Anatomy of a Good Team Task

The structure of great team task gives individuals and their team opportunity to analyze a scenario that requires them to make a difficult judgment that leads to them to publicly committing to a decision on an appropriate choice or course of action. This public report of a team’s decision creates an intense reporting conversation where students get specific and timely feedback on the quality of their thinking and their process for arriving at their decision. It is during this reporting conversation you have a facilitation opportunity to help students deepen the discussion by applying the principles of critical thinking.

Those of you familiar with Team-Based Learning will recognize the structure in the following example as the 4S framework. The 4S’s stand for present a **Significant Problem**, all teams get the **Same Problem**, teams are asked to make a **Specific Choice** (constrained choice), and then teams publically commit to their decision by publically and **Simultaneous Reporting** it. This framework is not just for TBL teachers. It can be used any time you want to design powerful classroom activities and discussions.

Example Task

You are head of Engineering for a large dam project on the Yellow river in the Ningxai province of China. The dam is to be located in the Yiling district near the exit of the Ordos Loop section of the river. The dam is to be located at 34°49′46″N 111°20′41″E. See attached diagram for specific site location and channel placement. The Yellow river is China’s third largest river. The local bedrock is a highly fractured gneiss. The river is characterized by extremely high silt loads, especially in spring floods. The proposed dam will be a concrete arch design. You have been asked to determine some of the main design parameters, including safety related question like what flood event return period to build the dam to withstand.

What **flood** **return period** would you recommend the dam be designed to withstand?

1. once in 50 year flood
2. once in 100 year flood
3. once in 200 year flood
4. once in 500 year flood

Complex Analysis Required

The example looks like a simple multiple-choice question, but it isn’t a simple question. Coming up with a good solution requires the integration and analysis of many different factors and the weighing of tradeoffs (like cost vs. safety). There is a lot of things for the teams to consider in determining a reasonable course of action and coming up with a reasonable defense for their decisions.

Important considerations could include:

* How big are the flood events?
* Are changing climate patterns going to affect the size and frequency of flood events?
* What is the difference in cost to design to withstand the different levels of flood events?
* Are there unique landscape or bedrock concerns? How could we mitigate them?
* What are the population patterns downstream?
* How would downstream populations be effected by a failure at different flood levels?
* How do these kind of dams typically fail?
* Can the dam be constructed to fail elegantly and reduced the threat to downstream populations during flood events?

Tasks about Concrete Situations

The quality of the problem ultimately controls the effectiveness, energy, and learning outcomes of the activity. We are looking for concrete scenarios that require students to use the concepts and abstraction from the course material to understand, analyze, and solve.

Learning Outcomes about Concrete Actions

Writing measurable Learning Outcomes about abstract understanding can be difficult, whereas writing measurable Learning Outcomes that focus on action taken to addressed a concrete situation (like the one in this example) are much easier to write.

Using Expert-like Problems

Another nice feature of this example, is that it asks the kind of question an expert would need to make. Students need to use their understanding (gained in the pre-readings, lectures or previous activities) to make expert-like concrete decisions that will have very concrete consequences. You want to design concrete scenarios where conceptual and abstract understanding helps students make better decisions.

Constraining choice to intensify discussion

The example looks a lot like a multiple-choice question and many teachers worry that constraining choice like this will limit the depth of the discussion. It is quite the opposite, constrained choices focuses student energies on analysis of specific issues, which ultimately helps with team to team comparisons that allows students to see how their thinking contrasts other teams. This really becomes clear for all to see during the public reporting of team decisions.

Plan for Class

**SET**

During the SET we set the stage for the class, conveying why the topic is important, how learning this topic has important future utility for the students, how this topic relates to student prior knowledge and course work, we outline the intended outcomes, and finally set the students to work.

In this case, the class could open with a presentation of the problem task maybe showing images of the river location, images of similar dam types, some examples of dam failures (images, news clippings), and then highlighting how difficult and important these kinds of engineering decisions are to make methodically and systematically.

Then the class is carefully put to work - clearly state how much time they will have to complete their analysis and make their decision, remind students that they will be required to publically report of their decision, and they will need to be ready to defend their decision and critically examine the decisions of other teams.

Keep the problem displayed during team deliberations. Also have a timer visible so teams can budget their time to complete their analysis and arrive at a decision within the allotted time.

**BODY**

This is the major portion of the activity and has the students deliberate within their teams, then make a decision, then publically report their decision (simultaneous reporting) and then be ready for a discussion where their decisions and their rationales will be examined and discussed. The instructor can prepare a discussion facilitation plan to ensure the post-reporting discussion is as productive as possible.

**CLOSE**

During the CLOSE we summarize what has been learned. You could perhaps, ask students to list the most important things they learned. Revisit the themes of the SET – why the topic is so important, what the future implication of our decisions could be, and possible next steps or calls to action. Highlight all that has been accomplished and thank students for their efforts.

Plan for Discussion Facilitation (ORID framework)

# **Objective**

**·**  What are the facts?

· What sources of information are important to help us make a good decision?

· Where would you like to have more information?

· What assumptions are being made?

# **Reflective**

· Would you be comfortable making this decision with limited information?

· What information would you like to have?

· What should concern us? What tradeoffs need to be considered?

· How has the situation been dealt with in the past?

# **Interpretive**

**·**  Is there another important perspective we aren’t considering?

· What would happen if we changed…..?

· What effects will these changes have? Who else will be affected?

# **Decisional**

· How do you justify your decision? What are your main arguments?

· What was your first choice?

· What was your second choice?

· Was there disagreement inside your team about the best choice?