TEACHING COMPUTERS TO EXECUTIVES:
A MARKETING CONCEPT APPROACH

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Abstract

Many executives apparently believe that computers are a valuable tool for their staff and middle managers. Yet the overall rate of computer usage among executives themselves is quite low and has not shown any significant growth in the last few years. It is the author’s contention that the traditional approach to teaching computer usage, when used with executives, actually creates a negative impression of their usefulness. The author describes an alternate course structure that he believes is more in line with the way executives view their world. By combining a case study setting with specialized software, the participants are able to perform their own on-line problem analysis without first having to learn an operating environment or unique software conventions. Once they have seen the benefits of direct real-time interaction with a modeled environment, they are more willing to pursue operational details of computers they previously thought relevant only to their staff.

The Problem

Judging by equipment acquisition budgets, many executives apparently believe that computers are a valuable tool for their staff and middle managers. According to the market research firm Dataquest, the number of white collar workers who have a computer on their desk has steadily grown through the 80’s. Yet the overall rate of computer usage among executives themselves is quite low and, more disturbingly, has not shown any significant growth in the last few years. For example, a recent study noted that only one out of five CEO’s of Fortune 500 firms use a computer, the same level as in 1986 (Nelson, 1989).

Among executives who do use computers, many find the time spent at their keyboards to be of significant value (see, for example, Rockart and Delong, 1988). Many business consultants and educators are convinced that the computer should be considered as a valuable tool for the executive as the telephone. Why then, after almost ten years of falling prices, greater power, and easier interfaces does computer usage lag behind that envisioned by its supporters?

I believe that one explanation lies in the instructional process that educators have used when teaching computers to executives. It will be helpful to view that process as a marketing exchange in which the educator is a manufacturer, his product is computer literacy, and the executive is the consumer. My contention is that educators use an "selling concept" approach to their product. That is, the class is taught with a process that fits the paradigm of the educator’s world but not that of the executives. If educators utilized an approach based on the marketing concept, they would more likely "consummate a sale". In this note, I will: 1) describe the educator’s paradigm and the course structure it creates; 2) contrast this with the executives’ paradigm and what they experience; 3) propose a new course structure that I feel will be more likely to bring the potential of executive computer usage to fruition.
The Educator's Paradigm and Course Design

Faced with a real life business decision, educators tend to take a detached analytical view of the situation. They proceed rather linearly through the problem, extracting a few major factors and designing a logical (often mathematical) model of the reality. They then use an “elegant” procedure to find an optimal solution to the model, believing this solution will fit the reality reasonably well. When transferring their understanding to others, educators tend to retain this logical ordering of topics. They first explain the logic underlying their model, then describe their application, and finally present the conclusions they have drawn from it. They resist what they call the “cookbook” approach, in which model usage is stressed without understanding the underlying logic.

In designing and implementing a course on computer usage, the educator works from his/her linear rational approach and builds a course which expects the student to do something like the following:

1. Explore the technical functioning of the machine and its software.
2. Learn the particular operating system of the machine, how to create, save, and retrieve files.
3. Use a word processing application package to create some kind of personal output.
4. Learn the basic commands for a modeling package (such as Lotus 1-2-3® or Excel®).
5. Build a simple spreadsheet model.
6. Input data, interpret results, and rerun under different scenarios.

This course structure has worked reasonably well where the students have the age/experience profile of the typical undergraduate. They have the patience to work according to instructions, even when the goal of a process is only dimly perceived. For employed adults in evening degree programs, the approach becomes less efficient since the students’ own goals are often in conflict with those of the instructor. However, the approach breaks down almost completely when used with mature top level executives. To understand why, we must explore the executive’s paradigm.

The Executive’s Paradigm and Course Experience

Executives approach the decision situation from a significantly different perspective. They have come to believe in what might be termed “institutional” knowledge, acquired through their years of direct experience with the products, customers, competitors, and other elements of their environment. Beset by time pressures, they use their knowledge base to arrive at an intuitive explanation for events. Faced with a decision situation, they generate, and immediately implement a response which is anticipated to achieve a productive outcome. Any detailed analysis they deem necessary are delegated to staff. There is little patience for introspective reflection, relating the specific problem to more general phenomena, or creating an explicit model of their decision process for application to subsequent decisions.

