Training Support for the SAS® System for Personal Computers
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Introduction

Development of the SAS® System for Personal Computers under PC DOS has sparked a new approach to training support by the Institute's Education Division. Training is being tailored to match the PC and its aura of friendliness, personal control, and touchability.

Mainframe training, like the machines it supports, traditionally has been broad in scope and presented in large batches. Trainees expected this type of training and were generally satisfied. But personal computers have changed both the complexity and expectations of data processing trainees. The new target trainee has no more curiosity about how the computer runs than the average driver has about how the engine works. This trainee is task-oriented and impatient to start using the PC to solve information problems immediately.

The Education Division is responding to the demands of the new PC trainee with task-oriented training in smaller units. The instructional approach is changing for all three forms of training: instructor-based, computer-based, and video-based. This paper describes why and how these changes are being implemented and how they affect our training clientele.

Defining the Target Audience Characteristics

We needed to look closely at the PC user and focus on those who represent our potential training audience. In our examination, we looked at the characteristics that might affect the types of training that would be both appealing and effective. When we collected our data, we compiled a profile of the prospective PC trainee.

In the PC target audience, as in both the mainframe and minicomputer user bases, a dichotomy exists between technical specialists and end users. And users are persons who use the SAS System to get information they need to solve problems or answer questions in their work. Technical specialists are programmers and analysts who use the SAS System as a programming tool to create applications. They may also be highly skilled end users such as statisticians, mathematicians, or scientists who have learned programming as part of their research skills.

The majority of our mainframe software users are programmers, analysts, and highly technical end users, and our training programs are directed to their learning needs. The PC target training audience, however, consists mainly of end users whose skills and experience range from naive to skilled in the use of one or more software packages.

The technical specialist has always been served well by SAS Institute training, and the more technically oriented and user has profited from the Institute's video and computer based training courses, but we had to examine the nontechnical end user of PC software more carefully to determine whether or not the current courses could simply be modified for the PC products and, in the case of CBT courses, downloaded to the PC from the mainframe.

Characteristics of the target group for our PC training program include end users:

- who are content specialists rather than technical specialists.

They may have a two-year technical school or a four-year college degree and typically have backgrounds in business management, sociology, psychology, education research, math, chemistry, biostatistics, and geology. Often they do not understand the data they are working with, do not know what analyses need to be done, or do not know how to interpret the results.

- who are likely to be new computer users.

They may know one or two application packages, but they probably are not very familiar with operating systems. Most will have had experience with a package like Lotus that interacts with DOS.

- whose data analysis and reporting needs are varied but often simple in terms of SAS capability.

They do not have to handle difficult data input; this task is usually done for them by MIS. They will be using report writing, statistics (both simple and advanced), and graphics extensively. They may explore the creation of simple, personal menu-driven applications, but those users represent a small portion of the overall group. Some, particularly middle managers, may need to use decision support or quality control procedures, but they will not use the more complex procedures.

A small percentage of the overall group of end users is highly technical and interested in the use of more
sophisticated programming capabilities such as the macro facility, matrix programming, operations research, or linear programming. These technically oriented end users can be classified as technical specialists for training purposes.

- who are users of a data management system, but not the creators of one.
- who are willing to explore software on the PC.
- who are users of a data management system, but not the creators of one.
- who are not interested in learning more about the SAS System than is absolutely necessary to do the job.
- who are not interested in learning more about the SAS System than is absolutely necessary to do the job.

This group of users is more curious about the data than the data processing. They may even be intimidated by data processing.

Assessing Learning Needs and Constraints

From our audience profile, we produced a list of needs and constraints that will affect a training program for this group.

- Technical specialists and end users have different instructional needs and learning styles.
- End users need structured instruction in small steps leading to specific SAS tasks (for example, converting DIF files to SAS data sets and producing graphic reports).
- Our instruction for end users should be directed to their application needs but should also encourage and promote the use of SAS software for other purposes.
- Technical specialists need generalized training with strong emphasis on using SAS software to solve data management problems.
- Instruction for technical specialists should be to use the SAS System as efficiently as possible.
- End users like courses that are tailored, that is, directed to their specific training needs and applications.
- Inexperienced end users do not have the conceptual framework needed to apply SAS tools to their day-to-day information needs. In our training, we should draw our examples and case studies from familiar industries, such as agricultural, airline, petrochemical, or pharmaceutical.
- End users and technical specialists benefit from different programs and delivery media.
- Technical specialists and technically oriented end users prefer and benefit from instructor-led courses and independent exploration rather than self-directed training.

