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USING MICRO-COMPUTERS TO SUPPORT THE ANALYSIS OF COMPLEX CASES: IT'S AS EASY AS 1-2-3™

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ABSTRACT

Many instructors find it frustrating to not be able to take full advantage of the rich data sets available in many senior and MBA-level cases. The problem areas encountered include student attitudes, resource and organizational constraints, lack of computer literate faculty members, and the lack of adequate and available software. The use of an integrated software package supplemented by customized template sets is recommended as a solution. Specific templates based on Lotus 1-2-3~ are demonstrated.

Statement of the Problem

Most of us who use cases at the senior and MBA- levels have at one time or another faced the problem of having a case which was so rich with data that its analysis was beyond the capabilities of many of our students. Many excellent cases in the fields of marketing research, sales force management, and business policy are supported by substantial data sets. Our experience has been that a number of business students, especially undergraduates, are either unwilling or unable to "crunch the numbers." Even the better students are reluctant to spend the time and effort required to perform the multiple iterations involved in "what if" analysis, or sales territory realignment problems. As a result, their learning experience is lessened.

Our experience has been that marketing students are especially handicapped in not being able to "handle the numbers." In many cases, the marketing student seems to self-select into the major because they find the courses to be more ~people- oriented" than those in accounting or finance. At the same time, our contact with employers indicate that the market is demanding more sophisticated graduates, especially those who are financially oriented. [31

THE COMPUTER AS A POSSIBLE SOLUTION

Mainframes

Many instructors quite naturally turn to the central computer as a solution to this problem. These instructors normally encounter a second set of problems, equally as formidable as the first. These problems include access to mainframe computers, reduced budgets for instructional computing time, account management and billing paper work, lack of familiarity with complex operating software. These are nontrivial problems to the instructor whose

primary interests lie in areas other than computers. Only the bravest among us would send a class of seniors to the computer center to analyze a marketing research case with SPSS or BIOMED.

Micro-computers

It would be equally foolhardy to hand a student a copy of VisiCalc™ and expect that an accurate pro- forma operating statement would be forthcoming during the next class period. While micro-computers offer a palatable solution to some of the problems encountered with mainframes, they are not without problems of their own. For the average student user, it is no easier to learn the Disk Operating System (DOS) of a micro-computer than it is to learn that of a mainframe computer. There are access and scheduling problems associated with a large number of seniors arriving at the microcomputer lab to do a case analysis or homework assignment at the same time that a freshman data processing class has an assignment due. The political problem of whether the data processing faculty or the end-users own the equipment has not changed with the arrival of the micro-computer. There are also the budgetary problems of funding the purchase of equipment, software, maintenance, supplies, lab assistants, or student consultants. While it is beyond the scope of this paper to discuss them in detail, our experience at Oregon State has been that there are some unexpectedly high costs involved in the operation of a micro-computer laboratory. The situation is not unlike the decision to operate your own library within the School of Business.

SPECIFIC PROBLEMS

Most of the above problem areas lend themselves to rather conventional administrative solutions, once they are recognized. However, two problems remain which do not easily lend themselves to solution: a lack of computer literate faculty members, and a lack of adequate and available software.

Computer Literacy

Our campus-wide studies at Oregon State indicate that the computer literacy of the majority of the faculty is below that of the average student coming out of the better high schools in the state. Further, that this computer literacy gap is widening each year. While the computer literacy of faculty members in both the schools of engineering

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and business are generally higher than those in other disciplines on campus, it is still quite low. Estimates are that less than a quarter of the teaching faculty are computer literate in the current technologies. The degree of computer literacy among the faculty is lowest at the senior ranks. There is no reason to believe that Oregon State is unique in experiencing these problems. Faculty shortages in this critical area are expected to increase. [10]

The seriousness of this situation becomes apparent when you consider that many of the faculty teaching at the senior and MBA-levels cannot use the computer as a teaching tool. Also, that few schools have made available adequate faculty development funds to remedy this situation. Any efforts made to simplify the use or operation of micro-computers can only serve to ease the problem of computer literacy.

