

## *A Note on ‘Teaching Statistical Literacy’*

---

**D. G. HAACK**

*In his previous article Dennis Haack discussed the philosophy behind his course in teaching statistics as a language. Here he looks at some ways of assessing students taking such a course.*

Grading students is always a problem—more so it seems with an interpretive approach to teaching statistics. Three sources of information are being used in arriving at a student’s grade in the course I am presently teaching. First, students are given weekly quizzes, an approach preferred to less periodic exams as students must keep up with the material. Questions come from such local sources as the newspapers. Here are two examples:

- i. In rebuttal to arguments put forth by various consumers and parents groups the Association of National Advertisers commissioned a survey. Mothers were asked if it was a benefit to children to acquaint them with products through television commercials. Forty-one percent felt it was beneficial, and 43 percent felt it was not. What might have influenced these statistics besides the selection of a representative sample of mothers?

I have learned not to expect students to answer questions in a particular way. Here I would prefer that students question how a “child” is defined, in this example a child is anyone from age 2 to 20! But students can give quite satisfactory answers without mentioning this. I look only for a student’s ability to apply concepts discussed in class to the example. I don’t want students to simply list potential problem areas for any survey (as the source, the target population, wording of questions, timing, nonresponse rate, sample size and design, and method of contact) but to specify the areas of greatest concern for the specific example under consideration.

- ii. An agency of state government proposed to interview 5500 people by randomly selecting 110 equal land areas and then interviewing 50 people in each area. Comment on the proposed design. Consider, for example, that 150 interviews were to be conducted in a city which contains one-third of the state’s population.

In this example students usually observe that important collections of people, as the city in the above example, should be proportionally represented in a sample.

Besides taking weekly quizzes, students also write (1/2-page) critiques of newspaper articles (5 per 1 5-week semester is sufficient). Again, one needs to look for some indication that the student can apply the principles discussed in class to the newspaper (or newsmagazine) example. (I have found it helpful to ask students to find examples of 5 different applications. Otherwise, a student might turn in 5 examples of Gallup surveys—each report questioning the same areas of concern.)

The third and final component of a grade requires that a student “dig deeply” into an application of statistics that the student has read or heard about. Students are encouraged to look for an example in their major field. For example, a project for a nursing student might involve critiquing an article in a medical journal. The purpose of this exercise is to get students to both look into a statistical application in their field of study and to go to an original source rather than feel they must always rely on the media’s interpretation of statistics.

You’ll find that students delight in finding examples of the misuse of statistics on which they can report. I believe that we must first teach detections of such misuses before we can expect less misuse.

#### Reference

Haack, D. G. (1979). “Teaching Statistical Literacy” *Teaching Statistics*, **1.3**, p. 74.