

FLOWCHARTS

as Technical Support

By Jason Caudill

Any time technology is employed in an organization there is a need to provide support for the users. Such support usually needs to be offered at the location where users are trying to access the technological resources. More often than not, the user who needs the support wants to get the support immediately, not at some point in the future after a technician has received, processed, and responded to a request. Compounding this already challenging environment is the fact that users often have different skill levels. What kind of resource can be put in place to address these issues?

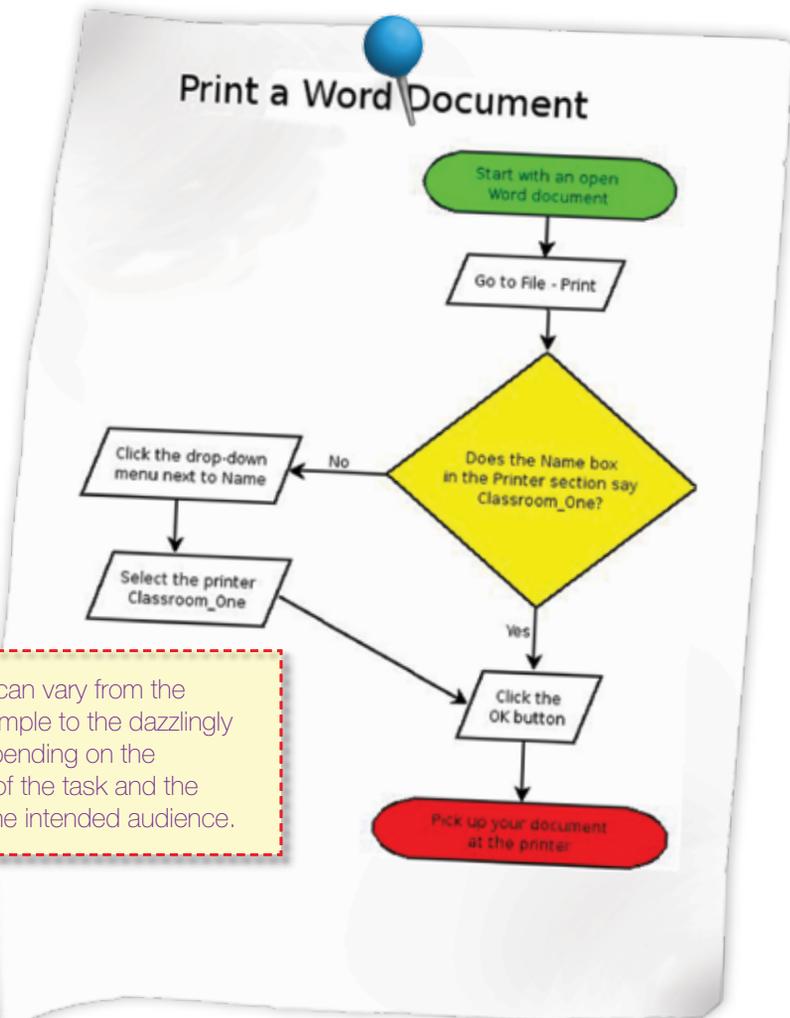
In my experience working in technical support, one very good and easy-to-employ answer is the use of flowcharts. Flowcharts offer the opportunity to graphically represent a large amount of information in a simple, graphical format. Because this support method is simply a piece of paper taped to a desk or wall near a computer or a single image posted to a Web site, it can be immediately available on-site for users. Also, through the use of different flowcharts for different users, different skill levels can be addressed with the same tool.

In the environment I work in, we have seen flowcharts used for everything from high-level system maintenance to printing directions for computer users. For staff mem-

bers, flowcharts have been a useful tool to outline troubleshooting procedures to allow them to solve, or at least to make progress in diagnosing, their own technical issues. For students, flowcharts posted in the computer labs have helped direct them to understand how the new printing system works and where they can locate documents they have printed. These applications have improved the service experience for both users and technical support

staff; users get their answers more quickly and support staff receive fewer calls for support on basic issues.

One of the big reasons flowcharts are popular is that many people, even technical people, don't like reading through technical manuals to find the information they need. Flowcharts provide targeted answers that are easy and fast to read. As an added benefit, flowcharts do a good job of leading people step-by-step through a pro-



Flowcharts can vary from the extremely simple to the dazzlingly intricate depending on the complexity of the task and the abilities of the intended audience.

cess. Following each step is usually critical in troubleshooting or using computer applications, so communicating that each step needs to be performed in sequence is important. Finally, by breaking down a large procedure into individual steps, complex operations can be made simple for people to perform. Even a short, five-step process might take several paragraphs of text to describe; a flowchart can provide the same information with just a few simple images and arrows.

Creating Flowcharts

Making flowcharts is very easy. Draw shapes, put informative

text in them, and then connect the shapes with arrows that carry people through the right steps in the right direction. From a macro perspective, this is accurate. From a practical application standpoint, that kind of approach will more than likely lead to a flowchart that looks like it came off a children's placemat at a restaurant.

