

TURNING BRAIN DRAIN INTO BRAIN GAIN

FEDERAL RESERVE BANK of KANSAS CITY

LESSON DESCRIPTION

In this lesson, the concept of “brain drain,” or loss of skilled labor from one area to another due to this labor’s movement to a favorable economic environment, is explored with students. After reading a scenario about brain drain in a rural community, students discuss why this might occur and the resulting effects on the economy of the town. Further reading of a web-based article suggests possible solutions to brain drain that will help students to decide on alternatives for a PACED decision-making grid on the topic. Discussion and use of the grid to offer solutions to the brain drain problem concludes the lesson.

GRADE LEVEL: 9-12

CONCEPTS

Brain drain, PACED decision-making model, alternatives, criteria

CONTENT STANDARDS

National Voluntary Economic Content Standard #2 - Students will understand that effective decision-making requires comparing additional costs of alternatives with the additional benefits. Most choices involve doing a little more or a little less of something; few choices are all-or-nothing decisions.

Nebraska Social Studies Standards Grades 9-12 #1.12 - Students will analyze the political, social and economic implications of demographic changes in the nation over time.

TIME REQUIRED: 60-90 minutes

OBJECTIVES

Students will be able to:

1. Explain the concept of brain drain and discuss its possible effects on the economy of a community.
 2. Tell how the PACED decision-making model helps us make economic decisions.
 3. Use the PACED grid to suggest solutions to the brain drain problem.
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MATERIALS

- Visual 1 (Definition of Brain Drain)
- Visual 2 (PACED Decision-Making Model)
- Visual 3 (PACED Grid)
- Activity 1 (Smalltown Scenario)
- Activity 2 (Monthly Labor Review: The “Brain Drain”)
- Activity 3 (PACED Grid)



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PREPARATION

1. Make one transparency each of Visuals 1, 2 and 3.
 2. Make one copy of Activities 1 and 2 for each student.
 3. Make two copies of Activity 3 for each student.
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PROCEDURE

1. Ask students if they have heard of the concept of “brain drain.” (*Answers will vary.*) For those familiar with the concept, ask a volunteer to define “brain drain.” (*Answers will vary, but should include the idea that educated people/skilled labor leave one area to go to another for a more favorable environment.*)
2. Display Visual 1, Definition of Brain Drain, to give students the following definition of the concept: “The loss of skilled, intellectual and technical labor through the movement of this labor to more favorable geographic, economic or professional environments.” Ask students the following questions:
 - Can you give examples of geographic environments that a worker might want to move to? (*Answers will vary, but may include larger cities; areas with better climate; the mountains; the beach.*)
 - What economic environments would motivate a worker to move? (*Answers will vary, but may include areas with larger businesses or a bigger variety of companies, or areas with more competitive salaries.*)
 - What professional environments might a worker move for? (*Answers will vary, but may include areas with better access to universities and professional organizations.*)
3. Hand out Activity 1, “Smalltown Scenario” to students. Tell them that the information from this story was taken from a real town in Nebraska. Ask them to read through the scenario, looking for evidence of brain drain in Smalltown.
4. Discuss the scenario by using the following questions:
 - What information in the scenario might lead you to believe that brain drain has occurred? (*Answers will vary, but may include population decline; fewer skilled workers; lower median income/home values; lower educational attainment; narrow variety of occupational choices.*)
 - Why do you think skilled labor might have chosen to leave Smalltown? (*Answers will vary, but may include boredom, fewer young people living there; a need to earn more money; not being challenged in occupation/fewer opportunities to advance.*)
 - What effects might brain drain have on Smalltown’s economy? (*Answer will vary, but may include fewer businesses; less money spent on goods and services; unreliable employment/temporary employment; lower wages.*)
 - Where do you think the out-migration of young adults may have gone? (*Answers will vary, but may include larger cities with more job opportunities and better wages; cities with more young people; areas that have more educational institutions or preferred geographic features.*)
5. Ask students to reread the questions that end the Smalltown scenario. Tell them that they will be learning a decision-making process that will help answer these questions about Smalltown’s challenges and possible opportunities.



