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Lesson Plan with Misconception/Bottleneck Focus

Judith Longfield

Georgia Southern University, jlongfield@georgiasouthern.edu

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Lesson Plan with Misconception/Bottleneck Focus

Purpose. The first principle discussed in *How Learning Works* is “students’ prior knowledge can help or hinder learning.” There is high probability that some, or, all of the students in your target course will have misconceptions and/or inaccurate prior knowledge that will actively inhibit their ability to learn course material. Unless you identify these misconceptions—also called learning bottleneck—and address them explicitly, students may be unsuccessful in mastering disciplinary thresholds. During the *Teaching Academy*, you will have the opportunity to apply the principles of smart teaching by designing a lesson to address an important misconception or bottleneck in your target course.

What to Do. Start planning your lesson as early as possible—see suggested steps below. Your lesson plan may be submitted in any format that is serviceable and keeps everything together—attach copies of PPTs, handouts, activities, etc. It can be a plan for one session, for a week, or for a chapter. It should be written in an “instructor friendly” manner so that a colleague can pick up your lesson and use it without problems. When creating your lesson, begin by identifying a specific misconception or bottleneck and explain how you will address it in a *meaningful* way—this means student friendly vocabulary and an activity (or multiple ones) that confront students’ ideas and make them aware of their own inaccurate perceptions or misconceptions. Your lesson plan should also identify the course objectives being addressed and, when available, program objectives. If you are not sure how to plan a lesson, you may follow the steps below (the ones we are learning in class) or use one of the other resources available on Folio.¹ To help you get started, an activity for addressing the misconception—discrepant teaching event—is due Week 6 (Feb. 17 or 18). The completed lesson plan is due Week 7 (Feb. 24 or 25).

How to Plan Your Lesson.

Step 1. Pick Your Topic. *What concept or skill in my target course has been/will be the most problematic to teach?* To do this, select your favorite search engine, type in “misconceptions” and the concept(s) or topic, and then hit the search button. You may also try the term “learning bottleneck,” but this research is relatively new in some disciplines and may not yield results. Your departmental colleagues may also be of assistance in identifying common misconceptions and learning roadblocks.

Step 2. Identify the Purpose. *Why is this concept or skill critical to my discipline? What do students need to understand or be able to DO to demonstrate mastery of this concept or skill? What course objective(s) are being addressed? Program objective(s)?*

Step 3. Gather Information — Get Ready to Plan.

(1) **Identify common misconceptions** and/or learning bottlenecks. Although you’ve already done this when you made your list of common misconceptions in your discipline, you still need to know if YOUR students have this misconception. A simple way to do this is to pre-assess your students using a Classroom Assessment Technique or CAT.

(2) **Look for resource materials.** Some professional journals have sections devoted to teaching ideas. Are there any on your topic? Do they address misconceptions or learning bottlenecks?

Step 4. Create a Plan. Now that you have an idea where students will struggle with the topic or concept(s) you will teach, it’s time to begin planning by creating a draft outline of the lesson. Were you able to find a discrepant event or activity that will make students aware of their misconceptions or misunderstandings? What can you do to “hook” students’ attention at the beginning of the lesson? What can you do to address the multiple learning preferences of your students? Once you have ideas about what to include, consider what you should teach first, second, third, etc.?

¹ If you are not familiar with Wiggins and McTighe’s “Backward Design” model, the one used in the *Introduction to College Teaching* and *Course Design* series, resources are available on Folio.

Step 5. Design the Lesson. Once your outline is created, begin to fill in the details. You'll want to include the following components:

- (1) **Student Learning Outcomes (SLOs).** *Are my SLOs measurable? Are they stated in clear, student-friendly language? Are they well connected to my course objectives?*
- (2) **Misconception/Bottleneck.** Identify specific misconceptions and/or learning bottlenecks. *What is my plan for addressing it/them?*
- (3) **Materials/Technology.** *What supplies will I need? Should I flip the classroom? How? Should I ask students to do something on Folio? What? Do I need to create any handouts? If you do create handouts, attach them to the lesson.*
- (4) **Introduction/Anticipatory Set.** *What can I do to introduce the lesson in an interesting way so I can gain students' attention? How can I help them see the purpose and relevance of the topic? How will I connect this lesson to previous lessons?*
- (5) **Instructional Strategies.** Use a variety of strategies for promoting higher order thinking skills, especially open-ended enGagement activities and key questions. Make sure the activities you use clearly match your SLOs. Will the activities and key questions you have selected adequately address students' misconceptions? It is also important to model for students, use multiple real-world examples, and to utilize student-friendly terms to explain disciplinary concepts. *Is the focus on surface learning or higher-order thinking skills? What higher order questions will I ask? What opportunities will I provide for guided or independent practice?*
- (6) **Assessment (Formative & Summative).** Are your SLOs measurable? Remember that assessment can be formative (informal, ungraded) or summative (formal, graded). Consider using a CAT to collect data on student learning rather than relying solely on written quizzes or tests. Ask yourself: *How will I know students "got" it? Think of ways you could use a checklist or rubric to assess students' work and provide them with feedback—attach to the lesson.*
- (7) **Closure.** Should I summarize or review the lesson or have students do this? How could I have students show me what they learned? Should I preview next lesson? How?

Step 6. Review Your Plan. In addition to reviewing your plan, ask a colleague or other acquaintance to review your plan. You might also arrange to do a "talk through" to make sure the plan is well organized and the parts flow together smoothly. Also ask: *Is the lesson learning-centered? Does it encourage students to take responsibility for their learning? How long will each part take? Is my timing realistic? What supplies and handouts do I need? Do I need to add anything to Folio?*

Step 7. Revise Your Plan. After reviewing your plan, make any needed revisions you identified. Check to see whether or not you have clear, step-by-step instructions, ones a colleague could use to teach this topic. Also make sure you have attached copies of PPTs, handouts, activities, etc.

Next Steps. Now it's time to teach your lesson, give it a test drive so to speak, and to reflect on what you and your students learned. As you are teaching, **reflect-in-action**² by asking yourself if you need to speed up or slow down, and whether or not an activity is working. Listen to students responses and provide additional examples or restate what you just said in a different way if needed. Once you have taught the lesson, **reflect-on-action**. Ask yourself: *How did it go? Did students learn what I want them to learn? What can I do to help students who just didn't get it?* Also, **reflect-for-action** and make revisions for future iterations of the lesson. Think of ways you can challenge students who found the class or activity too easy or finished early. *What revisions will make the lesson run more smoothly or more effectively? Is there something that can be removed or that needs to be added?* Remember that no matter how well-written and thoughtful, a lesson plan is incomplete until you teach it, assess what students learned, and REFLECT on what you learned because **planning is on-going and reiterative**.

² If you are unfamiliar with the idea of using reflection to improve student learning, read a short summary, "Reflection as the Key to Intuitive Knowing," on Folio.