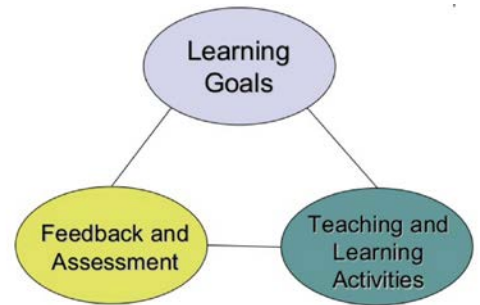


Creating a TBL Module

Using Backward Design is essential to developing a good TBL module. First, we need to consider "what I want the students to be able to do" by the end of the module or course, then "how will I know they can do it", then "what opportunities do I need to provide to help them succeed". Fink's work (Fink, 2003) reminds us that we must ensure that these three aspects of our course design – Learning Goals, Feedback and Assessment, Teaching and Learning Activities - are well integrated and mutually reinforcing. We need to develop assessable culminating student performances, in which students can show us all they have learned, and we need to develop teaching strategies that give students the learning opportunities to prepare them to show us all they have learned in a culminating performance.



Typical Module Progression

The typical 2-week TBL module start with students completing assigned pre-readings or other preparation materials, and then at the first class meeting they complete the Readiness Assurance Process (multiple choice test). By the end of the Readiness Assurance Process we have some "assurance" that your students have the important foundational knowledge to begin problem solving. The rest of the module focuses on having students using the course concepts to solve problems structured using TBL's 4S framework. During the problem-solving process the instructors sometimes will provide a short mini-lecture/expert clarification when teams are having difficulty progressing. The module ends with a short instructor-led review of all that has been learned.

Construction steps for a TBL module

1. Develop Aims and Learning Outcomes.
 - Consider situational factors
 - Develop your Instructional Aims
 - Develop student Learning Outcomes
2. Design 4S Application tasks/activities.
 - Design 4S team Application tasks/activities
3. Develop Readiness Assurance Process.
 - Select readings or create advanced preparation materials
 - Write RAP questions



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1. Develop Aims and Learning Outcomes

First, you need to develop your Instructional Aims. Aims are your general instructional intentions for the module. The things you hope to achieve as a teacher.

Next, you develop Learning Outcomes. Learning Outcomes focus directly on the students and get more detailed on exactly what the students will achieve by module end. Learning Outcomes often contain references to the knowledge, skills, and judgement abilities you want your students to develop. These Learning Outcome statements are often the precursors to ideas for 4S Application tasks. The more concrete you can make the learning outcomes the easier it will be to develop 4S Application tasks from them. When we start thinking about the 4S Application tasks, we want to perhaps rewrite these outcome statements to focus on more concrete actions. We are looking for actions just like a disciplinary expert takes. Good course Learning Outcomes express how people in your field or discipline will USE the course content.

Note below how concrete, active Learning Outcomes use verbs that are already the seeds for 4S Application task development!

Sample Learning Outcomes for a statistic course: by the end of this course students will be able to use their knowledge of statistical principles to:

- Complete a statistical analysis
- Select an appropriate sampling plan
- Develop a survey instrument and plan to gather information from a specific population

Sample Learning Outcomes for a genetics counselling course: by the end of this course students will be able to use their knowledge of genomics to:

- Interpret genome sequencing data
- Identify genetic markers with greatest risk of disease/abnormality
- Develop counselling plan to work with specific family issues

Sample Learning Outcomes for a business course: by the end of this course students will be able to use their knowledge of marketing principles to...

- Conduct a market analyses
- Evaluate a marketing plan
- Select or Develop marketing techniques to reach specific populations of clients

Sample Learning Outcomes for a history course: by the end of this course students will be able to use their knowledge of early Canadian history to...