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PROCEDURE (CONTINUED)

6. Introduce Visual 2, the PACED decision-making model to the group. Discuss the fact that in economics, decisions should be made in a careful way. The PACED model allows people to look at and evaluate options before they make a choice. Tell them that using the model helps to give structure to the decision-making process. Go through the five steps of the model, using the information given under each step for clarification.
7. Show Visual 3, the PACED grid, to students. Explain that this grid can be used to complete the model steps and come to a decision more carefully. To practice using the grid, give students this sample problem: "The class has won a party for meeting testing goals. We need to plan the food for our celebration. We have \$50 to spend on a food choice."
 - Who can give us some alternatives for party food? (Answers will vary, but may include pizza, hamburgers, hot dogs, tacos, barbeque wings, etc.) Write down five of the answers given as alternatives on the grid.
 - Who can give us ideas for criteria we could use to judge our choices? (Answers will vary, but could include the following: if the food is acceptable to all class members; if it is easy to eat; if it can be delivered; if it is inexpensive. If students do not have enough original ideas, suggest these.) Write down four of the answers given as criteria on the grid.
 - Should we rank any of these criteria higher before we evaluate? (Answers will vary. If students agree to rank a criterion higher, write (x2) at the top of that criterion's column.)
8. Work through the grid as a class, voting to evaluate each alternative by the four criteria and writing "+" or "-" in each box when the majority agrees. (If the criterion has a higher ranking, double the "+" or "-") When the grid is filled in, have students calculate the net value (number of pluses less number of minuses) of each alternative. The alternative with the highest positive net value is the best food choice.
9. Now that students are familiar with the grid process, tell them they will use the PACED model to evaluate solutions to the brain drain problem. Hand out Activity 2, Monthly Labor Review: The "Brain Drain," for individual reading. Ask students to underline any ideas that suggest a solution to brain drain in a community. Tell them to also consider any original suggestions to add.
10. Hand out Activity 3, PACED grid, to each student. Begin discussion of the underlined ideas from the article, asking students to write the ideas they agree with as alternative on the grid. (Underlined ideas will vary, but should include the following: internships to connect students with local companies or fields; loans forgiven if a student settles in the home state; scholarship or tuition policies that attract local students to local universities; community college program where retired specialists recruit and mentor young apprentices to continue their trades.) Students may also share and include original suggestions as alternatives on the grid.
11. Brainstorm ideas for potential criteria to judge the solutions, asking students to write the ideas they agree with as criteria on the grid. (Answers will vary, but could include the following: if the idea is easy to understand; if it would be acceptable to all students; if it would be easy to implement; if its effects would be long-lasting; if it is inexpensive to carry out. If students do not have enough original ideas, suggest these).



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PROCEDURE (CONTINUED)

12. Tell students to work through the grid individually, evaluating their alternatives by the criteria using pluses or minuses, and giving a higher ranking to any criterion they feel is more important. When they are finished evaluating, they should calculate the net value of their alternatives to find the best solution.
 13. Ask student volunteers to share their best solutions with the group, explaining how they arrived at their decision and which criteria were the most important in their evaluation. Discuss the overall winning solution(s) with the class. Emphasize that more than one solution could be used to maximize the efforts to prevent brain drain.
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CLOSURE

Discuss the following questions as review:

1. What does the concept of brain drain mean? (*Brain drain is the loss of skilled and technical labor through the movement of that labor to more favorable geographic, economic and professional environments.*)
 2. How might brain drain affect the economy of a community? (*Brain drain could lead to fewer businesses, less money spent on goods and services, lower employment and wages, lower home values and less educational attainment.*)
 3. How can the PACED decision-making model help us make economic decisions? (*Use of the PACED model can help structure the decision-making process so that people can look at and evaluate options carefully before making a choice.*)
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ASSESSMENT

Ask students to listen to the NPR podcast titled, "Midwestern States Struggle to Stem Brain Drain" by Jason Beaubien at: <http://www.npr.org/templates/story/story.php?storyId=88772898>.

