

INSTRUCTOR'S GUIDE

Teaching Technique 45

Individual Readiness Assurance Tests

ACTIVITY TYPE

- Active/Engaged Learning
- Learning Assessment

TEACHING PROBLEM ADDRESSED

- Insufficient Class Preparation
- Low Motivation/Engagement

LEARNING TAXONOMIC LEVEL

- Foundational Knowledge

Individual Readiness Assurance Tests

Individual Readiness Assurance Tests (IRATs) are closed-book quizzes that students complete after an out-of-class reading, video, or other homework assignment.



1

Clarify your teaching purpose and learning goals for the *IRATs*

2

Choose the assignment that will serve as the basis for the *IRATs*

3

Set assignment parameters (quiz questions, how it's administered, etc.)

4

Develop a plan for learning assessment or grading

5

Communicate assignment instructions to students

6

Implement the technique

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

Students who come to class having done the assigned reading will most likely learn more than those who don't, but getting students to prepare appropriately is one of the perennial problems in college teaching. Research reports indicate that on any given day, only 20–30% of students who show up to class have completed their preparatory reading (Weimer, 2015). This can make teaching quite challenging, because professors have to then determine whether to proceed with their original plans or make adjustments to accommodate the majority of students who have not done the advance work.

Individual Readiness Assurance Tests (IRATs) are closed-book quizzes that students complete after a homework assignment. Quizzes typically have 5–20 multiple-choice quiz questions and usually are administered at the start of a class session. Results from *Individual Readiness Assurance Tests (IRATs)* demonstrate whether students have done the preparatory work and have mastered basic vocabulary and other foundational concepts they need in order to understand the lecture content. *IRATs* can be used in almost any course in which instructors want to encourage and assess student preparation for class.

Individual Readiness Assurance Tests can serve as cues about the most important course concepts and thus help students focus their attention to the topic of the upcoming presentation. The quizzes can ensure that students are directly accountable for their own preparation for learning in lectures. When used regularly, they can also provide students with feedback on how well they are doing in learning material on their own.

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

Choose a reading assignment, video, or other activity that helps students gain knowledge that they will complete out of class, then write 5–20 multiple-choice questions related to the content that will demonstrate whether students have completed the work.

Writing good questions can be a challenge. Avoid creating questions that ask about picky details and write ones that instead focus on the most important concepts from the assignment. This approach will help students to understand the *IRAT* as an important part of learning, rather than to see it as unnecessary busy work.

In addition, avoid making the questions too hard or too easy. If the questions are too hard, students will become discouraged. If they are too easy, students will not take the *IRAT* seriously.

Step-By-Step Instructions (CON'T)

STEP 3: SET ASSIGNMENT PARAMETERS

Determine how you will administer the *IRATs*, for example:

- A handout with or without a scantron can be useful.
- Team-based learning advocates often use scratch-off sheets for *IRATs*, such as those found at: <http://www.epsteineducation.com/home/about/default.aspx>

The advantages of the scratch-off sheets are that they can be fun and also provide students with immediate feedback on their results.

- If you are teaching an online course, you may want to use an LMS test or quiz function. Have students complete the quiz prior to coming to class, through electronic administration. It is a good idea to do this as a timed quiz so that students do not have sufficient time to look up the answers, but rather will have to answer questions on their own.

STEP 4: DEVELOP A PLAN FOR LEARNING ASSESSMENT OR GRADING

Quiz results will be available based on the quiz format.

STEP 5: COMMUNICATE ASSIGNMENT PARAMETERS TO STUDENTS

The manner in which you communicate the parameters to students depends upon how you are conducting the *IRAT*.

STEP 6: IMPLEMENT THE TECHNIQUE

- Ask students to complete an out-of-class content-rich assignment.
- At the beginning of class, announce the activity, pass out the *IRAT* you have developed, and tell students how long they have to complete it.
- Ask students to take the test, and then collect them.
- Grade the results and provide students with feedback.

Step-By-Step Instructions (CON'T)

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 *Individual Readiness Assurance Tests*, we are providing you with ideas to vary it.