Software

There are a number of software packages on the market which can be used to solve a wide variety of general business problems. These software packages typically serve the traditional needs of the high volume horizontal markets. Examples include general accounting applications, word processing, project management, and spreadsheet packages. Unfortunately, there is much less vertical market software available, and it is generally priced higher than comparable general business products. This is largely due to the lower volumes in vertical markets. This situation severely restricts the amount of suitable software available on the market. While some faculty members have attempted to remedy this situation by developing their own software for specialized applications, these attempts have been largely unproductive.

TEMPLATES AS A SOLUTION

Many case problems lend themselves to the use of spreadsheet analysis and there are a large number of software packages on the market to support this analysis. VisiCalc is the most obvious example, and many of you are familiar with the product. [1;6] There are a number of other quality products on the market which perform many of the same tasks.

Most faculty are not fully aware of how much time it takes an individual to become proficient in a program such as VisiCalc. A reasonable estimate would be 40 hours of individualized training. How many of us could afford to take that much time from our regular course materials to cover VisiCalc? We believe that customized templates offer a reasonable solution to the software problem.

For many applications, one of the most powerful features of any spreadsheet program is the ability to produce templates. A template is simply the electronic equivalent of a drafting template or one that you would find in a sheet metal shop. In the case of spreadsheet templates these patterns are electronic models which guide the user through the electronic spreadsheet. The template is an electronic model which is used to carry the instructions for written labels, spatial relationships, formulas, and certain values. The primary purpose of the template is to allow for the separation of the data entry function from the steps involved in defining the relationships between the data entries.

The use of templates is widespread in industry where they are commonly used by individuals with little computer training. An example of the use of a template in industry might involve a secretary who prepares a routine sales report each Monday morning. Sales data from the prior week would be entered into the template by the secretary, and the program would automatically prepare a detailed sales

analysis in a specific format for the sales manager's weekly sales meeting. The clerical staff has no need to become familiar with the detailed calculations which are taking place in the template, and it is typical to construct menus and data entry prompts. Most clerical staff can master the concept of a template in a four-hour training session, and learn a new one in less than an hour.

The use of templates is certainly not restricted to the clerical staff. Managers can create templates for their own use, or have custom templates created by the data processing staff to meet their special needs. Template sets are also readily available from various software manufacturers and consultants. It would be a relatively easy task to create a set of templates which would allow a sales representative to plan their call schedule each week. Templates are also commonly used by managers to do highly repetitive analyses. The monthly update of the sales forecast, or the quarterly report to the regional manager are good examples. (5)

LOTUS 1-2-3 TEMPLATES

Our demonstration will introduce you to one of the most advanced software packages on the market today, Lotus 1-2-3. It has proved to be especially useful for the analysis of cases. Lotus 1-2-3 is currently the most popular piece of software on the market for the IBM-Personal Computer~ and compatible machines. Lotus 1-2-3 is designed to run on all machines which use the Intel 8088 microprocessor, which is the *de facto* standard in the business world and in most business schools today. This would include such popular machines as the IBM Personal Computer~, the COMPAQ Portable Computer's, the Texas Instruments Professional Computer~, the Z-100 by Zenith Data Systems, and the newly released HP 150w³. Lotus 1-2-3 is one of the new generation of integrated software packages which combines extensive spreadsheet capabilities with color graphics, database management and word processing capabilities. [7; 8; 9] Such integrated packages provide many of the features of the much touted LISA™ recently introduced by Apple Computer Corporation, at a fraction of the cost. Their

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popularity is perhaps exemplified by the recent debut of a national publication devoted specifically to Lotus 1-2-3 applications. [2]

The specialized template sets used in today's demonstration will allow a user to take full advantage of the most powerful features of Lotus 1-2-3 without learning either the PC-DOS command structure or the formidable array of commands necessary to program the software. The templates are simply the electronic pattern which guides the user in the entry and analysis of the data. [4]

These template sets can be used in the classroom in basically two ways. First, the instructor can "walk" the students through a micro-computer assisted case analysis in class. This is especially useful for undergraduates. Or, the students can perform an individual micro-computer analysis of the case on their own. The second choice lends itself to either capstone undergraduate classes of MBA/Executive Development programs. Our experience has been that this system of case analysis is exciting and brings much of the technology currently available to managers into the classroom.

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