Commentary on "Little Machines: Understanding Users Understanding Interfaces"

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Abstract

Online materials, as Johnson-Eilola points out, too often provide speed but neither learning nor conceptual information. Minimum information is often provided in help systems because there are no resources to provide more. But the result is often a system that, without any conceptual information, provides little more than help that is so obvious that it ceases to be helpful. Even when resources are constrained, help systems should, at a minimum, refer to external sources that can help users with important concepts behind the tasks they are trying to perform.

H.5.2 User Interfaces—*training, help, documentation*
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Johnson-Eilola points out correctly that today's increasing use of online help, with other artifacts of electronic delivery such as informational balloons and task wizards, is robbing the user of learning at the expense of swiftness of execution. Further, he decries, quite rightly, the absence of needed conceptual material in online materials. To take an example from the paper, if a user follows the steps to format a Legal Pleading document using the Wizard provided with Microsoft Word, the user receives absolutely no information on how to write an *effective* legal pleading. All the wizard does (and perhaps all it is meant to do), is assist the user in formatting the document in a way that is appropriate for such a legal document. However, there is no preamble to the wizard that explains this, no conceptual information in online help that provides background, and no warnings that can assist the user to understand the limitations of the wizard.

Johnson-Eilola rightly observes that today's heavy reliance on computers doing all the work means that users believe that they can achieve all they want simply by using a computer, which is touted to assist what they do and in fact do all the heavy lifting. As a society, we have become so seduced by technology that many believe it is the answer to everything. One result is that we have so subverted the requirements of education that a student can 'graduate' without a basic command of the English language, and be unable to balance a checkbook, or make change.

Every new generation finds out that what the previous generation did was different, and every young person can become impatient with the old fogies

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who think that learning itself has value, and that you don't achieve learning just by pointing a mouse or pushing a button. But it remains true that unless a user works at understanding what they are doing, there is absolutely no way they can internalize the full scope of what they are doing and learn even the basics. There is much that can be learned from text, but note that most people would rather ask a person for an answer than go on an electronic search to try to find the answer, as Johnson-Eilola suggests. That is because human beings, being human and not machines, still need the opportunity to make a request and get feedback to their specific questions, and prefer this to the daunting prospect of sieving through reams of script, a task that only has the potential to provide the correct answer.

This brings up another issue with most online text: the user makes a request and the online help system does not have the answer. Sometimes this is because the user does not use the right words to search the online information; sometimes this is because the relevant information is not there. This second case is the one described in Johnson-Eilola's paper, where no conceptual information is provided for the case of the Legal Pleading. The toolmaker would probably argue that the wizard is there only to assist someone to format the document, and that the tool cannot be considered a substitute for the many years of legal training that are needed to be able to write a cogent and effective Legal Pleading. However, this is a weak argument.

The technical communicator as practitioner is typically faced with limited time to produce effective materials, and this alone may preclude the preparation and presentation of any more than the minimum information to the user. The immediacy of information provided in the user interface itself is already an assist, as Johnson-Eilola points out, because it is right at the fingertips of the user, not squirreled away in a tome that must be found, and that in itself is an advantage, even if the online information is cryptic. But lack of conceptual information is a much wider problem for the technical communications community, particularly for the practitioner.

And it is not only lack of basic conceptual information that is wanting: sometimes the 'help' information is not a help at all – it only describes the most simple task in a simplistic way, that is already intuitively obvious. The user may find it impossible to find the answer to a basic question, either because the information is buried, or more likely, non-existent. For example, in using Microsoft Word, say you want to have a heading at level 4 that shows up in your table of contents, but the entries in your Word pull-down list end at Heading 3. If you click on Help in Word and enter "add new heading", you are given a list of choices that includes topics on headers and headings, but none that include the information about how to add a new heading to your style sheet. Eventually, after poking around and using several alternative phrases, you can find information about changing paragraph styles that can be used to insert a new entry in the pull-down list. But not everyone will find the correct information, and using 'paragraph' when the user wants a heading introduces a confusing inconsistency.

Time and budget constraints in the computer industry also mean that a technical communicator may barely have time to create the most minimal of documentation just to describe the basic features for the user, and learning enough about the domain may take significantly more time than is available. Having time constraints is not a good argument for omitting basic conceptual information about the domain, but it quickly becomes a matter of judgment about how much is *essential* and how much can best be provided with references to external materials.

For example, in writing about a software product that is middleware used in the transaction processing domain, is it more effective and helpful to the user for the writer to attempt to explain what the domain is and provide basic conceptual background, or is it better for the technical communicator to provide one or two references to existing books that describe the domain? Because it can take years of work and intimate domain knowledge to write such documents, it is undoubtedly better to reference sound texts in the domain (which of course presupposes finding them) than to try to create them from scratch. Or take the example of a tool used by a pharmacist or physician. Online help for such a tool cannot be expected to provide all the background required for work in these complex fields. However, even with such references in hand, the technical communicator must still create a bridge between such material that presents deep domain knowledge and the texts (online and paper) that are available to the user.

