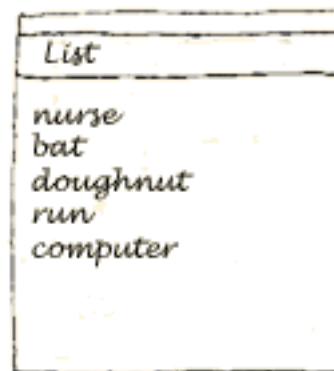


Activity 2

Placebo 2

Until a few years ago, the placebo effect was thought to be mostly a mind-over-matter phenomenon. If someone was told that a pill would cure them, then the belief in the therapy would be strong enough to create a mental state in which the patient felt better. Recent research demonstrates that in some cases, this is more of a mind-over-brain situation. The placebo experience actually produces changes in the brain as substantiated by EEG evidence. It is thought that the "ritual" experience associated with taking a placebo may affect the brain's organization, producing an alternate pathway for curing an ailment.



This activity page will offer:

- Experience in mind and body connection
- Unique tactile illusion
- Opportunity to explore how the brain interprets confusing sensations

Great Expectations

The placebo effect and ritual expectations may extend beyond health care. In fact, most educators are aware of a self-fulfilling prophecy when it comes to setting outcomes in thinking. In this activity, you'll explore how the manner in which a ritual is presented may affect the outcome of its success.

Materials

- Paper and pencil
- Stopwatch

Steps (For the set-up)

1. Devise a method for generating lists of fifteen random words. Use this method to compile two lists, each written on a separate sheet of paper.
2. Identify a test group of six subjects. Select friends, family members and neighbors who are unfamiliar with the placebo effect.
3. Work with one subject at a time. Supply the individual with the first list of random words. Give them thirty seconds to memorize the list. Then,

- test to see how many of the words are recalled.
4. Follow this test by offering a memorization strategy to the subject. Explain that by creating a mental story that connects random words, they will produce a powerful way of recalling the word list. For example, suppose the word list included nurse, bat, doughnut, run, and computer. The person could create a story that begins with a nurse using a bat to hit a doughnut. An outfielder must run to catch the doughnut but trips over a computer. It is **CRITICAL** that throughout your conversation you are warm, caring, and sincere about the success of this memory strategy. It must be conveyed that you are certain that by using this strategy, your subject can attain greater recall.
 5. Retest your subject using a different list of fifteen words. Record the number of words they successfully recalled this time.
 6. Repeat steps 3-5 using the same positive and confident presentation of the memorization strategy with two additional subjects.
 7. Select an untested subject. Repeat step 3. Then, offer the basic parts of step 4. It is **CRITICAL** that throughout this explanation you are cool, impersonal and less concerned about the success of memory improvement. It must be conveyed that you are hopeful that by using this strategy, your subject can attain greater recall.
 8. Repeat steps 6-7 using the same impersonal presentation of the memorization strategy with the remaining two subjects.
 9. When the tests are complete, tally your results. Did you observe any difference in memorization that might be associated with the manner in which the "ritual" was presented?
 10. Tally the class result. Were any differences observed? If so, were the results consistent among your classmates?

Questions

1. How was the presentation of the memory boosting strategy varied? Why was this important?
2. Which style of presentation is more likely to demonstrate a positive placebo effect?
3. What was an advantage of pooling class results?

Placebo as Deception?

Is administering a placebo a deception in treatment? Is it ethical not to inform the patient that they are taking a placebo? If the placebo triggers self-healing as research suggests, is it not a legitimate therapeutic? Think about these questions. Then suppose you were a physician treating a patient whose suffering could be relieved with a placebo. Would you administer the placebo? If so, what would you tell the patient?

Court Room Drama

Suppose you were an attorney hired to defend a folk healer who used chants and spells as a therapeutic for Parkinson's disease. How would you present your case to the jury? What evidence would you use to support your client's approach to medicine? Suppose you represented a different client who was

suing a witch doctor for casting an evil spell. Could you make a case for this action? Is so, what would you base the case upon?

Play Writing

Write a comical skit about a person who visits a physician seeking traditional Western treatment. However, instead of recommending operations and pills, the physician offers elaborate rituals, spells, and exorcisms of germs. With your teacher's permission, perform your work for the class.

Web Connection

The Mysterious Placebo Effect

<http://pubs.acs.org/hotartcl/mdd/99/aug/mysterious.html>

An overview of the placebo effect as applied to pharmaceutical research.

Harnessing the Placebo Effect

<http://www.hosprract.com/issues/1998/07/cebrown.htm>

Explores the placebo and rituals of healing as applied to hospital practice

Greater Expectation to Improve Student Learning

<http://www.aacu.org/gex/briefingpapers/expectations.cfm>

A paper on expectations and how they relate to student learning.

Placebo and Training Paradox

http://www.sportsci.com/SPORTSCI/JANUARY/pp108_placebo_and_training_parad.htm

Explores placebos and rituals in sports training.

Academic Advisors for this Guide:

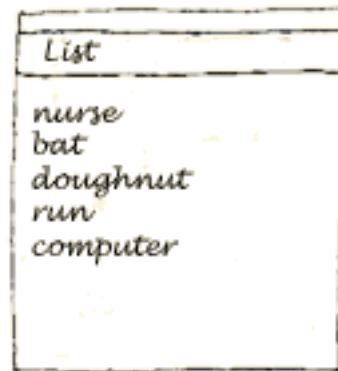
Suzanne Panico, Science Teacher Mentor, Cambridge Public Schools, Cambridge, MA

Anne E. Jones, Science Department, Wayland Middle School, Wayland, MA

Gary Pinkall, Middle School Science Teacher, Great Bend Public Schools, Great Bend, KS



Activity 2 Placebo 2



Questions

1. How was the presentation of the memory boosting strategy varied? Why was this important?
(The strategy was presented in both a personal and impersonal way. The difference in personal interest of the researcher may result in a difference in the subjects' success.)
2. Which style of presentation is more likely to demonstrate a positive placebo effect?
(The personal and confident style should be more likely to demonstrate the greater gain in memorization.)
3. What was an advantage of pooling class results?
(General trends may more clearly arise from the larger test sample.)

CURRICULUM LINKS

General :

Power of suggestion

NATIONAL SCIENCE STANDARDS (Grades 5-8)

Science as Inquiry- Content Standard A

Students will conduct a scientific investigation and analyze results.

Student observation will guide their exploration of cause and effect relationships.

Science in Personal and Social Perspectives- Content Standard F

Students will discuss how scientific understanding influences society.