

Objectives

To put students in a difficult scenario where they find out that their decisions as a “group” are more effective than their decisions as an individual

Risk Level: Beginner

Cautions: None

Description: Students will be given a scenario and will be given different responses that could help save them from the scenario. They will rank order from a list of suggestions individually, and then complete it as a group. They will be asked to report their order to the group at-large.

SCM: Common Purpose, Collaboration, Consciousness of Self, Commitment

Time: 40-60 Minutes

Materials: Earthquake Simulation Activity Sheet, Simulation sheet for each Participant, Writing utensil for each participant

Preparation: Review of the activity and an understanding of the importance of the debrief facilitation

Follow Up: Facilitate the following questions:

How did this simulation differ between doing it as an individual vs. a group effort?
How does this simulation relate to the concept of Leadership?
What struggles, if any, did you find when working as a group?

Instructions

1. The facilitator will explain the activity utilizing the sheets below
2. After the activity has been explained with the attachment below, write the 12 choices on a board or piece of paper that is visible for the participants and have them rank order, individually, their choices from 1-12
3. After they have all completed this, have them now pair into groups (3-5) and have them share what they came up with and re-order what their group thinks is the best
4. After all groups have completed this, share with them the actual answers
5. Facilitate a debrief with the attached questions on this activity sheet

Notes:

Instructions Cont.

"EARTHQUAKE!" — A COOPERATIVE LEARNING EXPERIENCE

Peter W. Hodder

Earth Sciences Department, The Waikato Polytechnic, Private Bag 3105, Hamilton, New Zealand

ABSTRACT

A highly structured exercise which was designed as a team-building experience for managers can be used to demonstrate to science students the potential benefit of group decision-making. The exercise, which involves ranking of options for surviving a large earthquake, yields quantitative measures of individual student knowledge and how well the groups function.

INTRODUCTION

For the past three years the first laboratory exercise in a second-year university course on Earth's Resources and Hazards has been one in which students are required to work in groups. While it serves to "break the ice" in the course by immediately requiring interactions between students and between students and staff, it also offers a foretaste to the workplace situation these students are ultimately likely to experience. Hackman (1990) observes that group work is increasingly the way professionals work in a variety of settings, a theme echoed by Beiersdorfer and Beiersdorfer (1995) and Basu and Middendorf (1995). Advertisements for employment also invariably require that applicants be good "team players". Also, pertinently for this particular course, it is not difficult to demonstrate from media coverage of earthquakes, volcanic eruptions and floods that group decision-making is common in times of environmental crisis. A significant proportion of students enrolled in the course have aspirations for a career in environmental management or planning and many are reading for a social sciences or management degree. These students are likely to be favorably disposed towards group learning activities and recognize that the activities would be valuable preparation for professional life. The other significant group of students enrolled in the course are science majors who typically expect laboratory work to support material given in lectures. These students are less likely to have experienced much group work in the courses undertaken at the university and were perceived to have attitudes ranging from ambivalent to hostile to group activities. It was primarily for this group that an exercise was selected for which group work could be demonstrated quantitatively.

THE EXERCISE

"Earthquake" was developed as a management dynamics training exercise by Fisher and Peters, 1990. It involves the ranking of twelve action steps for survivors of a large earthquake who are trapped in the basement of a damaged multistory office building. The opening scenario paints their predicament as uncomfortable, but not immediately life threatening. Their way out from the basement

is blocked by rubble, indicating there has been some damage to the structure of the building. There is no electricity or telephone available, but they do have water supplies and the cracks in the foundation walls will admit air. After searching through the rubble they find:

- a working battery operated radio
- two candles
- cleaning supplies (mop, bucket, bleach, window cleaner, screwdriver, wrench and work gloves)
- a first aid kit (bandages, gauze and aspirin)
- a package of matches
- a coffee machine, half a pot of coffee and three packages of instant coffee
- a flashlight with extra batteries
- four left-over chicken salad sandwiches in the refrigerator and two bags of crisps
- three full ice-cube trays in the freezer
- six cans of soft drink.

Such an opening scenario makes this exercise a simulation as defined by Jaques (1991, p. 102), and it is a cooperative one in the sense of Bykerk-Kauffmann (1995) in that it:

... is structured so that group members both need each other to

succeed and are individually accountable for understanding the material. Practitioners of co-operative education set expectations of behaviour within the groups and monitor that behaviour ... The exercise requires the ranking of twelve options, seven of which should be taken to ensure survival and five that should not be taken because they are either unnecessary or harmful. The options are given in Table 1.

The options available can either be beneficial or injurious to the participants and may help or hinder their chances of rescue. Course participants initially undertook this ranking exercise individually, assigning "1" to their most preferred option, and "12" to the least.

After this, the students formed groups of unrestricted size and composition and undertook the exercise again. The numbers of participating students and groups are shown in Table 2.

Only after completing the exercise individually and in groups, were the participants told the order of ranking by "experts". The sum of differences between the rankings of the individual and "expert" responses - without regard to sign - gives the individual score (S); the sum of differences between the rankings of the group and "expert" responses gives the team score (T), as shown on Table 3.

Each group of N members was asked to calculate the average individual score, viz., $(A = [SS] / N)$, and also to

Instructions Cont.

Preferred Rank	Option
1 (best)	Shut of all utilities
2	Check for injuries and administer first aid
3	Assign someone to monitor the radio and listen for updates
4	Locate and secure a water supply
5	Develop a day and night signaling system and begin signaling immediately
6	Discuss long-term survival strategies as a group
7	Divide sandwiches and eat them this evening
8	Purify the water source
9	Pound on the pipes with the steel wrench
10	Divide the sandwiches and ration them over the next few days
11	Attempt to remove the rubble from the entrance to the first floor
12 (worst)	Light the candles so you can see and rescuers will be able to locate you