VARIATIONS

- Consider asking students to rate their confidence in their answers. This variation will help students think through whether they really do know something, which could be influential to their future preparation strategies.
- After students take the *IRAT* as an individual, put them into groups and have them complete the same tests. This *Group Readiness Assurance Test (GRAT)* approach is similar to *Test-Taking Teams* (CoLT 12 from Barkley & Major, 2014) and *Team Tests* (LAT 9 from Barkley & Major, 2016). After the groups take the *GRAT*, allow students to "appeal" any questions they feel had an incorrect answer (Michaelsen, et al., 2014).

Online Adaptation

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

HOW TO GET STARTED

- Choose a reading assignment, video, or other activity that students should complete prior to class.
- In the quiz function of your Learning Management System, create five to ten multiple-choice questions that test whether students have done the work.
- Consider making the quiz timed so students will not be able to look up answers.
- You can also set additional parameters for a quiz, depending on your LMS. For example, make passing a quiz with a specified percent correct a prerequisite for access to a lecture.
- **If the Quiz is Preparation for a Synchronous Videoconference Session:**
 - › Set the deadline early enough for you to review the list.
 - › Give access only to students who passed.
- In addition, consider having your quiz draw questions from a test bank so if students fail the first time, they can have a second attempt.

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 a Professor adapted *Individual Readiness Assurance Tests* in their course, *Philosophy of the Mind*. The second is a blank template for you to fill out to tailor this technique for your course.

Technique Template

Sample Individual Readiness Assurance Tests Completed Technique Template:
Content from *Interactive Lecturing: A Handbook for College Faculty*

Philosophy of the Mind

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?

This course is an online course that can be used as an elective in meeting the General Education Humanities requirement.

STEP 1: CLARIFY YOUR TEACHING PURPOSE AND LEARNING GOALS

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

The professor felt that students were not completing the readings, but rather were relying solely on her video lectures to learn content. The readings, however, had essential foundational information that provided necessary background for fully understanding the lectures. The professor decided to use iRATs to encourage students to read the assigned source material prior to watching the video lectures.

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?

She created a test bank of 40 questions based on a reading, and then created a quiz which would draw 10 questions from the test bank. She set parameters such that students had to earn at least a 70% to pass, and they needed to pass in order to proceed to the video.

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?

If students did not pass, they had to retake the test with new questions until they did. Students were allowed to retest twice. Any student who did not pass the iRAT by the 3rd attempt was required to contact the professor by email to request another chance and to identify a strategy about what they would do differently to do better on their 4th attempt.

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?

The quizzes were administered through the course's Learning Management System, which automatically graded the quizzes, showing how many questions were answered correctly.

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?

She communicated instructions through the LMS.

STEP 6: IMPLEMENT THE TECHNIQUE

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

She implemented this as a quiz, setting parameters through the LMS. There were no 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?

The professor found that the iRATs did help with student comprehension, as students made better grades on essays and exams after she implemented them. She also found that most students were able to pass the iRAT quizzes by the third attempt. The one student who did not emailed her and acknowledged skim reading the assignment in an attempt to pass the test; she asked the student to submit an outline of the material prior to the student's 4th, and successful, iRAT attempt.

Technique Template

This template is intended for use when planning to implement ***Individual Readiness Assurance Tests*** 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

