

Abstract and Short Presentation

Using Statistical Packages and Calculators in the Classroom

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For over twenty years statistical software has been employed in introductory applied statistics courses. It has been used to calculate descriptive statistics, probabilities, confidence intervals, hypothesis test statistics, and linear regressions. Recently, statistical calculators with many of the capabilities of existing software have appeared. In this paper the authors explained the pedagogical advantages and disadvantages of each tool. They compared the capabilities of MINITAB, a widely-used general-purpose data analysis system, with the HP-21S, a relatively inexpensive Hewlett-Packard stat/math calculator. They also presented the preliminary results of an experiment comparing the use of these two computing tools in the classroom.

Teaching High School Mathematics with Computers

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There are now around 20 micro-computers for personal use in almost all high schools in Japan. When we use the computer for teaching, the most effective subject will be mathematics, especially statistics.

However, most high school teachers, in particular older ones, are not so familiar with computers. So easy-to-operate program packages should be developed and made available.

The computer industries recognise that the users of computers in schools are a big market for both hardware and software. In fact, various kinds of packages are now presented. Compared with hardware, however, the software available is less adequate and little of it is readily available to teachers.

Anyway, the most important problem is to create some software which teachers would like to use. I think that the computer cannot save the teacher's labour, but assists in teaching. Then, a time of ten minutes per lesson for using the computer should be adequate, though I think shorter would be better.

Last year, we set up a working group of several researchers from inside and outside our Institute (Institute of Statistical Mathematics, Tokyo). And now, a set of study materials, of textbook type, has been worked out for a course of high school mathematics. It contains introductory probability and statistics.

Our program package for computers has been constructed mainly to assist in teaching. Its characteristic features are as follows:

- (i) It is constructed for easy handling. (Necessary operations are only touching of ten keys and enter key.)
- (ii) Its function carefully follows the content of standard textbooks of high school mathematics.
- (iii) It is aimed at learners who are not so good at mathematics.
- (iv) The package is, at present, restricted to assist studying of only the most fundamental concepts included in the standard textbooks.
- (v) The introductory parts explaining new concepts are programmed for the screen to change slowly enough.
- (vi) Almost all of the computer screens are programmed with many colours and some with movements.
- (vii) User-friendly manuals to operate the package are being prepared (not yet final).

For further details, please contact the author at the address listed in the index.