Writing RAP Questions

Supporting resource for your homework

At the heart of the Readiness Assurance Process is a series of readings and a multiple-choice tests that cover the important fundamental knowledge that students will need to know to begin the 4S application activities.

Getting ready to write RAP questions

Once you understand what the culminating student performance will be, you turn your attention to preparing student for first engagement with the content (reading and RAP) and then the progression of 4S activities that leads to that culminating 4S performance.

**I**dentify specific knowledge the students will need to begin effectively engaging with the 4S activities. This is not everything they need to solve every activity but what they require as an entry point to the problem-solving conversation. You do this by mapping back from the 4S application activity to important foundational knowledge that the students will need to be successful. When you are clear on the basic knowledge students need to know, you are then ready to select appropriate student preparation materials and construct RAP questions.

Select appropriate student preparation materials. There is an iterative loop as you select/define/refine the concepts to be initially tested, and then select and refine the preparation materials. For preparation materials, we most often use readings, but videos, lecture recordings, or narrated PowerPoint’s can work well. Over the years we have discovered that less is more with readings. The amount of readings that students will tolerate depends on the particular discipline and institutional context. Our readings are closer to 25 pages for 2 weeks, which is down from our original 75 pages for two weeks. We found that students were spending a short, fixed amount of time completing readings without regard for complexity and length of readings. Remember the Readiness Assurance Process is not trying to be comprehensive. It is just giving students an entry point to the problem-solving conversation.

One aside – when teachers are first introduced to the idea of the flipped classroom, they are often concerned on how to cram their 1 hour lectures into a 10-12 minute videos. This is the wrong way to look at it. The preparation materials are just to get students started. It is not all that students learn in a module, so you need to create a selective subset of your 1 hour of lecture content – focusing of high level themes and must know basic concepts and definitions. Students will be motivated to learn the additional content to solve the exciting 4S team tasks.

Develop a list of important concepts and ideas to test with your RAP questions. The RAP question coverage doesn’t need to be comprehensive, you are providing students the foundational knowledge and understanding they need to begin problem-solving.

Writing RAP Questions

Multiple-Choice questions have two main parts: the question stem or leader, and the options (which include a correct answer). When beginning to construct a multiple-choice question, write the stem of the question first. A well-constructed stem is a stand-alone question that could be answered without examining the options. The wording of the stem and the verbs it contains determines the overall difficulty of the question.

Multiple-Choice Questions have a reputation for only testing lower level skills like knowledge and recall. In the question example below students are asked the difficult task - *to select the citation that is most accurate*. All citations have errors and the students are really being asked to “hypothesize” which errors will have the greatest impact on the citations effectiveness. This question is testing at a very high “Blooms” level. Writing questions at higher “Blooms” level is difficult, but NOT impossible.

In your argument, you are citing a number of cases from different courts. This is the first time you cite any of these cases. What is the most accurate citation sentence (use your citation manual)?

*Wyman v. Newhouse*, 93 F.2d 313, 315 (2d Cir. 1937); *Henkel Co. v. Degremont*, 136 F.R.D. 88, 94 (E.D. Pa. 1991), *Willametz v. Susi*, 54. F.R.D. 363, 465 (D. Mass. 1972).

*Henkel Co. v. Degremont*, 136 F.R.D. 88, 94 (E.D. Pa. 1991); *Willametz v. Susi*, 54. F.R.D. 363, 465 (D. Mass. 1972); *Wyman v. Newhouse*, 93 F.2d 313, 315 (2d Cir. 1937).

*Willametz v. Susi*, 54. F.R.D. 363, 465 (D. Mass. 1972); *Henkel Co. v. Degremont*, 136 F.R.D. 88, 94 (E.D. Pa. 1991); *Wyman v. Newhouse*, 93 F.2d 313, 315 (2d Cir. 1937).

*Wyman v. Newhouse*, 93 F.2d 313, 315 (2d Cir. 1937), *Willametz v. Susi*, 54. F.R.D. 363, 465 (D. Mass. 1972), *Henkel Co. v. Degremont*, 136 F.R.D. 88, 94 (E.D. Pa. 1991).

Have a peer or colleague review your questions. It can be difficult to see flaws in our own questions, when we have spent hours writing them. A fresh set of eyes can help us catch many errors. There is nothing more uncomfortable then dashing off a set of poorly written questions, rushing to class, and enduring the inevitable student backlash and discontent.

Some Rules for MCQ Question Writing

For good question stems, consider following rules:

* Stems should be stand-alone questions.
* Stems should be grammatically complete.
* Negative stems should be used with caution.
* If a key word appears consistently in the options, try to move it to the stem.
* Word the stem such that one option is indisputably correct.

For creating good options, consider following rules:

* Make sure each incorrect option is plausible but clearly incorrect.
* Make sure that the correct answer (keyed response) is clearly the best.
* Avoid, if possible, using “all of the above”.
* Use “none of the above” with caution.
* Try to keep options similar lengths, since test-wise students will pick the longest option if unsure       (too long to be wrong).
* Make sure options are grammatically consistent with the stem (question leader) and use parallelism.
* Make sure that numerical answers are placed in numerical order, either ascending or descending.

Well-constructed multiple-choice questions are not easy to create. But the quality of the multiple-choice questions you use in your Team Test can make or break the tone of your class. Nothing is more uncomfortable than rushing poor questions to the classroom and having to endure the inevitable student backlash. Good questions are absolutely essential to our success, and putting in the effort to write good questions is worth your time and attention.

Spend time reviewing and revising your questions. It can be very helpful to have a colleague look at your questions. When we write them we are often too close to see all the mistakes. Just like good writing is about good editing, good MCQ questions are about reflection and revision

Question Level mix on RAP tests

Write your RAP multiple-choice questions at Bloom’s Remember, Understand, and light Application level of difficulty. This is not about testing all that students will learn in the module, but instead only what they need to begin effectively problem-solving (4S Application Activities). It is important to pitch the RAT at the right level to encourage students to engage deeply but not so difficult that they lose heart.

The test should be a mix of approximately 20% remembering (did you do the readings?), approximately 60% understanding (did you understand what you read?), and finally, 20% application, The application questions can be in the form of “which concept applies to this situation” (are you ready to use what you have read?). To use a book analogy, you want to write these tests more at the table-of-contents level then at the index level.

You can include a few simpler questions that just provide simple accountability that the student has completed the readings. Try to ask about topics that students are likely to interpret incorrectly. Test common misconceptions that might undermine students’ ability to successfully begin problem-solving. You can ask which concept applies to a given situation or scenario. You can focus on the relationship between concepts; this is an efficient way to test two concepts at once.

Getting ready for Class

Key the test to the IF-AT scratch cards by moving the correct answers to line up with stars on cards. Count out IF-AT cards (one for each team, plus a few extra’s). Print the RAP tests and answer form and then load them into the team folders (one for each team). Each folder contains a test for each student, an answer card for iRAT (printed form, scantron, or online systems can be used in large classes) and one appeals form. We normally keep IF-ATs at front of class (not in folders). Teams bring up all their iRAT answer sheets at end of iRAT time and trade it for their IF-AT card.