

Henry Li

Net Present Value for Cost-Benefit Analysis (Conservation Ecology)

- Opening: Is money worth more in the present or in the future?
 - **Listing ideas:** Would you rather have \$1,000 today or \$1,000 in one year's time? Why?
 - **Advantage:** Crowdsource wide range of ideas for how people think about value of money in different timeframes
 - Have students convince themselves organically that money is worth more in the present
 - **Pitfall:** Could be dominated by a few students, shy students could be reluctant to share ideas
 - **Calling for Response:**
 - Helps kick off the class with student interaction and group discussion as an entire class; also establishes safe space for sharing all perspectives
 - Discussion about personal finances could be sensitive topic for students belonging to different socio-economic groups
 - Some students may not feel comfortable sharing their perspectives about money
- Middle: How can we calculate net present value of cash flows?
 - **Scrambler:** Calculate NPV of \$1,000 in one year's time given a discount rate of 10%
 - **Scrambler:** Calculate NPV of \$1,000 in two years' time given a discount rate of 8%
 - **Scrambler:** Calculate NPV of a multi-year cash flow given a discount rate of x%
 - **Advantage:** Students will work together to solve increasingly complicated problems
 - If a group struggles to solve the first problem, they will get new scrambled partners in the next round from groups that hopefully did solve the problem
 - **Advantage:** Allows students to work together and teach each other
 - **Pitfall:** Could be problematic if no groups are able to solve the problem; maybe work through it as a class in that case
 - **Invoking Silence:**
 - This gives students a moment to reflect on the task individually discussing as a group, since students belonging to a dominant group may be quick to respond and monopolize the discussion

- Some students may not be as comfortable with quantitative skills as others, leading to exclusion or voluntary withdrawal from discussion
- Close: How do we use NPV in cost-benefit analysis?
 - **Jigsaw:** Each interest group gets a unique case study and calculates NPV to complete the cost-benefit analysis
 - **Jigsaw:** Each student in the jigsaw group takes a turn sharing their case study and explaining the steps taken to complete the analysis
 - **Advantage:** Students work together to apply NPV techniques to a topically relevant case study
 - **Advantage:** Students then practice presentation skills as they share their case study with students from other interest groups
 - Jigsaw groups can work together to complete a cost-benefit analysis if one of the interest groups was unable to do so