

Bialas, P. J. (2001). *Spreadsheet use in an elementary statistics course*. EdD Columbia University Teachers College. Supervisor: Phillip J. Smith.

The purpose of the study was to investigate the effects of the spreadsheet on achievement in selected statistical topics and the effects on beliefs about statistics of undergraduate students in an elementary statistics course. This study was instituted as part of the investigator's effort to enhance the statistical experience of undergraduate students. The study sought answers to the following questions: Does the use of the spreadsheet affect students' achievement on every topic selected for the study? Is the level of previous computer experience of students related to their achievement on the topics selected for the study? Does the use of the spreadsheet affect students' beliefs about statistics? Does students' achievement on the topics taught with the spreadsheet approach differ from achievement on the topics taught without the spreadsheet? The investigator conducted the experiment with students in one class at the beginning of the Fall 1999 academic semester in a community college setting. The investigator selected and taught eight Elementary Statistics course topics. The selected eight topics were grouped into two categories of four: topics taught with no spreadsheets and topics presented to students with the aid of spreadsheet files. During class sessions, students used computer labs and the spreadsheet program, Excel 5 and/or Excel 98. The instructor developed the curricular units and the test instruments. Test gains show that the spreadsheet approach to instruction was positively related to student achievement on every topic selected for the study. In addition, students' achievement on tests of topics taught with the spreadsheet was greater than their achievement on tests of topics taught with no spreadsheet. The use of the spreadsheet files seemed to affect students' beliefs about statistics. The analysis of students' responses to the statements on the questionnaire indicated that students were more in agreement with the questionnaire's statements after its second administration at the end of the study than they were after the first administration of the questionnaire.