- Interpret written accounts of historical events in light of cultural dynamics
- Assess (and estimate) the bias or orientation of a given author
- Develop arguments for current policies or political positions based on historical context



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2. Design 4S application activities/tasks

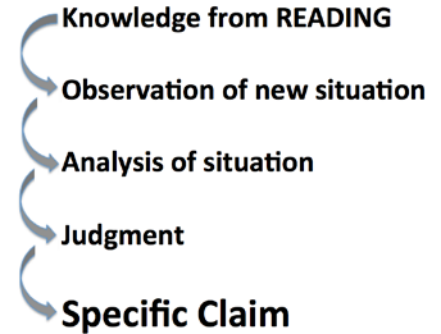
In a 4S Application task, students get to concretely apply what they have abstractly learned from the readings. Connecting abstract concepts from the readings with concrete experience during the 4S team Application tasks is important to consolidate student learning and deepen their understanding. You need to present a scenario that creates the context in which what students “know” abstractly (via their readings) is put to the test when they try to “use” it in concrete, specific case. Your job is to find or, if necessary, fabricate these scenarios.

4S EXTENDED EXAMPLE

Students in Sociology might “know” Maslow’s hierarchy of human needs, and could score well on a test that asked them to recite and explain it. But now imagine the Application task you give students, based on their initial understanding of Maslow:

You are a social worker and you have been given the case of “Maria from Syria.” Given your understanding of Maslow’s hierarchy, look at these data, make an assessment of her situation, and decide the best way to proceed in interacting with her: “Maria comes from a middle class family (her father was a dentist) in a small town in war-torn Syria. She immigrated with just her two children to Canada 2 years ago, and came to Ontario. She now works long hours at minimum wage as a housekeeper. She recently re-married and currently lives with her abusive, alcoholic husband. One of her children has health problems...etc.”

If the details of the case are rich, it quickly becomes clear to students that Maria’s case is complicated, and that Maslow’s hierarchy, while it is a useful tool to help analyze the situation, does not lead to an easy assessment or judgment.



EXAMPLE 4S PROMPTS (without specific choices/plausible alternatives)

- A patient comes into emergency with the following symptoms...
 - What is the first thing you would do? And why?
 - What is the first test you would order? And why?
 - What would be the worst thing to do? And why?
- Given 3 possible programs to end homelessness in your city, select the program that is the best and will likely be most strongly supported by local agencies and Civic leaders? (Michaelsen and Sweet)



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- What is the most relevant theory that explains the behaviour in the video? (Kubitz and Lightner)
- Which of the following best describes the opportunity cost of coming to class today? (Espey)
- Which of the following should the University do to best increase the quality of Undergraduate education? (Mahler)
- Which sampling scenario would best address this research project? (Mahler)
- Given three valid historical interpretations of the progressive Movement, discern which best describes the Progressives revealed in our manifesto? (Restad)
- In Clarence Page's op-ed piece "The Problem With Trashing Liberty" where does the responsibility for a safe a civil society lie? Which of the following three philosophers (X, Y, and Z) does Clarence Page most agree with on these fronts? (Roberson and Reimers)
- What of the following passage in the Bhagavad Gita best illustrates reflection about the nature of Krishna's divinity? (Dubois)
- Rank how useful each source is for understanding the fears of the Cold War era. (Restad)
- Which teacher should be nominated for a teaching award? (Croyle and Alfaro)
- Which indicator (from a list of 5 plausible alternatives) is most critical to making a correct diagnosis in this case? (Michaelsen and Sweet)
- If a moving vehicle overloaded this bridge structure, which component would likely fail first?
- You are making a home assessment, which of the following safety hazards would be of greatest concern? (Clark)
- After assessing Mrs. Randall's dining room what would be your first recommendation to protect her from falls? (Clark)
- What line on this tax form would pose the greatest financial risk due to an IRS audit? (Michaelsen and Sweet)
- Given a set of real data, which of the following advertising claims is least (or most) supportable? (Michaelsen and Sweet)



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- You are consulting for a new business owner who wants to open a dry-cleaning store in Norman, Oklahoma. Where would you recommend locating a new dry-cleaning business? (Michaelson)

First, you may need to take the original Learning Outcome and make them more CONCRETE. You are trying to create scenarios/situations where students' factual knowledge (*from RAP process*) is useful for solving the problem, but maybe insufficient to solve the problem definitively.

Next, what do you want students to do using their knowledge?

- Evaluate/judge something (object, product, creation, situation)?
- Analyze or diagnose a situation?
- Interpret something (text, artifact, data set)?
- Solve a particular type of messy problem?

Next, identify the concrete information/data sets the students will work with:

- Texts (such as cases, descriptions, excerpts from a textbook, writing samples, etc.)
- Images (visualizations, diagrams, videos, etc.)
- Data (spreadsheets, graphs, charts, etc.)
- Objects (products, specimens, etc.)