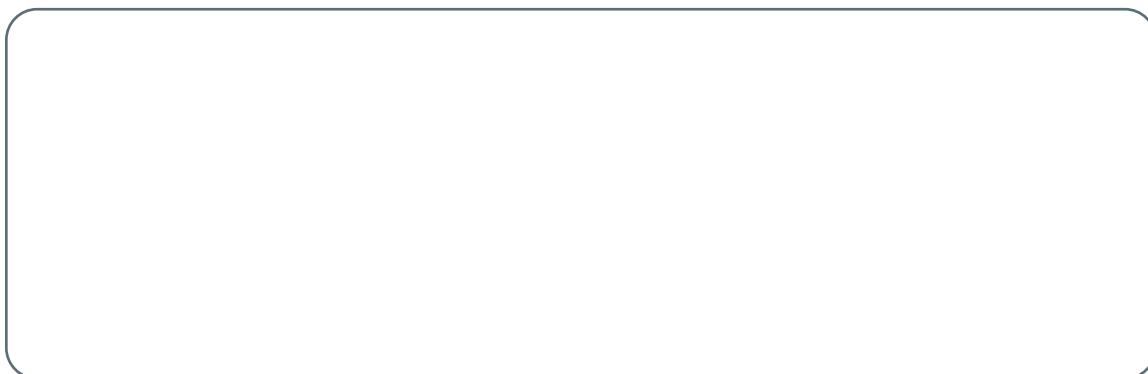
COURSE CHARACTERISTICS

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?



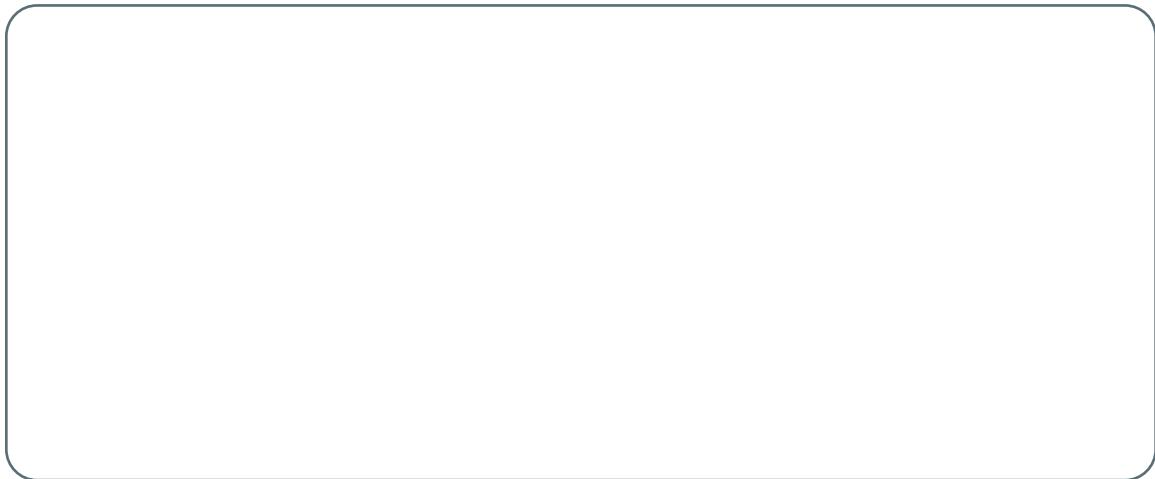
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Why are you choosing this technique? What do you hope to accomplish?



