

Mr. Michael Josephson  
Josephson Institute of Ethics  
9841 Airport Blvd. Suite 300  
Los Angeles, CA 90045

Dear Mr. Josephson:

Tuesday, October 2, 2012

This letter is to confirm that I have examined and evaluated the data, sampling methodology and statistical analysis of the Josephson Institute of Ethics' biannual High School Survey, conducted in 2012.

### **Confidence Intervals**

Because sample sizes varied in certain demographic categories (e.g., the number in each occupation) the confidence interval for reported results varies somewhat. For the general questions (over 20,000 responses, the accuracy is +/- 0.69%, and for 10,000 the accuracy is +/- 0.98%. Almost all standard errors of differences are much less than 1% for even small samples.

### **Methodology**

Over 20,000 students filled out the survey, which is a self-reported assessment instrument. Because it is the choice of a school to participate or not, the survey is not a random, stratified sample of the US population. Nevertheless, the large size of the population surveyed and the absence of any corrupting factors in the sampling and collection of the data justifies the fact that certain valid conclusions can be drawn from the responses. I examined the sampling process for indications of sampling bias and concluded that the conscientious efforts of the Institute to acquire responses from a broad and diverse population generated a sample permitting meaningful and useful comparisons and conclusions. There are geographical differences in responses but since the survey is not a stratified sample (proportionate responses from geographical areas), the results do show there are differences in the answers according to where students live, grade level and certainly gender.

### **Analysis**

The analysis presented by the Institute is certainly accurate and statistically correct. Because of the way the data is reported, the results can be verified easily with a calculator. Moreover, the Institute has provided sufficient detailed data to permit any researcher or reporter to examine conclusions and the underlying data.

The method of combining the answers for Agree/Strongly Agree as a "Yes" and Disagree/Strongly Disagree for a "No" allows for the change from ordinal data to binary data, and thus the computation of proportions, and if needed, a confidence interval (+/error).

As to my qualifications, I possess three degrees (B.S., M.S., D.Sc.) in applied math and computer science from Washington University in St. Louis and have been a professor for 43 years at USC, San Diego State, West Point, Wake Forest, Georgia Tech, Mercer and Pepperdine in both engineering and business schools.

Sincerely,

*Rick Hesse*

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