In the podcast interview with Isaiah Magee, he suggests that the natural humility of people in Midwestern states hurts them in retaining young, educated professionals. Magee feels that the states need to do a better job of touting their assets and developing a superior image to attract and keep this group of workers.

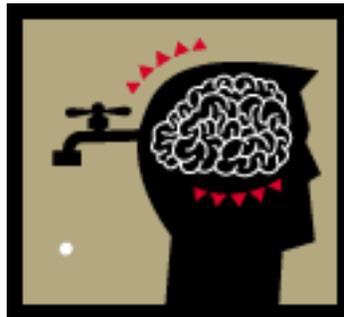
Tell students that they will use the PACED decision-making model to brainstorm alternatives for a marketing campaign to get the word out about the assets in their state. Possible alternative examples could include public service announcements, websites, etc. Ask them to think of appropriate criteria to judge their alternatives. Possible criteria examples could include reaching all people, creativity, etc. Hand out a copy of Activity 3 and ask them to complete their alternatives and criteria, and then work through the PACED grid to evaluate. Students should then calculate the net value of each of their alternatives and share their winning solution(s) with the class.



VISUAL 1 - DEFINITION OF BRAIN DRAIN

BRAIN DRAIN

The loss of skilled intellectual and technical labor through the movement of this labor to more favorable geographic, economic or professional environments.



VISUAL 2 - THE PACED DECISION-MAKING MODEL

P = What is the PROBLEM?

What decision are you trying to make?

A = What are the ALTERNATIVES?

What options are you considering to solve the problem?

C = What are the CRITERIA important to the decision?

What reasons will help you compare and judge your options?

- Are some criteria more important than others in solving the problem?
- Do you need to rank or weigh your criteria?

E = EVALUATE the alternatives.

Evaluate each alternative on the basis of each criterion.

- Give each alternative a plus (+) or a minus (-) according to how well it meets each criterion.
- If any criterion is ranked higher because of importance, use two (+)s.
- Calculate the net value of each alternative row on the grid (number of pluses less number of minuses).

D = Make a DECISION.

Choose the alternative that has the highest net value.



VISUAL 3 - PACED DECISION-MAKING GRID

- P = What is the PROBLEM?
- A = What are the ALTERNATIVES?
- C = What are the CRITERIA?
- E = EVALUATE the alternatives.
- D = Make a DECISION

Problem: _____

	Criterion	Criterion	Criterion	Criterion
	Ranking:	Ranking:	Ranking:	Ranking:
Alternative				

Decision: _____



ACTIVITY 1 - SMALLTOWN SCENARIO

Welcome to Smalltown, Nebraska! The current population is 682, down from 854 in the last ten years. The average age of a Smalltown resident is 47 years, compared to 34 years for the average Nebraska resident.

The median income of the town's workers is \$25,000 vs. \$44,000 statewide. Ten percent of residents have incomes below the poverty level, more than twice the state average.

Home values differ widely in comparison, as the average home value in Smalltown is \$40,000, while Nebraska's average home is valued at \$114,000.

Educational attainment for Smalltown's citizens levels off after high school. Although 83 percent graduate from twelfth grade, only 12 percent complete a college degree.

The most common industries for men are agriculture or construction. Most women work in educational services or health care.

Because of the declining population, the needs of the town are changing. Instead of a focus on younger families, schools, and new businesses, Smalltown's main concerns are health care and leisure needs for its older citizens.

What is happening in Smalltown? The same trend that Nebraskans are seeing in many other rural towns - an out-migration of high school graduates and young adults, and an aging of the remaining population. The resulting economic decline due to a dwindling population leaves those still in town with unreliable employment, and looking for temporary jobs instead of steady, long-term work. Some try self-employment, but the average earnings of self-employed workers who didn't own farms actually declined 34 percent as compared to the earnings of regular workers in the last ten years.

How can we overcome the challenges in these small towns? What opportunities can businesses, educational institutions and government offer to ease the declining economies of small towns?