End users benefit more from self-directed, self-paced training.

The Direction of PC Training Support

From our analysis, we concluded that PC training support should continue to be delivered through instructor-led courses, video courses, and computer-based training (CBT) courses. However, we determined that simply altering the content of our current courses in all three media areas would not adequately meet the training needs of the PC end users. We have developed a new curriculum to guide our training development, and we are making significant changes in our course offerings.

A PC Training Curriculum

The most significant new development in PC training support is the design of a comprehensive curriculum that will guide the direction and development of PC training courses. The new curriculum

- is responsive to the PC environment.
- The curriculum is modular and user-controlled, and it allows easy access to and quick consumption of any training topic. It is delivered in small steps—on a diskette, on a single video-tape, or in a single-day instructor-led tutorial.
- reflects how end users learn PC software.
- It is completely user-controlled and task-oriented. It allows the user to decide what to learn and when to learn it. The user never has to go through instruction that he has not chosen to learn.
- can be tailored to specific audiences.
- By organizing the curriculum in tracks, we can identify specific audience characteristics and tailor individual modules to that audience. We can direct certain modules to managers, some to general office staff, and some to business professionals. Others can be designed for factory floor workers or entry-level statisticians. We have complete design flexibility.
- is efficient to develop.
- Because the SAS System is chameleon software that changes its face according to the many applications that it can satisfy, much of our instruction tends to be redundant. Basic principles of DATA and PROC step processing are generally repeated in each course that we produce. The modular approach permits us to develop these modules only once.
- is user-controlled.
- The element of user control represents a major change in our training. We have always offered a prix fixe menu, and now we have added an à la carte menu. In a prix fixe menu, you get your meal served in the order that the waiter brings it to you. You may be able to choose between certain selections, such as shrimp cocktail instead of Oysters Rockefeller, but you get the appetizer first and finish with dessert and coffee. With an à la carte menu, you take responsibility for your meal. You can choose any item on the menu and have it served in any order.

A Library of Computer-based Training Modules

The centerpiece of end user training for the PC is a library of computer-based training modules that are organized in applications tracks and directed to teaching the end user how to perform a specific set of tasks, such as how to convert a DIF file to a SAS data set.
The CBT modular library is like an à la carte menu. You can select a module on any topic in any order. You can start with producing a simple color chart and, if you have difficulty getting your data in the proper form, select a module on entering data in a DATA step. You can select a module on creating a data entry screen and have your secretary learn to enter data by completing a data entry training module. You can tailor your own learning by selecting the topic or topics that you need to know when you need them.

**Current Course Changes**

The Education Division has made other significant changes in the direction of training support for the SAS System for Personal Computers. Here are some of the changes that have been or are currently being made:

- The content of the Basics course has been revised for the PC software to provide an overview of the SAS System. This course is designed to meet the learning needs and styles of both programmers and technically oriented end users.

- We developed a new instructor-led course for experienced users of the SAS System on mainframes and minicomputers. The course relies on knowledge of basic principles of the SAS System and introduces users to new features in our PC software.

- We are developing short instructional modules to append to on-site instructor-led courses to provide more flexible, tailored training.

- We have developed a video tutorial to introduce experienced SAS System users to the PC software. This tutorial was introduced at SUGI 11.

- Video training courses for PC software are shorter and more task-oriented than those for mainframe products.

- We are developing the library of CBT modules in phases. We expect to release the first group a few months after SAS/AF software is released for production.

We are excited about our new training courses because they reflect what you, our users, have been asking for. When we have developed our new courses, we will have some of the most effective and flexible software training programs in the industry.

Watch SAS Training® and SAS Communications® announcements of these and other new offerings from the Education Division.

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