The same would be true, for example, for the Legal Pleading document cited by Johnson-Eilola, but it takes some significant research to find a classic, well-regarded text that can be cited, and the user will surely find it a cop out if the online text recommends going to

law school to learn how to actually write a Legal Pleading!

Much of the terminology and wording in the computer world is driven by marketing of its products, and every user, and above all every technical communicator, should be educated to be skeptical of implicit claims – for example, Johnson-Eilola mentions "wizards" that are not magical in any sense. But how much more attractive do they seem than if they were called "guides" or "constrainers," which is what they really are.

What wizards do is guide the user through the step-by-step process of accomplishing some task such as creating basic slides for a slide show, formatting a document, or installing a software tool. Providing choices, a "wizard" leads the user along an increasingly constrained path until the task is complete or the user exits the tool. Oddly, little help outside the choices is provided so the user either exits in despair (if unfamiliar with what is to be done), finishes the task with a perhaps false sense of completion, or muddles through and remains unconvinced that he/she has produced a result that is the best it can be.

Format and structure are important in any technical document, and a wizard can help with this, but content is critical. Wizards cannot help with the in-depth, internalized learning that domain knowledge requires. Perhaps the technical communicator writing the text for such wizards can assist the user by including statements such as "Effective use of this tool requires mastery of the xxx domain," or "Effective use of this tool requires basic familiarity with the requirements of the legal profession" (for the Legal Pleading wizard).

A writer should not forget that formatting and structural composition are also crafts at which the technical communicator should be an expert. There can be no doubt that a well-formatted document, whether paper or online, with a sound, navigable structure can make the user's task go smoothly, while a poorly formatted or non-formatted document with a non-existent structure can be so difficult to use that the reader bypasses it altogether.

Sometimes the wording of caveats can refer to the product itself, because having the product may presuppose that the user is already experienced in some domain. For example, some products are targeted to system managers or administrators; in some environments only an experienced administrator will have access to a machine where the software can be installed, and caveats about the product that it can only be installed by a person with this background are on the package or displayed on screen. Some operating systems have required "privileges" given only to the administrator/installer that the basic user is not granted. This immediately constrains the background of the individual so that they have no way to access the system without this background or training. In a world where a computer (taken to mean a PC) has only user-setable optional password protection, the requirements for such background and security features have vanished.

Technical communicators should take on this challenge, consider their audience thoroughly, and find ways to locate and suggest background reading that is appropriate. Experienced developers may have suggestions on authors who have written on the topic, or university contacts may be able to help. Asking for such background information also lets the developers with whom the technical communicator works know that the writer is looking beyond the bits and bytes of the product and actually interested in its use in the marketplace. This can only improve the acceptance of the product in its domain of application, and acceptance of the writer by the developers with whom they work.

In the field of technical communication, and particularly where material is to be used in the context of a complex domain, caveats should be used where appropriate, and certainly more conceptual information, or at least references to background documents, is frequently needed. Writers are often too focused on their local environment to do this, but doing so will make the life of the user easier.

Interpretation of user interface interaction has become a research topic (see, for example, Beyer, Kozierok and Kurtz, 1995) and new work in understanding virtual interfaces (Kalowsky, Bee, Nee, 1999; Furnas and Bederson, 1995; Twidale, 1993) will continue to inform technical communicators and possibly help provide ideas on ways to use technology to further learning. Even the currently most sophisticated and elaborate virtual reality systems still include some form of online help, so it behooves the technical communicator working on such systems to prepare appropriate text and introduce external references as well as basic conceptual information wherever possible. However, at a fundamental level, we must recognize that there is no substitute for the presence of and interaction with a human teacher that makes focused and successful learning possible. And those human teachers in the world of technical communications should be encour-

aging their students to look beyond their insular, local environment and bring in references to relevant, classic documents that can provide useful, appropriate domain knowledge.

References

Bayer, Samuel, Robyn Kozierok, Jeffrey Kurtz (1995), Multimodal interfaces on the web, 1995. Available at http://www.python.org/workshops/1995-12/bayer/python-paper.html.

Furnas, George W., and Benjamin B. Bederson (1995), Space-Scale diagrams: Understanding multiscale interfaces, *Proceedings of CHI ′95 Human Factors in Computing Systems*, 1995.

Kalawsky, R.S., S.T. Bee, and S.P. Nee (1999), Human factors evaluation techniques to aid understanding of virtual interfaces, *BT Technology Journal*, 17 (1), January 1999.

Twidale, M.B., Redressing the balance: the advantages of informal evaluation techniques for Intelligent Learning Environments, *Journal of Artificial Intelligence in Education*, 4 (2/3) 155-178, 1993.