Just like anything you write down, the first thing you want to do when you sit down to design a flowchart is decide what you want to say. What information about what steps of the process do people really need to know? One of the great techniques we've discovered is to sit down

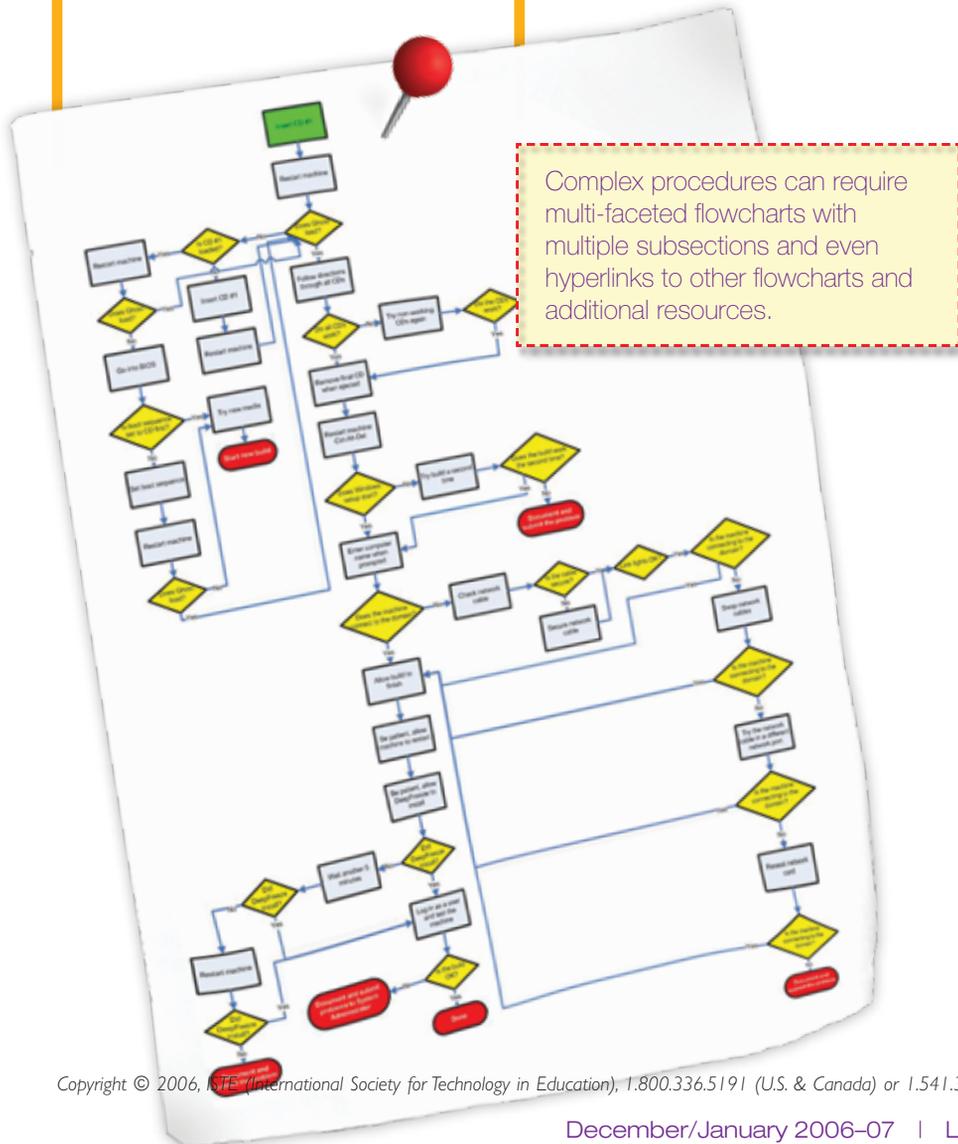
with somebody who doesn't know too much about the subject and lead them through the steps of the process. If they understand it, there's a good chance you've hit the relevant points. These same people are also great resources for testing your completed flowcharts.

Once you've decided what you want to say, you need to figure out how to say it. For simple procedures, making a flowchart is much like writing down some bullet points. You concisely summarize the information and put it into a graphical format that's more or less a straight line, maybe with some diversions.

As the procedure and decision points get more complex, it gets more challenging to design the flowchart. As troubleshooting steps loop back into each other, it's easy to build a flowchart that nobody who isn't a flowchart expert can understand or use. In this case, it may be helpful to create a series of flowcharts that reference each other. For example, the main flowchart would contain the basic steps of the procedure with simple troubleshooting solutions, then it would reference other flowcharts for complex troubleshooting procedures that are too much information to put on one chart.

Next, you need a method for creating the flowchart. If you're troubleshooting at lunch, drawing on a napkin can be very effective. However, for a permanent resource that's going to be disseminated to others, it's usually best to use flowcharting software.

A free and quick-to-learn software package that I started with is TeeTree Office. You can down-



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load it and probably be drawing your first flowchart within an hour after looking the program over and playing with the features—it's very intuitive. (*Editor's Note:* See Resources on page 27 for this and other URLs.) The drawback to TeeTree is that you will likely run into some limitations, especially when exporting the files to use outside of TeeTree.

