Discussion Strategies to Enhance Creative and Critical Thinking

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Oral communication is one of the oldest pedagogical tools for promoting deeper learning. Socrates developed his argumentative approach 2,500 years ago to stimulate critical thinking and reach deeper levels of understanding on any issue through dialogue. The goal of Socratic dialogue was not to win an argument, but rather to jointly construct meaning by asking and answering relevant questions.

Oral communication is useful for more than building critical thinking—it works just as well for creative thinking. Creativity involves developing an idea that is both novel and useful, and a successful creative concept goes through three phases:

Ideation: Coming up with an original idea or a set of ideas that look promising enough to pursue further.

Iteration: Refining the original idea so that it works better in solving the problem.

Innovation: Getting others to adopt the creative idea.

Each stage in this creative process can benefit from meaningful discussions, but the effectiveness of these discussions depends on what kind of thought processes they invoke and how they engage the participants cognitively. Some of the thought processes that help the creative process include these:

Associative thinking: This process involves combining unrelated ideas to create a new idea, such as when Archimedes connected the concept of water being displaced during a bath to the problem of finding the purity of the gold crown, an association that led to a novel solution to a difficult problem. When students in a group setting synthesize a solution from one another's diverse ideas, they're engaging with associative thinking.

Analogical thinking: Analogies can help students understand a new concept or find new insights by linking it to a well-understood existing concept. For example, Ernest Rutherford used the solar system as an analogy for the atomic structure, and it helped him model the electrostatic force between the nucleus and electrons in comparison to gravitational force between the sun and planets.

Reverse thinking: When you challenge your assumptions or look at a problem from the opposite perspective, you often get radically new insights. For example, during World War II, radio communication was done on a single frequency, making it more susceptible to jamming. By challenging the assumption that communication needs to take place on a single frequency, Hedy Lamarr came up with a frequency-hopping mechanism that would be more secure. Her idea eventually led to huge advancements in the mobile industry.

For a discussion strategy to be productive, it needs to fit with both the creative phase and the cognitive thought process that it invokes in creative problem-solving. Here are a few discussion strategies and how they can lead to more meaningful outcomes.

Strategy 1: Yes, And …

Most useful phase: *Ideation*

Cognitive skill: *Associative thinking*

"Yes, and" is one of the most important tenets of improvisation, but its utility extends far beyond improv, from creative thinking to collaboration. The key concept is to not reject any idea proposed by others. Instead, you try to build on an idea by adding onto it in a fluid manner.

In group discussions, where the focus is on finding a joint solution, the principle of "yes, and …" can work well. It forces all participants to keenly listen to one another's ideas and suggest their own ideas to build on it. It also puts the students in a more collaborative frame of mind, instead of pushing hard to make their own idea win. The outcome of such a discussion is typically more creative than what any single student might have proposed. From a cognitive perspective, it pushes the students to build associative thinking because they have to continually keep incorporating each other's ideas into the solution.

Strategy 2: Plussing

Most useful phase: *Ideation, Iteration*

Cognitive skill: *Associative thinking, Critical thinking*

Although the "yes, and" approach works well in discovering new ideas or directions, sometimes it doesn't make sense to incorporate a particular idea into the solution. So, what's the best way to handle the discussion?

In such cases, "plussing," an extension of the "yes, and" approach that is designed to handle constructive criticism, can be a useful tool. Steve Jobs used plussing when he started with Pixar, and the strategy is credited with turning Pixar around and leading to a string of blockbusters.

The main rule for plussing is that you can criticize an idea only if you can make a constructive suggestion. For example, instead of saying "I don't think this is a good idea," you say, "One problem with this idea is X, but if we did Y, then the idea might work." In other words, you find a very specific problem with the idea and suggest an improvement that resolves the problem.

Strategy 3: Reversing or Reframing

Most useful phase: *Iteration*

Cognitive skill: *Reverse thinking*

Actively looking for assumptions you're making can bring out a whole other set of ideas or improvements to an existing idea. For example, when a group of students were asked, "Who would not be able to use this product?" in reference to a product that used colors as a feature, they realized that colorblind people would struggle to use it. They were then able to come up with modifications (using shapes in addition to colors) to make the product more inclusive.

Explicitly asking students to reverse their thinking during group discussion not only helps improve the quality of ideas, but it also brings opposing perspectives into view. Oftentimes, some students have really good ideas but aren't comfortable sharing their contrarian opinions with the group. When reverse thinking is part of a structured dialogue, though, it can more easily bring these ideas into the open.

Strategy 4: Storytelling

Most useful phase: *Innovation*

Cognitive skill: *Analogical thinking, Narrative reasoning*

Storytelling skills are essential in conveying ideas to others. Storytelling is fundamental to how we make meaning of information, and a good storyteller can persuade others to take action.

A couple of techniques can help students become better at storytelling and oral communication, especially when they have a new solution to a problem. For example, building a narrative around a persona or a situation can help solidify

whom the solution helps in the listener's mind. Another technique is to explicitly call out an analogy for the solution that leverages existing mental models. For example, "My idea is an Uber for dogs" can quickly help others understand your idea.

Oral communication skills are crucial for student success, and the importance is only increasing, because these skills they build both critical thinking and creative thinking. Understanding the goal of the discussion or communication and structuring it in a way that invokes the right kinds of thought processes can make them more effective.

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