ACTIVITY 8

Majority Rules

Newspapers, television reports, and Internet sites are filled with polls that report things like the most popular presidential candidate, the most popular soft drink, and the most popular car. As you read the results, you might wonder what these polls are based on. Often you were not consulted on your opinion about the candidates, soft drinks, or cars. In fact, you might be hard-pressed to find anyone who contributed his or her opinion to any of these polls. That is because these polls are based on small samples of people whose opinions pollsters believe represent those of the entire population.

Though the process may seem unreliable, people often make decisions based on information drawn from a small sample of people. If you are buying a new shirt and want to know whether or not it looks good on you, then you might ask the salespeople or your friends for their opinions. But you are unlikely to solicit the advice of everyone in the store. You can reach a decision about the shirt based on the opinions of a few people.

This Activity asks participants to examine the process of opinion formation based on their assessment of the available data. Participants try to adopt opinions that are held by the majority of the group. They refine their opinions by learning about the opinions of other people. The dynamics of opinion adoption are influenced by the number of people that each participant samples and the algorithms that participants use to evaluate their data.

MODELING CONCEPTS

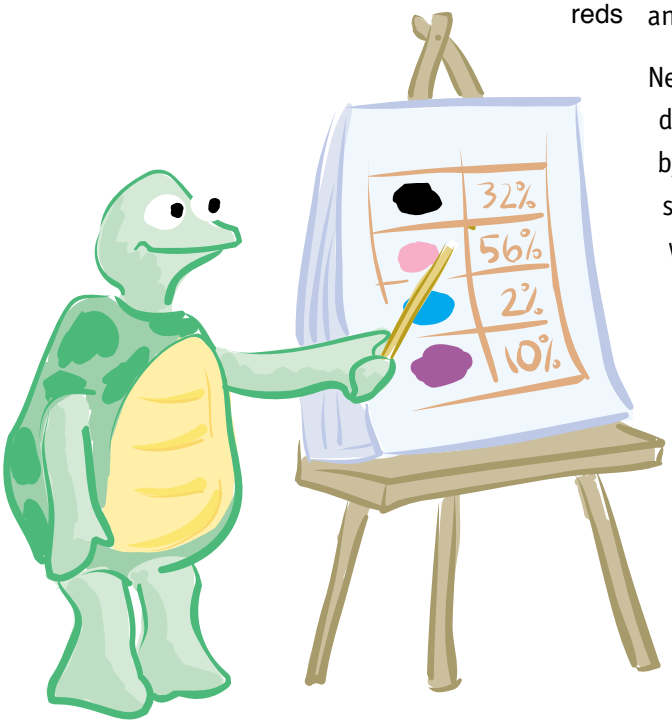
- Explore the ways in which information informs decision making.
- Study the effects of sample size on the reliability of information.
- Demonstrate the dynamics that result from the local exchange of information.

MATERIALS

- Large notepad or blackboard for making graphs
- Post-It notes or small pieces of paper

RUNNING THE ACTIVITY

Ask participants to decide which color they prefer, blue or red, and then write down their choice on a Post-It note. Have them close their eyes and hold up their note to indicate which color they have chosen. Count the number of reds and blues and record the results out of the group's sight.



Next have the group open their eyes and start walking around randomly. As they meet people they should exchange their opinions by whispering their current choices to one another. After 15–20 seconds, ask them to stop, and challenge them to silently decide which opinion they believe is held by the majority, and then write that color on their Post-It note. Again, have them close their eyes and hold up their notes, so that you can count the number of reds and blues and record those numbers.

Repeat the process of group polling and recording the number of reds and blues. Make sure that no one peeks during the recording process, and make sure that participants always whisper the color that is currently on their Post-It note. Repeat this cycle about 10 times or until the group reaches consensus. Then allow the group to view a graph of the total counts of reds and blues that were recorded at each interval.

Discuss why the opinions evolved as they did. You might pose the following questions:

- Did the group ever reach consensus? If so, did it take as long as they thought it would? If not, why?
- Which color was initially more popular? Did that color remain the most popular or did the other color become more popular? Can the group propose any hypotheses to explain these dynamics?
- How did participants decide which color they chose before each group count? Did they always go with the majority from the group that they polled? Was there a tendency to stick with the color that they had already chosen? What rules did people use as they chose their colors? Can participants describe their decision-making process as a list of rules?
- Did the graph of opinion adoption reflect their intuitions about the system? What data might have aided their understanding of the system? For instance, what if they had knowledge about how many people each participant was sampling?

Try running this Activity again, but allow participants to keep their eyes open during the group count. This modification illustrates the different effects that local and global information access have on the evolution of majority opinion. Ask participants to consider how and why this change affects the rate at which the group comes to a consensus.

RUNNING THE ACTIVITY—EXTENSIONS

You can consider making some of the following modifications to this Activity:

- Rather than having people move about randomly during each stage, ask them to get into groups of a fixed size. Start with 2 or 3 people per group. Ask each group member to share their color choice with the other group members. Mix up the small groups after each tally. Try using larger group sizes. How does the size of the small group affect the rate at which the whole group reaches consensus?
- Ask participants to walk more slowly and veer to the right, so that they often interact with the same people. Do factors like speed and direction influence the dynamics of color choice?
- Whisper a new color like yellow or red to one group member. Does this color spread through the population?
- Instead of instructing people to choose a color, ask them to choose something that they feel more strongly about, such as their choice for mayor, their favorite car, or their favorite actor. When people feel more strongly about their choice, are they more or less likely to change their opinion?
- Change the rules of the game so that people are trying to be in the minority instead of the majority. How does this change affect the dynamics of color choice? What sorts of modifications do people make to their decision-making process?

FACTS FOR FACILITATORS

This Activity is a good opportunity for discussing the rules that people use when they make decisions. It also illustrates the difference between local and global access to information. In the first stage of this Activity, it is important to prevent people from purposely or accidentally communicating nonlocally. If people whisper too loudly, the dynamics can be changed dramatically. If you are concerned about the possibility of global information exchange, ask participants to discreetly show their Post-It notes to one another when they meet (instead of whispering).

In some groups it might be difficult to get "random" mixing of the entire group. Small cliques can form, altering the dynamics of the system. You can either make an effort to break up these groups or discuss the impact that reduced mixing has on the dynamics.

Many people have difficulty understanding the concept of sampling and how a poll of only a few hundred people can represent the opinions of millions. Ask participants how many people they needed to interact with before they felt confident about their color choice. Did the size of this sample change as they played the game again and again? Were they uncomfortable when you imposed a small sample size by demanding group counts in quick succession or dividing the participants into small groups? Discussing these effects can help people understand the nature of sampling.

While sometimes sampling accurately reflects the properties of the whole system, data can also be manipulated in ways that mask the true properties of the system. For some funny, engaging tales of the ways that people lie with numbers see Dewdney (1996) and Huff and Geis (1993).