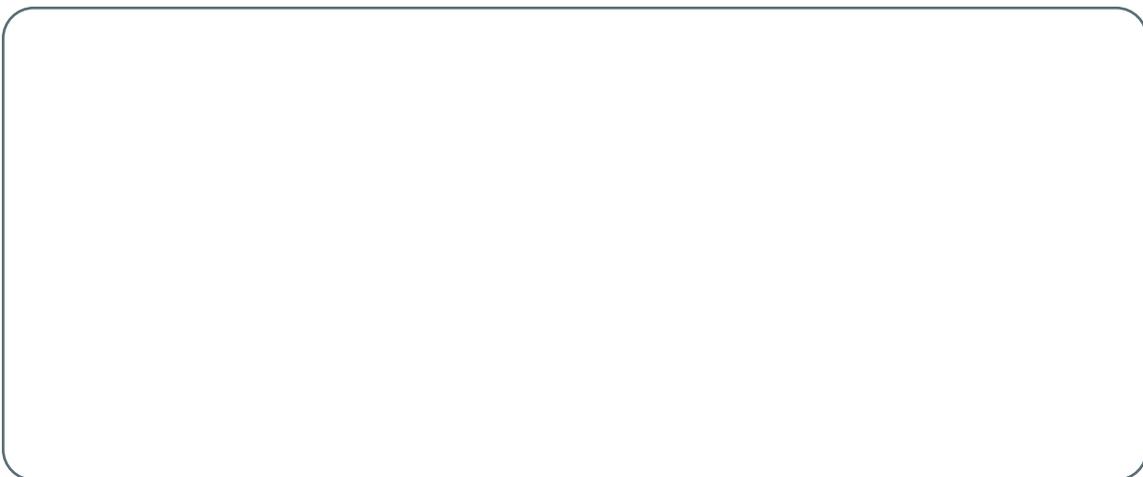
How will you adapt steps/procedures for your students? Are there any additional logistical aspects to consider?



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 44: Post-Test Analysis” in *Student Engagement Techniques: A Handbook for College Faculty* (Barkley, E.F., 2010), pp. 336–339. 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

- Fink, L.D. (2013) *Creating Significant Learning Experiences: An Integrated Approach to Designing College Courses*. San Francisco, CA: Jossey Bass.

COPYRIGHT

These materials supplement the “Post-Test Analysis” teaching technique video on the K. Patricia Cross Academy Video Library (<https://kpcrossacademy.org>). Copyright © 2021 Barkley and Major. Includes material that is adapted and/or reproduced with permission from:

- Barkley, E. F. (2010). *Student Engagement Techniques: A Handbook for College Faculty*. San Francisco, CA: Jossey-Bass. Copyright © 2010 by John Wiley & Sons, Inc.

Released for use under a creative commons attribution, non-commercial, no derivatives license (<https://creativecommons.org/licenses/by-nc-nd/3.0/>). You are free to use it, copy it, and share it, as long as you don’t sell it, don’t change it, and do give us credit for it.