A good advanced software package is Microsoft Visio. Visio offers many more features and options than TeeTree and will easily export your flowcharts in a variety of different formats. Visio does take a little bit more time to learn, but that's a small price to pay for the improved functionality. Educational pricing is as low as \$130. Visio is fast, easy to understand, and has plenty of extra features, which make it a good choice if you're going to be doing extensive work making flowcharts.

The best option in my experience is a combination of the first two. Dia is a software package that looks and functions very much like Visio, but Dia is open source so it can be downloaded and used by anybody for no charge. It has many of the same features, including easy exporting, that are found in Visio.

When exploring flowcharts as a tool, my recommendation would be to check out all three programs for yourself and decide which is best for you and your organization. TeeTree and Dia are both free, and Visio offers a downloadable free trial. Once you have your software selected and have created some flowcharts, there is just one more thing to do.

The final step in building a flowchart support system is distributing the flowcharts to the people who really need them. In many cases, distribution is as simple as printing out the flowchart and taping it up on the wall in an appropriate place. Did you flowchart the procedure for finding a paper jam in the printer? If so, put the flowchart next to the printer. This may seem overly simple, but remember, simple is the reason for using flowcharts; they're a great way to help non-technical people do technical things.

Beyond posting the flowcharts in convenient locations, there are a couple of more advanced methods for using the methodology and information. First is to simply make the flowcharts available online so that in the event a sign disappears, users can still quickly access the information. The second method, creating interac-

tive flowcharts, is actually a considerable advancement from the basic flowchart method but can be very useful.

Many times in the design phase of a flowchart you will struggle with the question of how much information you can squeeze into one of the flowchart shapes. The answer is usually not very much. Of course you can reference other documents or Web sites as a line on the flowchart, but that requires users to move to a different resource, which takes time and isn't very intuitive. Using Flash by Macromedia, I took the information in my flowcharts, added detailed documents and pictures, and made an interface to take users step-by-step through the process with hot links to detailed information. If users don't need the details, they can just click through the flowchart without interruption. However, if they encounter something they need more information on, it is as simple as clicking on a link and pulling up the details. This is a great way to serve a variety of skill levels with a single resource.

So what solution is right for you and your school? I can't give you a blanket answer, but I can offer some guidelines based on our experiences. At the end-user level, you want to keep things as simple as possible. We use a very basic flowchart to show users where their print jobs are directed in our print system. In an elementary or secondary school the next level of complexity would probably be teachers using computers in their classrooms or the school's computer lab. Because teachers have been trained to handle basic troubleshooting and other issues, we have higher expectations for what they will handle by themselves. Because of this, they have some basic troubleshooting flowcharts that guide them through, for example, inspecting a problem with network connectivity. Teachers can also look at graphical representations of what to do to inspect a problem and, if they are unable to repair it themselves, what they need to do to submit the problem to us.

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Remember, **simple is the reason for using flowcharts**; they're a great way to help **non-technical people do technical things**.



Jason Caudill is a senior PhD student in instructional technology at the University of Tennessee and works as a graduate assistant for technical documentation and training for UT's Office of Information Technology. In the past, Jason has also worked as a Windows system administrator, computer lab manager, and front-line computer support.

The top skill level that we use is for our lab managers, the primary field technicians for our labs. These employees use our most complex flowcharts. We created the first flowcharts in our department to help lab managers remember the steps of the rebuild process for computers using Symantec's Ghost. Considering the variety of problems that can be encountered in the process and the solutions to those problems, these flowcharts got very complicated very quickly. Because of the complexity, and also the subject matter itself, this level of flowchart is only used by our technical experts.

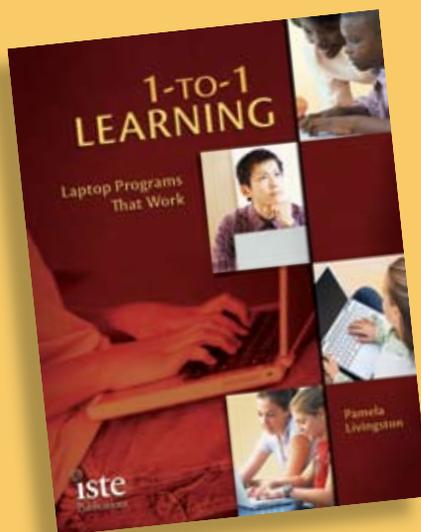
In your own organizations, there are probably similar levels of users and experts that will need different types of flowcharts for different things. If you stop to think about not just the computers, but everybody in your organization who touches a computer, I think you'll come up with some interesting ideas for how to use this new tool.

I hope that you're now inspired to go to work tomorrow and flowchart your processes. Even if you don't use the documents you create as help files for your users, it's a great exercise to go through to make you really think about the steps that need to be taken for any process you use in your organization. You'll be surprised at the details you remember, or even discover, when you do this and really make yourself think like a new user!

Resources

Dia: <http://www.gnome.org/projects/dia/>
TeeTree: <http://www.steema.com/products/TeeTreeOffice/>
Visio: <http://www.microsoft.com/visio>

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