

# **The Reporting of the Findings of Student Statistics Project Groups by the Media – A Few Examples**

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## **Abstract**

Student statistics project groups in statistics classes offered in the LSUS Mathematics Department frequently investigate topics requiring polling to obtain the required information. When the results are of interest to the community, some may be reported with a slant by the local media. Several examples are contained in this paper.

## **Introduction**

Authors of undergraduate applied statistics texts typically include problems with a wide variety of applications which help students understand and appreciate the extent to which statistics play a roll in their lives. Furthermore, recent editions of some elementary texts, such as Introduction to Probability and Statistics by Mendenhall, Beaver, and Beaver (10<sup>th</sup> edition), include a computer disk which helps the reader with the concepts contained in the text.

To further enhance the math student's appreciation of statistics, beginning in the fall 1995 term, students enrolled in some undergraduate statistics classes in the Department of Mathematics at LSUS have been invited to form statistics project groups. After a topic is selected by the project group, the members design the experiment, collect the data, analyze the data, and submit a final report. Some of these topics are of interest to the community and, in most cases, information must be gathered by telephone polling. Once the data is collected and analyzed, the results are provided to interested parties and the local media. Although the student's findings are sometimes accurately reported by the media, sufficient instances have been noted in which there are one or more inaccuracies, misstatements, and/or omissions. Instructors planning to incorporate student project groups as an activity in these math classes should be aware of the potential for these errors and take steps to keep them at a minimum. Three recently published examples follow in which the reported findings of the student statistics groups contained an unacceptable number of errors.

### **1. Results of student project groups' survey on relocation of City Hall from its current location to a downtown site.**

Three student project groups (16 students) took on this project in February, 1999. A randomized listing of registered voters' telephone numbers was used in polling 611 Shreveport residents on the following items: (1) Opinion on the proposed re-location of City Hall; (2) Respondent's city council district; (3) Frequency with which respondent went to City Hall in the last 12 months; (4) Gender; and (5) Ethnicity.

The polling produced several noteworthy results:(1) Of the 611 registered voters responding, 54.7% (334/611) did not visit City Hall at all during the previous 12-month period and 88.7% (542/611) visited City Hall six times or less during the same 12-month period; (2) Only nine of the 611 (1.5%) responding went to City Hall more than 50 times during the previous 12 months, and it was reported by the students that three of these nine were employed at City Hall, making the reason for their more-than-fifty trips quite obvious; (3) Over 80 % of the respondents did not know the city council district in which they resided, making it impossible to do a breakdown on the relocation question by city council district.

Along with a cover letter, tables giving frequencies within categories and a collection of SPSS 8.0 Crosstabs tables with the typical cross-classifications and breakdowns were provided to the Mayor's office and the local newspaper. There was a considerable amount of information which could be reported, including opinion of the proposed re-location move by gender, race, and frequency of visits to City Hall.

When reporting the students' findings, however, the local newspaper looked at only three items: (1) The response to the overall re-location question (in favor of, opposed to, no opinion); (2) The percent of respondents who did not know the city council district in which they lived; and (3) The opinion of those respondents who visited City Hall more than 50 times in the last 12 months. Each of the reported statistics were correct, but the reason to report (2) and (3) and then to omit a mention of the opinion of those who seldom visit City Hall (six or less times in the last 12 months -- 88.7% of those polled) was not apparent. In fact, in the news story, the percent of frequent visitors who favored such a move was emphasized: "... those who visited City Hall the most were more likely to favor the move. Seventy-eight percent of those who said they visit City Hall more than 50 times a year wanted to see a downtown location."

## **2. Results of student project groups' survey on public support for a zoo, and preservation of public landmarks.**

The headline for this story, "Poll shows support for zoo, city landmarks," published December 28, 1999, is misleading. It implies that there was only one poll. Actually, there were two separate polls -- one with three questions on public landmarks and downtown greenspace and six questions concerning regarding Wal Mart's proposed site in a residential area, hereafter referred to as Survey 1. The second poll (Survey 2) had three questions about a proposed zoo and six questions regarding the mandatory wearing of uniforms in Caddo Parish public schools. The news story also contained the following errors, misstatements, and omissions.

a. According to the story, "more than 400 registered voters" responded to the survey. Actually, 434 registered voters agreed to participate in Survey 1, but the number who responded to the three questions on public landmarks and downtown greenspace ranged from 405 to 431. There were 499 registered voters who agreed to participate in Survey 2, and the number of persons responding to the three questions on the zoo topic ranged from 450 to 463.

b. Although the news story correctly reported the percent in favor (62.1%) on the support for city

landmarks question, the percent opposed (15.1%) was omitted, as well as the percent who had no opinion. When only the 62% in favor is reported, the reader likely assumes that 37.9% were opposed, a 1.64 to 1 margin, considerably different from the actual 4.11 to 1 margin.

c. The time period over which the surveys were taken was not specifically mentioned, but reported as “a recent poll.” The surveys were done in early November, 1999.

d. No margin of error was given in the news story, although the information was given to the reporter.

e. The results of perhaps the most controversial issues, Wal-Mart’s intrusion into a residential neighborhood and downtown greenspace, were omitted.

### **3. Results of student project groups’ survey on mandatory wearing of uniforms in Caddo Parish public schools.**

The results of this telephone survey were included in a February 16, 2000 story on the deliberations of the Caddo Parish School Board regarding the implementation of a policy for the mandatory wearing of uniforms in the public schools. The following errors, misstatements, and omissions in the news story were noted.

a. The poll was identified only as a “random poll.” In reality, the poll was done by telephone from a randomized list of telephone numbers of registered Shreveport voters.

b. The news story reported the results of “three of nine questions asked.” In fact there were only six survey questions on the uniform issue. The remaining three questions concerned public support for a zoo, the findings of which were reported on December 28.

c. According to the story, “nearly 500 people responded to the survey.” Although 499 persons agreed to participate, the number of persons responding to the six questions ranged from 463 to 499.

d. No margin of error was given in the news story, although the information was given to the reporter.

e. The percent response for “not enough information” for one question was not given, although it was given for the other two.

f. The question regarding decrease in violence and school uniforms was omitted from the story. This was one of the most important questions on the survey.

g. One of the paragraphs in the story was unintelligible.

## Summary

The evaluation of published news stories based on the students project groups, findings is mixed. The procedure used to determine what information from the reports should be printed and what should be omitted is unclear. The reader will be unaware of what was omitted, unless, of course, the reader is the instructor or one of the group members who collected the data.

The inaccuracies, misstatements, and omissions noted in the three news stories range from minor to moderate. The omission of the margin of error in two of these news stories is a concern. Even if a reader knew how to calculate the margin of error, it would be impossible in these instances since the sample sizes given were so vague. Certainly a sample size of 499 is close to a sample size of “nearly 500 people,” but the reader would have no way of knowing how close to 500 the sample was, or that the number of responses ranged from 463 to 499. Furthermore, “more than 400 registered voters” is somewhat different than the actual number of respondents which ranged from 450 to 463 on the individual questions.

Should a mathematics instructor choose to incorporate the student project groups concept in statistics classes and release findings of a telephone poll to the media, it is recommended that the instructor have available for the reporter all pertinent tables, graphs, telephone logs, and questionnaires, each accompanied by a written explanation of anything that could be misunderstood by the reporter. Perhaps this will help reduce the number of errors in the published news story.