# Communication Skills: Solving Problems in Groups and Teams

## Description

Group or team projects offer valuable practice to students for their future lives as professionals and members of society as well as their present academic work. A disadvantage of group or team projects is that when students are assigned such projects, if they are not trained in a method that facilitates collaboration, the resulting experience may simply reinforce an attitude that is sometimes called "group hate." It is imperative for instructors to teach students a method that enables them to work in groups or teams to ensure the experience will be positive. The Reflective Thinking Sequence (Dewey, 1910) describes a process by which problems can be investigated and solutions identified that can be applied to group or team projects. The lesson titled "Communication Skills: Problem Solving Pairs" also demonstrates the use of this sequence for students working as partners, however, the process can also be applied to groups or teams.

## Learners

Although the number of students who make up a group or team varies with the nature of the assignment, generally five students is an optimum number. With groups or teams of five, there are enough individuals for a division of labor, yet not so many as to be unmanageable. The odd number of five also alleviates the possibility of a tie occurring during decision-making.

## Equipment

No equipment is required for implementing the Reflective Thinking Sequence in groups or teams.

## Facilitator

The role of the facilitator will depend on the goal of the group or team assignment. Is the goal to produce a product that, on its own, could be too comprehensive for any one student to complete? Is a goal for students to learn a group or team process?

If the goal is division of labor, the role of the facilitator could be to identify checkpoints at which students will brief the facilitator, and possibly the rest of the class, on the status of their work.

If the goal of the assignment is for students to learn a process for collaboration, students should still be held accountable by reporting on their progress at varying points in the process. However, in addition, students could engage in start-up steps (See "Communication Skills: Group/Team Start Up Tasks) and they could also assume one or more formal roles (See "Communication Skills: Learning to be a Group or Team Member).

It will be to students' advantage if a practice problem is given first to allow them to explore the requirements of the steps of the Reflective Thinking process before expecting them to implement the process on a class project.

**Instructions**

There are seven steps to problem solving using the Reflective Thinking Process. An assignment using the process might incorporate all seven steps or might include only step five or six, depending on the learning goal. The seven parts to the Reflective Thinking Process are:

Step One: What is the problem? The first step of the process requires all participants to understand and agree on the nature of the problem and the data required to resolve the problem. For example, "When does fresh produce begin to deteriorate in space?" is one type of problem. "Is it wise to send fresh produce on space missions?" is a different type of problem. "Should astronauts be required to take nutrition supplements rather than depending on fresh produce?" is yet a third type of problem. Initially, students must discuss their assignment to ensure they understand and agree on the nature of the problem they will investigate, and then decide the type of data that will be needed to resolve the problem. Generally, problems are stated in one of three ways:

a. Problems of Fact: "When does fresh produce begin to deteriorate in space?" is an example of a problem of fact. Problems of fact are resolved either by examining existing facts or generating data that can be verified. Resolving this problem might require defining the term 'deteriorate" followed by data gathering to determine when "deterioration" begins.

b. Problems of Value: "Is it wise to send fresh produce on space missions?" is an example of a problem of value. The question is asking whether a particular course of action is good or bad, desirable or undesirable. When faced with a problem of value, students might approach the problem by discussing whether the quality of life of astronauts in space would be enhanced through access to fresh produce; they might also discuss challenges such as storage or dealing with food wastes, or hazards of living around and consuming deteriorating produce. Data used to resolve a problem of fact would also be relevant when investigating a problem of value; for example, data about food deterioration would be relevant. However, problems of value go beyond problems of fact. They include discussions of cultural and personal values, ethics, and immediate and long term goals as well as desirable and undesirable practices and effects, considerations of good and bad, and right and wrong.

c. Problems of Policy: The third question: "Should astronauts be required to take nutrition supplements rather than depending on fresh produce?" poses a question about a circumstance that does not currently exist and asks

whether it should be implemented. Problems of policy must be based on discussions of values and facts. Whether or not it is desirable for astronauts to take supplements would be a discussion of values. Whether nutritional demands could be met through supplements would be a discussion of fact. Each type of problem uses and builds upon discussion content from the previous problem(s). Problems of value require facts as well as discussions of values. Problems of policy require consideration of facts and value issues in their resolution.

