

Communication Café

(New College, University of Toronto, Fall 2008; exercise created by Leora Freedman)

The Experiment Game

Part I—Small groups prepare an experiment or study presentation

Divide into groups of 3 or 4 students (we need at least 4 groups). With your group members, devise an experiment or study on either the **Obecalp** or the **Circadian Rhythms** issue outlined in the attached pages. Your goal is to invent as many aspects of the experiment as possible and then be prepared to present your study to the larger group (for about 5 minutes). Each member of the small group should present part of the experiment to the larger group and be prepared to answer questions. Please invent any facts and figures that you need! You may also use the materials supplied to draw a poster to accompany your presentation. At the end, the larger group will vote in a show of hands for: (1) Best Experiment (2) Best Presentation (Groups can't vote for themselves).

If you decide to use a qualitative approach to the research (i.e. interviews, open-ended questionnaires), describe the following:

- goals of your research/ justification of its importance
- the population you interviewed
- questions asked, under what conditions
- findings/results
- hypotheses or theories that may be generated by this research
- your analysis of these results/ implications for parents, teachers, public policy or future research

If you decide to use a quantitative approach (i.e. methods designed to generate numerical data), present the following:

- goals of your research/ justification of its importance
- your hypothesis
- methods used to test the hypothesis (subjects, procedure, etc.)
- results
- your analysis of these results/ implications for parents, teachers, public policy or future research

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Choose **one** of the following issues on which to base your group's experiment:

1. **OBECALP***

In June, 2008, a Maryland couple named Dennis and Jennifer Buettner, parents of three children, began marketing their new product, Obecalp, on their Efficacy Brands website. Obecalp, which is "placebo" spelled backwards, is a cherry-flavoured, chewable sugar pill meant to be used as a placebo for children. Here are some facts:

- The "placebo effect," in which people's genuine illnesses or ailments improve as the result of taking a pill with no active ingredients, is well-known and has been scientifically validated in many double-blind studies (neither the physician nor the patient knows which pill is the placebo). The results of some studies suggest that placebos may be effective even if the patient is not deceived, and that placebos might be used to reduce dependency on real medications.
- When faced with anxious patients requesting that they "do" something about an illness that simply needs to run its course, doctors sometimes knowingly prescribe antibiotics or other medicines that will have no physical effects.
- Parents, too, sometimes give complaining children aspirin or other "mild" drugs in order to provide reassurance, even when there is no evidence that the child has a true illness or pain.
- A bottle of 50 Obecalp pills costs \$5.95 U.S., and can be sent anywhere in the world. Orders are already flooding in, and the Buettners claim that Obecalp fills an important niche in the drug market. Obecalp looks and tastes like real medicine.
- The use of prescription medications by children for a wide variety of conditions—ADHD, depression, insomnia, etc.-- has skyrocketed in recent years.
- Prominent physicians in both the U.S. and Canada have publicly objected to the presence of Obecalp on the market, saying that it is unethical for parents or doctors to deceive children and that the use of Obecalp may mask serious illnesses, including psychological conditions.

*based on reports in *The New York Times* (www.nytimes.com) and the *Toronto Star* (www.thestar.com)

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2. CIRCADIAN RHYTHMS OF TEENAGERS*

As far back as 1997, research has shown a physiological basis for the well-known tendency of teenagers and young adults to stay up late at night and sleep very late into the morning (or afternoon). Dr. Mary Carskadon, a professor at Brown University School of Medicine and a sleep researcher, found that older teenagers secrete melatonin, a hormone linked to the body's circadian rhythms ("biological clock") an hour later in the evening than younger teenagers. She also discovered that older teenagers do not complete the final phase of R.E.M. sleep, which is essential for a feeling of rest and well-being, until 7 a.m. Dr. Carskadon claims that the early start times of high school and university classes are "abusive." Here are some further facts:

- Some school districts have responded to this information by moving their high school starting times to 8:30 a.m. The results of a few studies show that this has led to greater alertness and better concentration among students, more sleep on school nights, better grades, and fewer emotional or behavioural problems.
- Adolescents need about 9 hours and 15 minutes of sleep each night, according to Dr. Carskadon. The results of some studies suggest that a cumulative "sleep deficit" during the week causes young people to sleep until noon or later on the weekends.
- There are few long-term studies of sleep deprivation among teenagers, but some experts feel it leads to an increase in risky behaviours and poor decision-making.
- No quantitative studies have been done to examine the relationships among duration of sleep, waking times, and grades or test scores. However, sleep deprivation is known to impair both cognitive functioning and reaction time.
- There are frequently budgetary and other considerations that prevent schools from moving start times to later in the morning. Many of these, like the "double" use of buses for both elementary and high schools, or the timing of school sports, seem to affect high schools more than colleges or universities.
- There is currently much public discussion of the health impacts of the very "packed" lives led by young people, who often spend a great deal of time in after-school activities, paid employment, sports, arts or music-based activities, volunteer work, etc. , in addition to doing large amounts of homework.

*based on reports in *The New York Times* (www.nytimes.com)

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Part II—Group Presentations/ Discussion

As each group is presenting their experiment or study, think of at least one critical question you can ask the group members. Your questions might focus on these areas:

- 1. Was the experiment conducted ethically?** If you have doubts, explain them. Consider whether subjects were deceived or not, how subjects were convinced to participate or continue participating in the experiment, and how the information was stored.
- 2. Is the evidence adequate and representative?** This means that an experiment does not focus on only one type of evidence and exclude evidence that does not support the hypothesis. Consider how many subjects were chosen as well as their age, ethnicity, socio-economic status, location, etc. Which population was the focus of the research?
- 3. How effective were the methods?** If the group used quantitative methods, what information might be missing? If the group used qualitative methods, what hypothesis could be the focus of future research? How would you have designed this study differently?
- 4. How logical and thorough is the discussion?** Can you identify areas in which the group's interpretation of their evidence could be called into question? Has the group considered important directions for future research?