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

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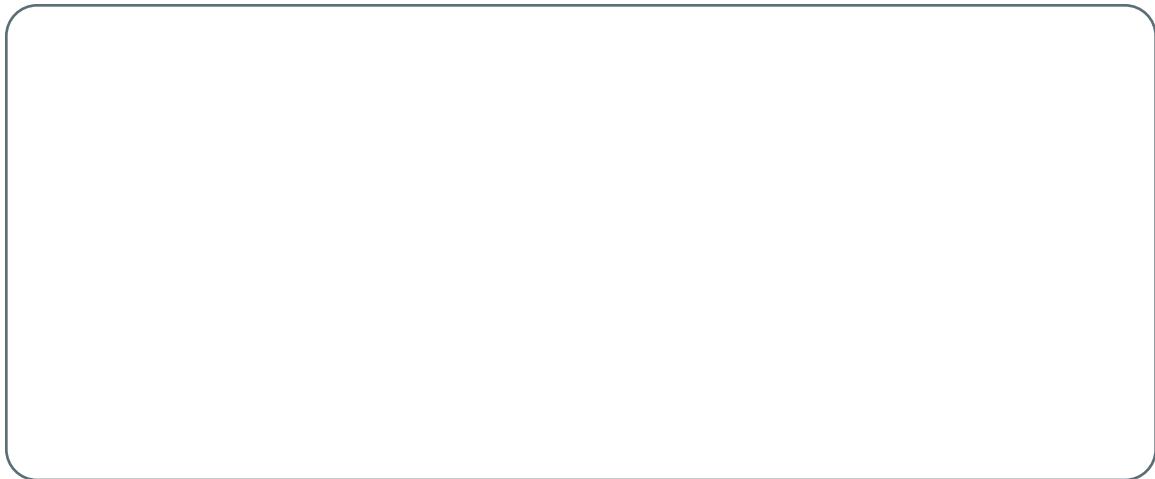
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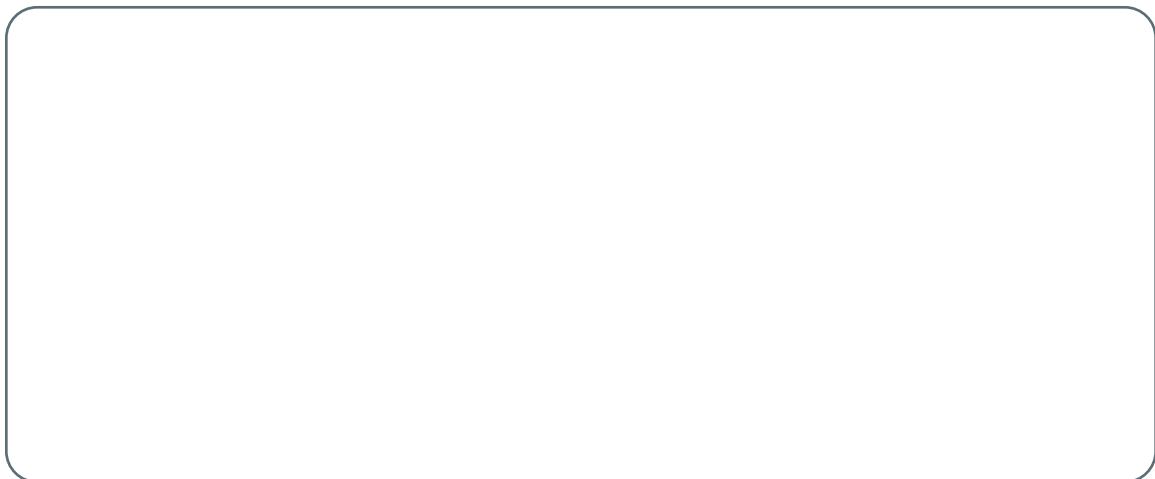
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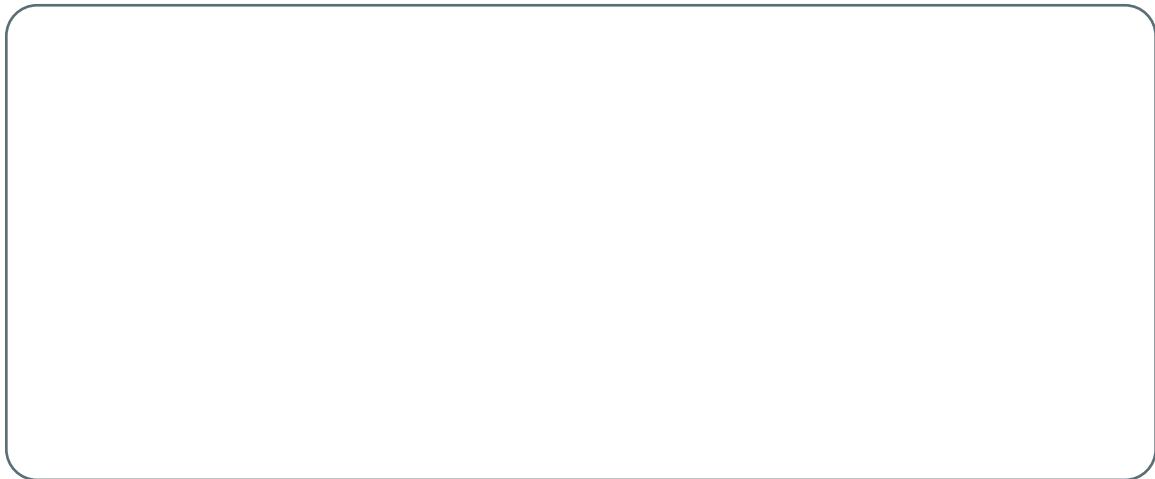
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How will you communicate assignment parameters to students? For example, through a handout? A prompt on a presentation slide? Assignment instructions in your online course?