It is important for students to understand and agree on the nature of the assignment at the beginning. In the examples, if students were given a problem of policy such as determining whether astronauts should be required to take nutrition supplements, but their investigation focused only on the rate at which produce deteriorated (the problem of fact), and did not consider the wisdom of sending fresh produce on space missions, the results of their work would not be sufficient to respond to the problem.

Step Two: What do we already know that will assist in resolving the problem and what do we need to know in order to resolve the problem? Step two is a planning step. It requires an assessment of current knowledge and additional knowledge and resource needs; step two also requires students to set goals and deadlines for acquiring information and delegate tasks so the work is divided among members. This step of the process might also require students to design a method for collecting their own data or they might identify sources of data generated by others located in historical or news documents or through interviews.

Step Three: What is/are the criteria(ion) for a solution? The criteria refers to qualities the solution must contain in order for it to be useful. Criteria are imposed in a class project in several ways: First, there are requirements in the assignment imposed by the instructor that become part of the criteria for the solution. Second, the nature of the problem itself might dictate criteria(ion) that are non-negotiable requirements of the solution. For example, a list of specific nutrients required for astronauts' diets might be a required quality of a solution. Other examples of criterion non-negotiables are time, equipment, human resources, or budget restrictions. A third type of criteria/criterion might be called "wants." Wants are criteria that enhance a solution but might not be absolutely necessary. When considering astronauts' diets, for example, a "want" might relate to providing a variety of food choices for astronauts or food choices representative of astronauts' cultures. The wants are not imperative to meeting the problem solving goal but they make life easier, more pleasant, etc. Step three requires students to consider the general areas of criteria with which they are faced and identify specific criteria within those areas that are required or desired for the solution.

Step Four: What are the possible solutions to the problem? During Step Four, data gathering is, ideally, completed. At this point, students determine whether, in realty, they have accessed all of the necessary data to resolve their project; identify what, if any, of their information or data is irrelevant and discard it; engage in both critical

and creative thinking to identify applications of the data to their problem; and allow possible solutions to emerge from the data they have gathered. It is in this stage of problem solving that the quality and relevance of the criteria developed in step three will become apparent. This is the step where the pieces of the puzzle, as represented by the data gathered, take shape, with the shapes becoming possible solutions to the problem.

Step Five: Which solution or solutions match the criteria most closely? When solutions emerge from the data, students should match each solution to the criteria(ion). The solution that most closely matches the criteria or possibly a synthesis of solutions should be agreed upon by all members of the group. At this point, depending on the nature of the assignment, the work is completed. However, in some instances, there are other requirements of the assignment.

Step Six: How will the solution be implemented? What resources are necessary to implement the solution? What is the timeline by which the solution must be implemented in order to be viable? Who should be responsible for implementation of the solution? Depending on the nature of the assignment, students could be required to present an implementation plan. Implementation can become another problem to be resolved and students should consider approaching implementation by beginning at "Step One" of the Reflective Thinking Sequence.

Step Seven: What is a review schedule for assessing the implemented solution? When will the implementation be assessed? Who is responsible? How regularly will assessments occur? What areas are to be assessed? These are questions to be considered when developing an assessment plan. If this is a part of the assignment, students should view development of the plan as yet another problem, beginning with Step One of the reflective thinking sequence.

**References and Resources**

Dewey, J. (1910). *How we think*. Lexington, MA: D. C. Heath. (Dewey's work, though not recent, provides what might be considered the "definitive view" of problem solving.)

Janis, I. (1982). *Groupthink.* Boston, MA: Houghton Mifflin. (Irving Janis describes a phenomenon he calls "groupthink" or the illusion of agreement within a group. The dangers of groupthink are discussed and suggestions of ways that members can avoid groupthink presented.)

Graham, E., Pap, M., and McPherson, M. (1997). "An applied test of the functional communication perspective of small group decision-making." *Southern Communication Journal, 62,* 269-279. (The article is unusual in that it investigates group decision making in the professional environment of an insurance company making claims decisions. The quality of the decisions is judged by vice-presidents with extensive professional experience in the industry.)

The step by step guide to brainstorming.
http://www.jpb.com/creative/brainstorming.php . Accessed April 20, 2005.
(Brainstorming is useful in almost every step of the reflective thinking process. This guide gives helpful tips to successful brainstorming.)