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Design Your Own Module Assessment/Feedback Kit

This document is intended to help River Summer instructors design their own feedback form for their module. The River Summer program will require all module participants to fill out a general feedback form (also available on this website under Evaluation), but if you want help designing an assessment for your module (i.e. a test to see what your participants learned) OR to get specific feedback about the concepts and activities in your module, this document will guide you through various options for eliciting useful information from the participants. Feel free to contact me, Ryan Kelsey, at ryan@columbia.edu for additional assistance.

Usually I help people design these sorts of evaluations in person with several iterations, but because we're in a time crunch and we're dispersed around the Northeast, that just didn't seem feasible, but I've written this guide in the kind of conversational tone that I like to use when talking to people… so imagine I'm there sitting next to you and we're going to put together a feedback form to help you improve your module the next time you do it. The first thing I would ask you is:

(1) Do you have your learning goals/objectives clearly defined?

We're not going to get too far evaluating your module unless we know what you hope the participants (and ultimately their students) are going to get out of doing it.

I like to see goals/objectives stated like this:

> **Upon completion of X, students should be able to _____.**

Why? Because, whatever **X** is, the instructor and I should be able to tell (or better yet measure) whether or not it happened.

Some good goals:

- ....identify relationships between *A* and *B* themes in *X* painting or *Y* novel.
- ………………design an experimental protocol to test for the presence of *Y* chemical.
- ....cite specific examples of *Z* when presented with a new problem.
- ………………provide the key legal arguments for and against removing *Z* toxins from the river.

An example of a weaker goal:

- ...should be able to understand the geologic events that led to the formation of the Hudson River Basin.

Why is this weak? Look at the verb - understand - how do you measure that? And 'better' than what?

This would be a better stated goal:

- ...should be able to create a map or timeline of the events that led to the formation of the Hudson River Basin.

The creation of the map would be evidence that the student understands the events - **IF** they made a one that matched well with you've made as their instructor.

So whether you have your objectives set or not, take this opportunity to see if you can generate some objectives that follow this format – it will make the rest of this guide a more concrete process for you, and you'll have a better chance of getting some solid information back from participants (and they have will have an easier time assessing their students when they play your role back at their institutions).

Next, I would ask you:

(2) Looking over your set of planned activities, which activities map to which goals?

To determine this correspondence, some people (like our colleague Tim Kenna) like to make a chart like this with the goals across the top and the activities down the left side:

Lab	Exp Design/Field work prep	Sample collection	Uncertainty/Error propagation	New analytical technique (Skill)	Data quality	Sensitivity/detection limits	Water quality	Sediment properties	Sediment borne contaminants and issues	Dating sediments
Lab: All day Field trip on Hudson River aboard the Seawolf	X	X								
Lab: Core logging with the Multi-sensor core logger/ Splitting and photographing				X				X	X	X
Lab: Phosphate determination (water samples)			X	X	X	X	X			
Lab: Determination of dissolved oxygen and BOD by Winkler titration (water samples);			X	X	X	X	X			
Lab: Nitrate/Nitrite by spectrophotometer/ Ammonia by CHEMETS test kits			X	X	X	X	X			
Lab: pH and Alkalinity determinations/ GSA destruction of organic matter with H_2O_2.			X	X	X	X	X	X		

This is useful for seeing what kind of emphasis you are placing on each of your goals and to see the sequence in which they will play out. Having done this, you may find yourself re-organizing your activities and/or revising your goals – this is a good thing, not a bad thing.

Once you are satisfied with your goals and sequence, think about the following:

(3) For a given activity and corresponding goal, what could you ask the participants to do to demonstrate their achievement of the goal?

It might be as simple as having them answer an open-ended question or as elaborate as presenting them a scenario similar to what they experienced on the boat and seeing if they can react appropriately.

Some general guidelines…if the goal is primarily:

- **content focused**, go for fact-based questions (Ex. Identify the 2 main themes in this piece of art).

- **skill-based or a process**, go for a scenario or problem to solve where the participant has to justify their actions or decisions (Ex. Given this data set, what might you test for next? How would you do it while maintaining control of as many other variables as possible?)

- **conceptual or a system**, asking students to make a visualization or map of their thinking or of the system can be a good measure of their understanding (Ex. Link together the events that led to the present state of things in a relational map with a timeline. Distinguish between events that are causal versus those that are only correlated.)

- **attitudinal or more contextual**, then your task is more difficult, but you can ask journal-like questions that ask students to reflect on their experience, what stood out to them, have them relate it to their life or goals to show they how made the activity meaningful through their eyes. (Ex. Reflect on the message/tone/point-of-view of your short story. What purpose does it serve? Select two key passages and comment on the choices you've made.)

Now you may be saying, "Wait a minute, is it my job to **TEST** the participants?"

Good question. I think it's useful to go through this exercise because ultimately, the participants will have to assess their students on their mastery of the objectives for the module, so at the very least, you are going to want to provide participants with sample assessment methods that they can adapt for their needs. But **you and they** may also benefit from seeing their performance on these types of assessments because it might give all of you clues about where you need to be clearer in your explanations or demonstrations, where you might want to provide more background or additional resources, or what you simply throw out that isn't working for most people.

To further bolster whatever findings you get from your assessment questions and from the general feedback form that will be distributed, designing additional survey questions can be done using what I would call a *Mad Libs* process… you know, those games where you get a sentence like:

Jimmy went down to the *(place)* where a *(animal)* bit him on the *(body part)*.

and you ask people ahead of reading the sentence to give you a place, animal, and body part, and it makes for a funny story (especially if you are around 8 years old).

Well, for us, we'll be doing something perhaps slightly less silly, but hopefully more useful…

Try this:

(4) Considering *(activity/step in an activity)*, what could be *(added/removed/changed)*, to better achieve *(goal)*?

I wouldn't do it for every activity in your module; just the 2 or 3 you feel need the most help.

Here are a few more *Mad Libs possibilities* (I'm sure you can think of more):

- Considering the need for *(goal)*, how might I make *(activity)* more *(flexible/adaptable/useful)* for your purposes?
- Considering the **(*data/findings/approach*)** we (**obtained/tried**) during *(activity)*, how might it be modified to better suit your purposes?
- I'm struggling to improve **X** aspect of *(activity)*. Do you have any suggestions?

You'll notice that I'm trying to encourage you to get as specific as possible. The general feedback form will ask participants to rate the program and elicit their plans going forward, so any questions you design should be specifically tailored to the activities you are carrying out.

Now, if you were designing questions for a large audience, I would continue on to describe different rating systems that you could employ for questions, but since you are going to have such a small sample, it is really overkill to go down that road at this point.

So…

Once you have your questions set up, simply arrange them in a Word or Excel document and upload it to this Evaluation folder on Blackboard by June 30th. The River Summer team will make the form available on the ship for participants to fill out electronically while on board. Once they are filled out we'll obviously share the results with you and we can talk about where to go from here with your module.

And again, if you would like further assistance, drop a line my way… ryan@columbia.edu... Good luck.