

FACTORS AFFECTING RISK JUDGMENT

Purpose:

This lesson will encourage students to think about risk in ways that they may not have done before. Each individual must weigh various factors and make judgments/assessments based upon his/her own perception about an activity or technology. There are no right or wrong answers.

Concepts:

1. Research indicates that in thinking about risk, individuals consider identifiable factors such as controllability and outcome.
2. Societal decisions are shaped by people's values, perceptions, and analysis of facts.

Duration of Lesson:

One 50-minute class period

Objectives:

As a result of participation in this lesson, the learner will be able to:

1. rank activities/technologies taking into consideration two different, assigned factors which have been specifically defined; and
2. plot and discuss the results of his/her rankings on the grid entitled *Location of Hazards*.

Skills:

Analyzing, critical thinking, discussing, graphing

Vocabulary:

Catastrophic, dread, equitable, factor, global

Materials:

Activity Sheet

Factors Affecting Risk Judgments, p. 67

Locations of Hazards, p. 69

Transparency

Factors for Locating Hazards, p. 51

Suggested Procedure:

1. Research has been done to discover what factors people use in evaluating risk. Show students the transparency entitled *Factors for Locating Hazards*, which identifies factors that influenced one particular research group in ranking items according to their level of risk.

(Information on this transparency is taken by permission from "Perception of Risk," Paul Slovic, Vol. 236, pp. 280-285, Figure 1, *Science*, April 17, 1987.)

2. Discuss the transparency with the class. Have students look back at items in the ranking they did for the activity entitled *Risk*. Ask students which of the factors described on the transparency they may have considered, consciously or unconsciously, in ranking the items. Ask them to explain how these factors influenced their rankings.
3. It might be helpful to remind students of the previous discussion on how they sometimes disagree with their parents based upon different factors being considered important in the decision-making or judgment process. We consider whether the risk is controllable, voluntary, fatal, catastrophic, dreaded, or even known. These contribute to the risk assessment we give each of these technologies or activities.
4. You may wish to discuss at this point that there is no right or wrong answer when you are asking individuals to assess risk. Their assessment is based upon their judgment or perception of that technology or activity.
5. In the exercise entitled *Risk*, students were asked to rank 30 activities and technologies based upon their perceived risk with 1 being the most risky and 30 being the least risky. In this exercise entitled *Factors Affecting Risk Judgments*, the students will again be asked to rank activities and/or technologies. This time, however, they will rank each activity or technology considering two separate factors.

Factor 1: considers whether the technology or activity is controllable or uncontrollable, voluntary or involuntary, fatal or not fatal

Factor 2: considers whether the effect is observable or not observable, whether effects are known or unknown, has immediate effects or delayed effects

Each activity or technology will be assigned a number, based upon a scale from 1 to 9, for each of the factors. The number each student assigns will represent his/her perception of the risk involved in the activity/technology being considered.

Perception of risk based upon a scale of 1 to 9 for Factor 1:

1 (low risk)		9 (high risk)
controllable	or	uncontrollable
voluntary	or	involuntary
not fatal	or	fatal

Perception of risk based upon a scale of 1 to 9 for Factor 2:

1 (low risk)		9 (high risk)
observable	or	not observable
know	or	unknown
immediate	or	delayed

FOR EXAMPLE: Scuba diving

Determine a value for Factor 1:

A sample thought process might be as follows:

Scuba diving is a controllable activity. Assign a low value (1-3). Scuba diving is a voluntary activity. Still a low value (1-3). Scuba diving could prove fatal. The assigned number should be higher based upon each individual student's assessment of that probability (3-6). The student will weigh these responses and decide on an overall ranking for Factor 1. So assume the student has determined that the final number value for Factor 1 should be a 4.

Determine a value for Factor 2:

Effects of scuba diving are observable. Assign a low value (1-3). Scuba diving has known effects. Assign a low value (1-3). The effects of scuba diving are immediate. The assigned number value should remain low (1-3).

In this case, you have determined that the final number value for Factor 2 should be a 2.

Have students enter the final number value for Factor 1 and the final number value for Factor 2 they have determined on the worksheet entitled *Factors Affecting Risk Judgments*.

Students should then rank the rest of the activities/ technologies listed on their worksheet in the same manner as the example above. You may wish to do one or two more to be sure students understand how to assign the number values. It may be necessary to reassure students, once again, that there are no right or wrong answers in ranking this list. Also, it might be well to advise students not to spend too much time "weighing" factors. In this particular exercise, a "gut" reaction is the best answer.

6. Once students have completed their rankings, distribute the graph entitled *Location of Hazards* and instruct students to plot the results of their worksheet rankings on this graph.
7. It might be helpful to plot the first item as a class in order to get students started. This also works well as a small group activity.

FOR EXAMPLE: Scuba diving

Using the results of the scuba diving example illustrated above, have students plot its location on their graph.

The number for Factor 1 should be located on the corresponding numbered line running left to right.

The number for Factor 2 should be located on the corresponding numbered line running up and down.

Place a dot on the point where the lines intersect and label it "scuba diving."

8. When students have finished with their grids, discuss the activity as a class.
9. Show the transparency entitled *Factors for Locating Hazards*, and discuss how others ranked specific items.

Sample discussion questions:

- a) Where is radioactive waste located on *Factors for Locating Hazards*? Why?
- b) Are there any locations that surprise you? Would you locate some differently?
If so, which?
- c) Where would you locate AIDS? Riding a roller coaster? Using drugs?

Teacher Evaluation of Learner Performance:

Student completion of the activities entitled *Factors Affecting Risk Judgments* and *Location of Hazards* should indicate level of comprehension.

The computer program, student activities, and some teacher notes for the lessons on risk are based on information used by permission from "Facts and Fears: Understanding Perceived Risk" by P. Slovic, B. Fischhoff, and S. Lichtenstein, in *Societal Risk Assessment: How Safe is Safe Enough*, published by Plenum Publishing Corporation, New York, 1980.

Additional Enrichment:

Individual students or classes particularly interested in this activity may wish to rank and graph the following additional items:

- War (conventional)
- AIDS
- Cheerleading
- Skateboarding

Amusement park rides

Nuclear weapons

Solid waste

Sunbathing

Global climate change

Dogs

Use of illegal drugs

This would be appropriate either after class discussion of the ranking and graphing of the items on the activity list or after discussing the transparency entitled *Factors for Locating Hazards*.