Introduction

Why not break away from the routine flip charts, slides, and overheads and let SAS® software help you make your next presentation? By using a combination of SAS Release 6.03 and later products, with an overhead projection device attached to your hardware, you can develop and deliver an informative, interesting, and unique presentation. Instead of using the remote control for the slide projector, or fidgeting with the overheads, or worse yet, fumbling with large uncooperative pieces of paper, you use the keyboard attached to the PC to change the display. You have total control over what is displayed on the screen in front of your audience, just as you would with overheads and slides. You will speak as the information is presented and will be able to stop if necessary for questions and/or discussion.

This technique can be used on various hardware platforms or a combination of several platforms. The SUGI 15 Interactive Poster Session that accompanied this paper was written for a PC; therefore the examples in this paper are PC-based.

By using SAS products to enhance your presentation, you can do much more than with flip charts, overheads, and slides. You are limited only by what is appropriate for your presentation and audience; but most importantly, only by your own imagination!

Presentation Formats

Using this technology, you can present information in various formats including textual, stationary pictorial, dynamic pictorial, and graphical, in addition to presenting procedural output from SAS products. The group of screens and programs comprising the presentation will be referred to as an application. The use of SAS/AF is crucial in the examples illustrated in this paper both for presentation of information and for the flow of the application. Both CBT type screens and PROGRAM type screens are used in the examples.

Textual Format

This section describes methods for presenting textual information using CBT and PROGRAM type screens. Both types of screens are effective but should be used under different circumstances.

CBT Type Screens

CBT type screens were developed for Computer Based Training applications. However, in this context, they are an excellent vehicle for presenting textual information. CBT screens are basically made up of a display panel. There are no Screen Control Language (SCL) statements behind the screen. However, the developer is able to control how the screen looks and how the screen works (to a certain extent). Input can also be obtained in the form of fill-in-the-blank and multiple choice type questions which may be appropriate for some forms of audience participation.

You can develop a CBT screen so that one point is presented at a time. As each point is presented, the text is held on the screen while you talk about the issue. You can hold the previous point(s) on the screen as you move to the next point so that the audience is able to see the relationship between the items better and so that the information is displayed for a longer period of time.

A technique to enhance the presentation of text is to use a bright color for the point about which you are talking. As the next point is brought onto the screen, the color of all the previous point(s) should revert to a less outstanding color. The presentation of the points can be set to automatic, forcing the screen to change at a time interval set at development. This type of scrolling may be appropriate if you do not anticipate questions or if you want to go through each point before coming back to detail each one. Or you can develop the application so that the next point is only displayed when you press the ENTER key.

Let's look at a simple example to illustrate this technique. Suppose you want to speak about four points related to preparing for a trip to SUGI.

Screen 1

Checklist for SUGI 15

Screen 2

Checklist for SUGI 15

Request Permission

Screen 3

Checklist for SUGI 15

Request Permission

Process Paperwork
Checklist for SUGI 15

Request Permission
Process Paperwork
Make Travel Arrangements

In CBT screens, multiple physical screens (frames) of information can be created and stored in just one catalog entry for the application. So, you could have multiple frames that appear to be multiple CBT screens, but in fact are just parts of one CBT screen. I have found that this is a good way to organize the entries in the SAS catalog. A one-to-one relationship between catalog entries and topics in the presentation makes it easy to manage both.

Also note that CBT screens can call other screens (outside of the parent-child flow control relationship). This is designed to be used with question type panels, which may or may not be appropriate for your application. Branching and calling other screens is discussed in more detail in the section about PROGRAM type screens.

PROGRAM Type Screens

PROGRAM screens can also be used to present textual information. However, this type of screen should be used under different circumstances as it does not lend itself to the scrolling, multiple frame presentation of the CBT screens. PROGRAM screens can present textual information and then branch to CBT screens easily by using SCL. Other information, such as output from SAS procedures, can also be presented using SCL and the desired procedure.