When put into the role of student, executives expect the educator to share this same appreciation for an immediate payoff for any material discussed. Their experience in computer classes, however, often runs as follows:

1. They enter the course with high hopes of acquiring a new powerful tool to save time and simplify their lives.
2. The initial class periods are spent on technical irrelevancies presented in a foreign language (“bytes, DOS, RAM?”).
3. Before they can make any input to the machine, they must learn the tangential skill of typing. This not only slows the process but introduces a strong behavioral response: “Real executives don’t do typing. I should have sent my secretary to this class!”
4. At the system utility level, their typing errors are often “fatal,” or produce completely unexpected prompts or error messages, mystifying the executives as to what the machine is doing. [As an example, consider an attempt to change from the A-drive to B-drive on a DOS machine. If the user types “B:” instead of “B:”, the machine replies with “BAD FILE NAME”, which has nothing whatever to do with the desired operation.] A few such experiences lead the executive to conclude: a) this is too hard for me;
b) this machineis too dumb to be of any real value.

5. Once at the application level, they are faced with a completely new set of command codes to master before any usable model can be constructed.

6. After a full day of class, the executive has not seen anything of value in terms of running the business. Even the most successful member of the class is likely to conclude that actual usage of a computer at the office will require an ongoing increase in time "overhead" rather than any decrease as was initially hoped. Not having reached the ability to interactively test out a series of alternatives, see the impacts revealed almost immediately, and do so without involving any other staff, they find it quite difficult to visualize the potential advantages of these capabilities.

A Market-based Course Structure for Executives and Computers

In conjunction with a grant from Apple Computer, I was charged by the Executive Programs Office of the Pepperdine University School of Business and Management to develop an executive course on the use of computers. In preparation, I reviewed the literature on executive decision making, considered my personal experience with teaching some 200 executives, and conducted interviews with 42 executives on their own computer usage. I then designed a course based on the executives' paradigm. It differs from the traditional approach in the following ways:

1. The course is anchored to a specific business case which includes several years of operating data, organization charts, personnel files, and a customer database. Thus, the participants focus on identifying and solving business problems, not learning the computer. The computer remains the tool, not the task.

2. The system and software used provide a transparent interface for the user. Rather than needing any operating commands, the user merely points at what is of interest and clicks. A combination of Apple Macintosh computers and HyperCard software, along with some customized stackware, has made this possible.

3. The interface uses the familiar metaphors of executive life, such as a visual desktop, organization charts for personnel data, flipcharts, calendars, rolodex, etc. (see figure 1). The executive sees a business environment visually simulated inside the computer rather than screens of verbal and quantitative information.

4. Activities are kept at an executive level, avoiding such aspects as detailed cost analysis, report preparation, etc. that would likely be done by staff personnel. The user remains in HyperCard for most of the process, allowing access to its non-linear, button-linking capabilities. This avoids the need to teach separate application packages before the participant feels comfortable and sees enough payoff to justify the required additional time.

5. The course is presented in four modules. No computer procedure is taught until after a bottom-line payoff is first demonstrated. Module content is outlined below.

   In the first module, participants review the current operating performance, environmental conditions, and available resources for the case setting. This is done completely via the computer, yet no command codes or typing are necessary. Regardless of degree of computer phobia or disdain, the executive can navigate through an information environment and get comfortable with the machine.

   The second module allows participants to add and change information according to their own designs. As part of this module, outside databases are accessed via modem to demonstrate that the computer can serve as the executive's direct link to new sources of information. This module does require some typing skills, at least of the "hunt and peck" variety. However, the executive is more able to see a payoff for direct interface with the machine/system and consequently is more receptive to accommodating this admittedly archaic procedure (oh, to have the promise realized of direct voice entry and output!).

7
In the third module, preformatted "macro-d" spreadsheets (structured within HyperCard, not in a separate spreadsheet application) with built-in response functions (reflecting income, balance sheet, and funds flow reports) allow the computer to be used as a planning tool for exploring possible futures. At this point, executives can see how they can radically reduce the time lost waiting for staff to rerun analyses due to changed conditions or new ideas.

The final module exposes the computer operating system and introduces specialized software, such as spreadsheet and database packages. Now that they have seen firsthand the benefits of computer usage, participants are willing to expend some effort to learn these details.

Current Status and Conclusions

To date, the HyperCard interface has been tested, with very favorable response. The complete course package awaits the computerization of the detailed case information and is expected to get full testing during early 1990. A process of pre- and post-testing will assess the degree to which executives' attitudes toward, and usage of, the computer have been affected.

At some time in the not-too-distant future, executives will have a true workstation at their avail, allowing voice access and incorporating other artificial intelligence capabilities. In the meantime, if executives are to realize the existing benefits of personal computer usage, their instructors should consider the adoption of a more market-centered approach to course delivery. The course structure described in this note is one proposed way to increase the usage of computers among executives.

REFERENCES