Next, you need to pick the format of students' action:

- Will they compare?
- Will they sort?
- Will they rank?
- Will they score?
- Will they choose the best course of action?
- Will they distill and represent in a written format?

Next, focus the outcome of the 4S task so it can be represented in a simultaneous report by the teams. Can their answer be represented with?

- a. Colour Voting Cards
- b. Single Number
- c. Single Letter
- d. Single word or phrase

Sometimes this means converting a complex response into a simple response. For example, after a ranking task, ask students to report their #1 choice, rather than their entire ranking scheme. If you've asked students to compile a list, ask them to choose the MOST critical item on their list and report it. Every task needs to lead to a moment of sharp differentiation: "I choose this over that." Getting the students to this moment sets up "WHY?" as the teacher's entry point for interactions leading to student analysis, reflection, and critical thinking.



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Finally, develop a facilitation plan for debriefing the 4S Application task. This begins by asking ALL teams to report their answers at the same time. This also provides you with a way to organize the discussion that follows, and direct students into a dialogue with each other.

Instructor: "OK, I see three groups said "B" and two groups said "C." Let's start with those of you who said "C." Please explain to the other students why you chose this answer?"

Later: OK, teams who said B, how would you respond to them?"

Later still: Nobody chose A. Why did you discount that possibility?"

3. Develop Readiness Assurance Process

Once you define the culminating student performance, you turn your attention to preparing student for first engagement with the progression of 4S activities that leads to that culminating 4S performance. This lets you select appropriate preparation materials and design an effective RAP.

First, identify what specific knowledge students will need to effectively engage 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 knowledge students need to know, you can then select an appropriate reading.

Next, 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.

Next, 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.

Next, let 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.

Next, key the test to the IF-AT scratch cards by moving the correct answers to line up with stars on cards.

Finally, get ready for class by printing the RAP tests and loading a team folder for each team. Each folder contains a test for each student, an answer card for iRAT (scantron in large classes) and one appeals form. You will also need to bring IF-AT cards (one per team). We normally keep those at front of class (not in folders). Teams bring up all their iRAT answer sheets at end of iRAT time and trade it for the IF-AT card.



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RAP QUESTION EXAMPLES

1. How is the bulk of class time spent in a TBL course?
 - a) Using course content to solve problems and make decisions
 - b) Reviewing important course content
 - c) Working on team writing assignments and reports
 - d) Listening to lectures, interspersed with activities

2. What is the most important consideration when creating TBL teams?
 - a) Large, diverse, and instructor created
 - b) Small enough that everyone must pull his or her weight
 - c) Grouped with similar abilities
 - d) Selected by students to minimize initial student resistance

3. What is the most important purpose of the Readiness Assurance Process?
 - a) Holds students individually accountable for coming to class prepared
 - b) Creates a social learning environment where students can compare their understanding of course concepts
 - c) Delays feedback so students are forced to review and reflect on the right answers for the tRAT
 - d) Turns initial individual preparation into true readiness

4. What is the primary purpose of the Application Activities?
 - a) They enable the instructor to get an idea of which teams are struggling with learning the course material
 - b) To get a quick read on individual students' preparation, and to identify students at risk
 - c) To enable the teams to report decisions publicly, and defend their own decisions, and examine and critique other teams decisions
 - d) To give the teams sufficient time to generate a lengthy written rationale for their decisions that can be easily graded by the instructor



RAP QUESTION – POSSIBLE STEMS

REMEMBERING (knowledge) Recalling, defining, recognizing, listing, describing, retrieving, naming	What is...? How is...? Where is...? When did ... happen? How would you describe...? Can you select...? Why did...?
UNDERSTANDING (comprehension) Explaining ideas or concepts, interpreting, summarizing, paraphrasing, classifying	How would you classify...? What facts or ideas show...? Which statement supports...? How would you summarize...? What is the main idea of...?
APPLYING (application) Using information in another situation, implementing, carrying out, executing	What is the best first step? What is the most significant problem? What would be the worst thing to do? What is the most common mistake? Which test would you order next? What is the most common diagnosis? How would you use...? How would you solve? What is the most logical order? What would result if...? What facts would you select to show...?



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