For example, a PROGRAM screen could display this text:

Screen 1 (Display Panel of PROGRAM Screen)

Departments Represented at SUGI 15 in Nashville, Tennessee

When you press a specified function key, perhaps a PROC PRINT of a dataset containing the department names and number of attendees would be generated. The display might look something like this:

Screen 2 (Output Window Generated from SCL)

Departments Represented at SUGI 15

<table>
<thead>
<tr>
<th>Department Name</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biostatistics</td>
<td>5</td>
</tr>
<tr>
<td>Finance</td>
<td>3</td>
</tr>
<tr>
<td>MIS</td>
<td>3</td>
</tr>
<tr>
<td>Sales &amp; Marketing</td>
<td>2</td>
</tr>
</tbody>
</table>

Note that this textual information is not static information that you typed in during development of the application. If you had been using flip charts, overheads, or slides, it would have been "hardcoded". In this case though, it may be stored in a dataset that is maintained by another department. You would just access the information during your presentation. This ensures dynamic presentation using real, up-to-date data. With Release 8.06, it is possible to access this data, even if stored in a proprietary relational database management system, such as DB2® or ORACLE® by using the SAS/ACCESS® product.

Also note that a PROGRAM screen can call other screens, both CBT and PROGRAM types, and will resume where it left off or transfer control to the called screen, if desired. An important point here is that screens do not have to take up an entire physical screen. This may be an effective way to highlight a topic without removing the other information from the display.

For example, suppose the PROGRAM screen that produces the PROC PRINT first calls another PROGRAM screen that contains an "As Of Date" and a "Data Supplied By" panel that could change each time you made your presentation. This information could be stored and filled in on the PROGRAM display panel when the screen is called. One way to do this is to set macro variables equal to the "As Of Date" and the name of the department supplying the information. As the PROGRAM screen is called, the screen variables are set equal to the values of the macro variables. Another way to accomplish this would be to store this information in a dataset and establish a link between the variables and the screen variables using SCL. Note that you may resize windows by using the general attribute panel or by using SCL. Changing the color of the panel, by altering the background color, may also be appropriate.

To extend the example above:

Screen 1 (Display Panel of PROGRAM Screen)

Departments Represented at SUGI 15 in Nashville, Tennessee

Screen 2 (Display Overlay of the Called Screen)

Departments Represented
As Of 28MAR90
Nashville, Tennessee
Summary of Presentation In Textual Format

If you need to present textual information, there are innumerable ways to design combinations of CBT and PROGRAM screens for your application. HELP screens can also be used to present text but perhaps these are best left for HELP purposes as they are not as versatile as CBT and PROGRAM screens.

Pictorial Format

This section discusses methods for designing and displaying pictorial information using CBT and PROGRAM screens. Output from SAS/GRAPH® procedures can always be produced from within an application and will not be discussed here.

CBT Type Screens

Drawing pictures is an easy and fun thing to do with SAS/AF software but this technique may not be straightforward from reading a manual. The tools needed to do this in the PC version of SAS, Release 6.03, can be found on page 39 of the SAS/AF Guide for Personal Computers, Version 6 Edition. To really be effective, you need a special character translation table such as one for ASCII character codes. See Appendix A for a portion of this table. The entire table can be found in manuals such as the BASIC® Reference Manual.

To practice this technique, create a test CBT screen and just get used to the keystrokes required to create various effects. For example, to produce a music note in cyan, hold the ESC key and then press the C, to change color to cyan; then hold the ALT key and then press 1 and then 4. To produce a reverse video music note in cyan, just hold the ESC key and then press 3 to invoke reverse video mode (cyan is still the text color because you did not change it). Then hold ESC and press 1 and then 4 again.

Remember to change the color of the background, border, banner, command line, and message line to best suit your purpose. With CBT screens, you can turn off the command line at development. Some techniques that are not obvious from reading the manual are quite useful at times. You can change the color of your border to match the background so that there does not appear to be a border at all. You can also use reverse video mode for the border, message line, etc. to achieve various looks.

You can produce characters in a wide range of colors, two degrees of brightness, in reverse video, and in blinking mode, or any combination of the above. When you use the special characters that are blocks of various shading intensity (e.g., character codes 176-178), you multiply the possibilities available to you.

Note that by using the special character set, you can draw solid fill type pictures as well as other types of illustrations that may be used for representational purposes. For example, in the SUGI 15 Interactive Poster Session, I wanted to illustrate two types of reports produced by SAS software, statistical and non-statistical, without actually using any procedures. To represent statistical reports, I merely spattered about some Greek characters.

Statistics Report

\[ \sigma \, \alpha \, \Sigma \, \delta \, \Omega \, \omega \, \lambda \, \rho \, \delta \, \kappa \]

The scientific characters are part of the special character set and are very easily produced with a few keystrokes as illustrated above.

