

## The Training Implications of Automated Personnel Systems

### INTRODUCTION

Whenever an automated system of any type is installed there will always be training required; training to acquaint employees with the new methods at installation time, and continuing training of the people in the computer department to keep them abreast of the rapid technological changes in automation methods. In computerized personnel systems, in particular, we can identify four major areas of training responsibility. We must train:

1. People whose records are being processed;
2. People who prepare input data;
3. People who run computer systems;
4. People who use computer outputs.

### TRAINING PEOPLE WHOSE RECORDS ARE PROCESSED

An automated personnel system from purely a systems designer's point of view is quite like an automatic production status system or a computerized inventory control procedure. But in automated personnel processing each record in the system does not represent a box of hubcaps, it represents a flesh and blood human being. Each punched card can represent a man who may have serious doubts about any machine's ability to properly handle his personnel affairs, or on the other hand, he may have a genuine fear of his statistics being processed by an all powerful "electronic brain."

This fear of the ability of the computer is most dramatically expressed by the enormous increase in voluntary tax return filings received by the Internal Revenue Service since they began to computerize their record keeping.

As a result of over 3,000 personal interviews with a general cross section of the American public, Dr. Robert S. Lee of Columbia University recently wrote that the uneasiness about the computer as an "all knowing super device" causes even more concern than the fear of displacement through automation.

With this as a background, what then is our training responsibility toward the men whose data are being processed by the machines? We must assure each man, that under the automated system two things will happen:

1. He will receive objective and impartial treatment;
2. His treatment will not be impersonal.

We must assure him, for example, that if we plan to search the personnel files for all those men with over 5 years of accounting experience and a reading knowledge of French, that if he has these qualities, he will be selected. Or, that we could impartially locate all men whose absences from the job exceed 15 days per year.

We must assure the man through proper training that even if his processing is done by machine that the contact with him will be by another person who can explain what the computer has produced, how it affects the man, and can

make allowances for extenuating circumstances not programmed into the system.

A friend of mine was recently selected by the Army's automated personnel system for overseas assignment. There was no question that this man was due for his overseas rotation at this time, so the computer did its job properly. However, the people in the personnel assignment section delayed his departure for 1 month while his wife recuperated from a serious operation. This is what is meant by objective yet not impersonal action.

The complexity of the system and the number of people controlled will bear directly on the training method, but usually carefully prepared lectures on introductory computer processing, and a clearly written, well-illustrated pamphlet on the system will do the training job. If done properly, they will orient the staff toward a realistic appreciation of what the computer will be doing and will stimulate their cooperation and active support while you are installing the system.

### TRAINING PEOPLE WHO PREPARE INPUT DATA

The person we are talking about here is the man at the interface between the source of the raw data and the system itself. Specifically, we mean the individual who prepares input forms containing the data that enters the system. This individual may be the same man whose records are processed but usually he is some type of coder such as a bookkeeper in an accounting office or a clerk in a military pay system.

The reason for the training is that the coder must have a crystal clear understanding of what data to enter into the system, how it is to be represented, and precisely where on the forms it is to be placed. If we can not establish this data entry discipline through proper training then the entire system will fail. Without valid input we have nothing.

There are really only two requirements to insure the effectiveness of the input training effort: (1) Keep the coding instructions simple, and (2) Continually retest and retrain the coders.

The instructions to the coders must be in plain English. We recently assisted a major accounting firm in installing a large cost control system where the instructions to the coder required her to "place the net receipts in domain A, and the gross receipts in domain B" on the coding sheet. All we had to do to reduce the input errors by 4% was to change the word "domain" to the word "position" in the procedures.

In many cases an imaginative systems designer and trainer can convey the coding requirements simply and with very little text by using the decision table technique. A properly designed decision table can easily hold, on one sheet, the information from five or six sheets of written text to quite easily direct the coder to the proper entry.

If many coders are to be trained this is a made-to-order application for the programmed instruction training technique. The method is successfully used by the Internal Revenue Service in training their staff in visual editing of some tax returns, and by a number of computer manufacturers in the training of the coding aspects of computer programming. Programmed instruction texts can be expensive (about 50 hours of writing to each hour of net instruction) but can be a very efficient way of training large groups of coders.

Because the input coding function is so critical a one-time training effort will usually not suffice. Therefore, a routine must be established in the automated system design itself to determine the error frequency by type for each coder so that management can decide when it is economic to recall coders to reinforce their understanding on a data entry problem.

### TRAINING PEOPLE WHO RUN COMPUTER SYSTEM

Probably the most obvious training implication of an automated personnel system is the training of the people who will run the system. Here we are concerned with key punchers, tab operators, computer operators, programmers, and systems analysts.

## SUMMARY

In summary then we see that to insure an efficient automated personnel system we must train four major groups of individuals:

1. People whose records are processed
2. Coders who prepare input
3. Those who operate the computer system
4. Managers who use the outputs to make decisions

The effective training of people to work efficiently in a computer environment, in our opinion, represents one of the major challenges to modern personnel administration.

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One of the most vital issues here is the question of who will be trained. When any automated system is installed there is usually some displacement of clerical personnel. The extent to which these people can be retrained for responsibilities in the computer department is limited, in my opinion, mainly by the imagination of management, not by the ability of the worker. When the new computer installation is staffed with retrained employees, we have found it to have a far greater chance of success than one staffed by new hires. Aside from the obvious morale advantages, the reason for this is really quite simple. It is usually easier to train someone in computer techniques than it is to teach a man your business.

Computer training is becoming a highly developed art, and if properly trained, a man can be writing productive programs in just a few months. We, for example, over the past 3½ years have trained and placed hundreds of computer programmers who have completed our 25 session, 2 night per week evening course. I dare say that it would take many many times longer than that to train a man in the intricacies of civil service personnel actions.

It is interesting to note that organizations who have for various reasons been forced to follow this retraining policy have found it to be a blessing in disguise. Many banks, with outstanding ADP results, are forced to train from within rather than hire fully experienced programmers who might demand a salary in excess of that of one of the vice presidents. Many progressive railroads hamstrung by union seniority restrictions have found that the manual-operations-experienced man is exceptionally valuable in the computer section.

## TRAINING PEOPLE WHO USE COMPUTER OUTPUTS

Probably the most universally neglected training responsibility is that of training the user of the computer outputs, namely, the manager who is expected to act based upon a computer generated report he receives.

It is unfortunate that in our current state of highly developed third generation software and hardware systems that the training of the executive who prescribes and uses these systems is usually only a stepchild of other training programs. Management training is frequently just a generalization of a computer concepts course for beginning operators or a watered down version of a computer programming course.

We strongly feel that the content of the training for an executive must be something unique to his needs. We recently completed a series of 62 depth interviews into the automation training needs of executives from research organizations, insurance companies, retailers, construction firms, banks, and government agencies. All of the executives were surprisingly consistent in their responses and expressed a need to receive training in two major areas:

1. An ability to recognize the management considerations in computer processing.
2. An ability to react to a management consideration with the appropriate management technique.

More specifically the executives wanted to receive detailed training in the following five areas:

1. How to identify potential systems applications
2. What a manager must know about programming
3. How to prepare a feasibility study
4. How to control the accuracy of data in a computer system
5. How to organize for computer processing.

The list of five areas we mentioned is valid for the state of the computer art as it stands today. It is valid for the needs of personnel record keeping. The future, however, will be sure to expand on this list of training topics when applications such as automated personnel scheduling systems using computer generated simulations are used, or when the growing popularity of the linear programming technique is used in wage and salary evaluation. Both of these techniques have been already successfully applied in these areas.