ACTIVITY 2 - MONTHLY LABOR REVIEW: THE “BRAIN DRAIN”

In an article in *The Living Cities Census Series* (Brookings Institute Press, January 2004), author Paul Gottlieb analyzes the location and migration patterns of younger and older workers - especially those with college degrees - in the nation's most populous metropolitan areas. Gottlieb's article, "Labor supply pressures with the 'Brain Drain': Signs from Census 2000," urges state and local economic development policymakers to consider "shifting their emphasis from increasing the quantity of certain types of workers, toward embracing human capital development as a longer-term goal."

During the recent tech-driven economic boom, cities such as Cleveland, Pittsburgh and Des Moines experienced an exodus of workers. At the same time, these cities had a large number of workers in the 55-to-64-year-old age bracket, which causes a major dilemma for policymakers: the available quantity of labor will further decline when these old workers retire. The Great Lakes region, for example, will soon face a dilemma once its skilled machinists retire "en masse."

Two major economic consequences could result from these demographic shifts. First, wages will rise in areas where people do not want to live or work. If higher wages do not bring back workers to these areas, then a "vicious spiral" could follow, Gottlieb explains. Goods produced locally would price out of global markets, and businesses would move to areas where more skilled workers live. Second, and more seriously, a lack of specialized human capital in these metropolitan areas would hinder economic growth and competitiveness.

To combat these consequences, many states and metropolitan areas have implemented "brain drain" prevention programs to retain young college-educated workers, who are more entrepreneurial and take more risks than older workers. These programs include:

- internships designed to familiarize promising students with local companies or fields;
- loans that are forgiven if a student settles in the home state; and
- scholarship or tuition policies that attract local high school students to local universities, following the empirical observation that those who go to college in state are more likely to take their first job there.

Using data from the 1990 to 2000 censuses, Gottlieb explores the threats to the labor supply created by retirements and youth migration. The analysis primarily focuses on the cohort aged 25 to 34 in 2000. However, older workers in skilled occupations were also analyzed.

The author's conclusions include the following:

- The proportion of workers who are young and educated is highest in the Northeast region, followed by the Midwest, the South and the West.
- Young and educated workers represent a larger part of the workforce in metropolitan areas with high populations, strong art scenes, significant international immigration, and larger numbers of high-tech jobs.
- Metro areas that captured the largest number of new 25-to-34-year-old residents between 1990 and 2000 are located almost exclusively in the South and West.



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- Compared to older workers (age 35 to 64), young workers migrated more often to high-amenity, high-human-capital metropolitan areas during the 1990s.
- Metropolitan areas in the Northeast have the highest proportions of workers between the ages of 55 and 64.

Gottlieb asks, “How can economic development professionals approach issues of both labor supply and demand to create economic growth or stem decline?” Policies in labor supply and demand target individuals and firms, respectively. A chamber of commerce, for example, could help create a community-college program whereby retired manufacturing specialists become teachers, mentors and recruiters of young apprentices to continue their trades. For firms, tax breaks and research tax credits could increase their sales or profits - and thus, eventually increasing the demand for labor.

At the national level, these programs may not be enough of an incentive; there may not be enough young workers to go around. National proposals, instead, focus on keeping older workers in their jobs longer by offering flexibility in work hours and working conditions. “The concern,” Gottlieb writes, “is that current legal requirements and institutional practices give older workers an all-or-nothing choice about retirement, rather than a range of options that would suit their preferences about the mix of work and leisure.”

Despite the misgivings of labor-supply and labor-demand policies, one thing stands clear. The debate of these policies will surely continue, considering the coming retirement of the “baby boomers” combined with the human capital requirements of economic growth.

Article from Monthly Labor Review - April 2004
<http://www.bls.gov/opub/mlr/2004/04/precis.htm>

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ACTIVITY 3 - PACED DECISION-MAKING GRID

P = What is the PROBLEM?

A = What are the ALTERNATIVES?

C = What are the CRITERIA?

E = EVALUATE the alternatives.

D = Make a DECISION

Problem: _____

	Criterion	Criterion	Criterion	Criterion
	Ranking:	Ranking:	Ranking:	Ranking:
Alternative				

Decision: _____

