2 years for the faculty member to become a sophisticated user. This learning process is greatly enhanced if there is adequate support staff. Our departmental computer network facility at the University of Georgia has one full time systems specialist (a computer science major) and three to five half time student assistants. All are kept extremely busy. It is important that these staff be responsible for all the support work necessary. In my opinion, it is inefficient for faculty to be utilized in this manner.

CONCLUSION

The report is to be highly commended, most especially as it pertains to the acquisition of equipment and all that that entails (including support personnel). There should be many people presently struggling with bits, bytes, memory, CPUs, and the like, who will be much indebted to those responsible for this report.

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ADDITIONAL REFERENCES

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Comment

Douglas M. Bates

I am very pleased that this workshop was held to exchange opinions on the role and funding of computing facilities in statistical research and I am happy to see this report being published here. The members of the workshop are to be commended for their thoughtful and incisive comments on an issue which is important to many of us and which will become even more important in the future.

As mentioned in the report, departments such as ours which have been fortunate to receive computer equipment grants through programs such as Scientific Computing Research Equipment in the Mathematical Sciences from the National Science Foundation and the University Research Instrumentation Program from the Department of Defense have undergone dramatic changes in the way that research is conducted and reported. These changes have not always been painless. This report is particularly helpful in describing the monetary and time costs to a department which is going to start building its own computing resources. A lot of frustration will be avoided if everyone has a realistic expectation of how much time, effort, and money is going to have to be expended to build the facilities.

This is not to indicate at all that I think building departmental computing resources is not worth all this time, effort, and money. Once you have had the opportunity to use such facilities for research, communications, and text preparation, you never want to turn back. The ability to quickly and interactively follow possible avenues of solution to problems in data analysis and presentation then collaborate on the report with colleagues at distant places via electronic mail and finally prepare the report yourself in a typeset form is addicting because it helps you to be more productive.

It is noteworthy that this report mentions the importance of the communications and text preparation aspects of having departmental computers. We tend to visualize computers as being primarily for number crunching. This is an important use because it cannot be done without the computer, but, if we look at what we do as researchers, we spend much more time writing and rewriting our reports about the results than we do actually computing the results. Facilitating our writing and communications is not a trivial use of computers: it is a very important use.

My own experience is that I don't think that I get the writing done any faster with the computer but I do think that the end product is better. Computer text processing can also help in avoiding proofreading for errors created in transcriptions of the text. The Society for Industrial and Applied Mathematics is currently experimenting with allowing authors to submit the final version of their manuscript in *troff* form thereby avoiding a potential source of transcription errors and a proofreading stage for the authors.

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