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STEP 6: IMPLEMENT THE TECHNIQUE

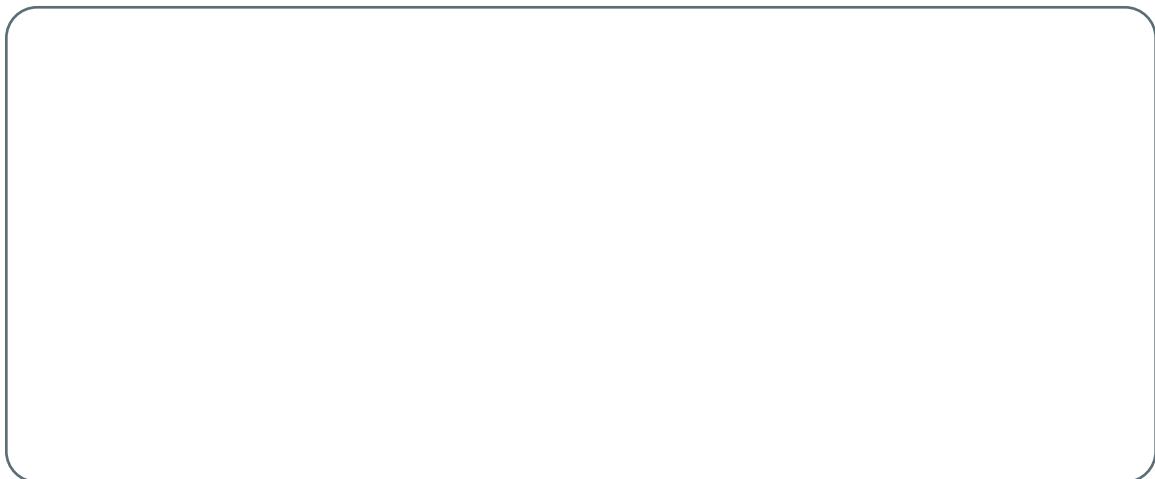
How will you adapt steps/procedures for your students? Are there any additional logistical aspects to consider?

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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?

A large, empty rectangular box with rounded corners, designed for users to write their responses to the questions in Step 7.

References and Resources

PRIMARY SOURCE

Content for this download was drawn primarily from "Active Learning Technique 5: Individual Readiness Assurance Tests" in *Interactive Lecturing: A Handbook for College Faculty* (Barkley & Major, 2018), pp. 212–215. 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., Major, C. H. (2018). *Interactive Lecturing: A Handbook for College Faculty*. San Francisco, CA: Jossey-Bass.

CITATIONS AND ADDITIONAL SUGGESTIONS FOR FURTHER READING

- Barkley, E., & Major, C. H. (2016). Learning assessment techniques: A handbook for college faculty. San Francisco: Jossey Bass/Wiley.
- Barkley, E. F., Major, C. H., & Cross, K. P. (2014). Collaborative learning techniques: A resource for college faculty (2nd ed.). San Francisco: Jossey-Bass.
- Hryncak, P., & Batty, H. (2012). The educational theory basis of team-based learning. *Medical Teacher*, 34, 796–801.
- Michaelsen, L. K., Davidson, N., & Major, C. H. (2014). Team-based learning practices and principles in comparison with cooperative learning and problem-based learning. *Journal on Excellence in College Teaching*, 25(3/4), 57–84.

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