An example of solid fill pictures used in the SUGI 15 Interactive Poster Session is a screen I designed to represent various SAS products and facilities by using pictures of the corresponding manuals. I color coded them to match the actual manuals using the appropriate colors, reverse video, and the shading characters. It is not possible to reproduce the screen here but this is a representation.

Products and Facilities

Remember that just as you can scroll textual information using CBT screens, you can scroll pictures for an animated effect. In the SUGI 15 Interactive Poster Session, I used this technique to illustrate various types of meetings that the In-House Users Group was planning. I used the animation technique to represent a person talking and moving while giving a demo and to represent various people speaking in turn during a panel discussion.

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**PROGRAM Type Screens**

The technique used to draw pictures on the display panel of a PROGRAM screen is the same technique used on the CBT screen. However, there are some differences to note that affect the appearance of the display. For example, you are not able to explicitly turn off the command line on a PROGRAM screen but you can achieve this effect by changing the color of the banner and the command line to match the color of the background. Drawing pictures on a PROGRAM display screen can be an effective way to front the output from a procedure.

To use the above example, after the screen with the manuals appeared, a bar chart was then produced to show the number of people using each product and facility under each operating system.

This example is another excellent in which to stress that dynamic screen generation is possible and often desirable. For example, the bar chart represented all SAS products available under each of the three relevant operating systems. By accessing this information that is stored in a dataset, you will not have to modify your application at all. The screen will be dynamically generated using the data in the dataset being accessed by the graphics procedure. If you had been using flip charts, overheads, or slides, you would have been forced to re-do the visual in order to present the most current information. Note here that accessing a stored dataset with a procedure is not the only method for dynamically producing the screens. For example, the extended tables feature of SAS/AF is another way in which to accomplish this.

**Summary of Presentation in Pictorial Format**

You can draw pictures and illustrations easily in CBT or PROGRAM type screens. Choosing which type of screen to use will depend on what you would like to do after the picture is displayed. You may also combine the two types of screens, if appropriate, by calling CBT screens from within the SCL behind a PROGRAM screen, for example.

**Adding Music to Your Presentation**

If appropriate, you can add music to your application. The method will depend on the type of the screen to which you want to add music.

**CBT Type Screens**

CBT screens have a built-in facility that allows you to specify notes to be played. The CBT screen can only play the music at certain times and you have to program in the notes at development time. However, this is an easy way to play music when the screen or a particular panel in the screen is displayed.

**PROGRAM Type Screens**

PROGRAM screens do not have a built-in facility but they are more versatile. Several possibilities include using the Data Step SOUND( ) function submitted to Display Manager from SCL, executing a BASIC program that contains the notes, or using the PLAY command, an assembler program written by Michael J. Metford (Somerson, pp. 1074-5). Which method you choose depends on your need.

The BASIC program can contain many notes. If you merely need to play all of the notes in the file at one time, you can easily execute the program from within your application. I used the PLAY command in the SUGI 15 Interactive Poster Session because of its versatility. You can pass this command the name of an ASCII file that contains notes or you can pass it the notes you want it to play.

**Playing Name That Tune**

The SUGI 15 Interactive Poster Session that accompanies this paper allowed the user to play Name That Tune (Country Version) against the computer. This game was developed using various capabilities of SCL and the PLAY command mentioned above.

The computer always began the game by stating that it could name any number of notes. The user then entered a number between one and nine. The computer would either call the user on that number or it could return a number that was either one or two notes less than the user’s number. Each user was able to play the game three times. A random sample of three country songs that I programmed using the PLAY command was chosen for each session.

Although this may be an unorthodox application using SAS software, it demonstrates the versatility of the software and seemed appropriate for SUGI 15 because it was held in Nashville, the Country Music Capital of the World. Coincidentally, soon after I began developing the code, I heard that Name That Tune was scheduled to return to the world of television game shows. Stay Tuned!!

**Summary**

This paper has described the technique of using SAS/AF in conjunction with other SAS products and an overhead projection device to help you make your next presentation. An added bonus when using this technology is the demonstration of the versatility of the SAS system to your audience. Just a few ideas to get you started have been discussed in this paper. So, have fun and let your imagination run wild!
1 SAS Institute has dropped the apostrophe in Users when referring to Users Groups.

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References


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