CREATING EFFECTIVE MANUALS: A BIBLIOGRAPHIC ESSAY

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As library services and operations become more complex, our reliance on written policy, procedural and technical manuals intensifies. New staff require elaborate orientation and introductory training programs; veteran employees need reminders on standard operating procedures as well as quick access to instructions on handling non-routine situations. Most libraries have access to a set of manuals, produced commercially or in-house, which are intended to help employees run software programs, search remote databases, respond consistently to personnel issues, or carry out emergency procedures. With all these written guidelines and specifications at our fingertips, we should be able to handle most operations swiftly and confidently. Unfortunately, the bulk of this documentation is probably gathering dust somewhere. Some employees will not know it exists, and others will belittle its value. Where do our manuals fail us? Why are they frequently regarded as useless, confusing, and even intimidating? This essay highlights some of the recent literature describing effective manuals and some of the common deficiencies found in written documentation. Essentially, there are three major components of effective manuals: logical organization, appropriate language and syntax, and a design which enhances accessibility and readability.

ORGANIZATION: MAKING TEXT ACCESSIBLE

The person who sits down to write a manual is confronted with several challenges: choosing precise language, sentence structure, layout, and graphics. Authors Redish, Battison, and Gold acknowledge these difficulties, but consider them to be secondary concerns.[1] The biggest problem with most manuals is the lack of a coherent organization designed to meet the needs of the intended audience. Most manual writers concentrate on presenting a certain set of facts, not on making those facts readily understandable to the reader. The focus is on technical accuracy rather than accessibility and comprehensibility. Careful organization takes considerable planning, and many writers do

not have the time to thoroughly analyze users' needs. When professional writers are hired, they often are under pressure by management to meet strict deadlines, forcing them to take short cuts in the planning process. In many cases, however, manuals are produced in-house by resident staff with many other responsibilities. Writing a manual may be regarded as an extra duty with dubious rewards. Unless adequate time is spent planning and organizing ideas and facts based on a clearly defined purpose, the end product will have limited use.

Orna also addresses the issue of logical organization.[2] When an author has been successful in organizing the most relevant ideas, then the task of writing the manual becomes more manageable. Before any writing takes place, the author must define the characteristics of the intended audience and determine how the manual will be used. This knowledge will help the writer develop a provisional framework—a logical organization. If these preparations are not made, the final copy will likely frustrate and baffle the user. A poorly organized document can force readers to cope with elliptical text, missing links, unnecessary elaboration, and concepts that are defined in later chapters. The best editing and typographic design will not rectify this fundamental defect.

A manual's organization should vary according to its purpose. Major describes a variety of document types including tutorials, reference manuals, standard operating procedures, and users' guides.[3] Each type has a distinct organization suited to the needs of the reader. The success of any written document depends upon the appropriate match between form and purpose. Unfortunately, many writers adopt a standard textbook organization for all their documentation. Most manuals, however, are not read like textbooks. The textbook style may be appropriate for tutorials, but not for the other document types described in Major's article. A tutorial is a teaching tool which usually includes relevant exercises and brief explanations which are not found in other documentation. A tutorial explains the principles of the system for the new user, but does not provide detail on every possible exception. The organization should build from the simplest concepts to complex tasks.

Reference manuals are organized for the experienced user who needs to locate specific detailed information

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quickly. They provide assistance in handling non-routine situations and should not include general introductory information which could bury the specific instructions.

Standard operating procedures provide step-by-step instructions for employees and are usually organized chronologically. SOP's are most frequently used to document production schedules, and should include the sequence of tasks as well as the time when each task should be completed.

Major describes a user's guide as a "summary of all related resources, such as available services, software, and hardware, written for every one who might use those services. It serves as a system of pointers to more detailed information such as reference manuals."[4] For example, libraries may publish a handbook for patrons which gives a brief overview of the services and facilities, but does not include instruction on how to search the online catalog. Users' guides serve as lead documents and they can be a useful way to organize a series of manuals and instructional publications.

Manual writers may run the greatest risk when trying to satisfy all needs in a single document. While some authors claim a manual can serve more than one purpose, most amateur writers do not have the skills necessary to achieve dual objectives. Because the organization of each document will vary according to the user's needs and experience, trying to meet the needs of different users may be counter-productive.

LANGUAGE: MAKING TEXT READABLE

Most of us have been confounded by instructions like the following sentence used in a telephone training course:

If call pickup is initiated by a covering user to pickup a redirected call, Implied Principal Addressing is to the Principal from which the redirected call originated.

Awkward and perplexing documentation is in plentiful supply, which may account for the abundance of articles addressing problems of language and syntax. Reddout offers some practical advice on word usage and sentence structure appropriate for instructional text.[5] Writers should choose strong, precise verbs such as "use," "help," and "begin." These words are preferable to passive or weaker verbs such as "utilize," "facilitate," and "commence." Buzzwords such as "parameter," "time frame," and "reconfigure" frequently lack precision and can lose recognition over time. Although jargon carries a negative connotation, it is sometimes necessary and useful, particularly if the reader will see the term when performing the task. Jargon, however, must be clearly defined when it is first introduced. Reddout suggests including a glossary of words, phrases, and acronyms to help the reader understand and recall new terminology. Personal pronouns usually make the text more readable. The pronoun "you" helps to establish a rapport with the reader and reduces the anxiety level, particularly when expressing technical concepts which may be intimidating. Sentence structure is as important as the choice of words. Writers should put the main idea first and avoid dependent clauses. Readable manuals may sound dull,

unimaginative, and repetitive, but their purpose is to instruct and not to entertain. Some limitations on word choice and literary style are necessary to ensure that the majority of readers will comprehend the text without major difficulty.

Sanderlin looks at the problems of producing manuals for both non-English readers and employees who have limited understanding of English as a second language.[6] Organizations that need to produce manuals for non-English readers have three options: human translations, machine translations, or the use of Controlled English. Translations are usually costly and sometimes inaccurate. If the organization is large and employs several people who speak different languages, multiple translations of the same document may be necessary. For these reasons, the use of Controlled or Fundamental English has become an acceptable alternative. Although Controlled English is designed for non-native speakers, it can be helpful to native speakers whose reading skills are weak and to fluent readers when the content is new or complex.

Sanderlin outlines the principles of Controlled English, which is based on a small core vocabulary and a larger technical glossary. Each word has a single definition. For example, "right" is used as the opposite of "left" but not "wrong." Instructions are written in short, direct sentences that usually begin with imperative verbs. Actions should be described in chronological order and in positive form. For example, "leave the switch on" is more understandable than "do not shut the switch off." Controlled English can be understood by non-native speakers with a minimum of assistance, and its clarity can benefit all employees.

Since language and syntax are critical components of all instructional texts researchers have attempted to correlate certain properties, such as the average number of syllables per word, with readability. In response to the growing number of lengthy and impenetrable manuals used in the military (some exceeding several thousand pages), several formulas were devised to try and quantify readability based on word length, sentence length, the number of personal pronouns, and other measurable features. There is, however, considerable debate on the validity of readability formulas in the production and evaluation of manuals. Kaminski and Clark give a brief overview of the controversy and demonstrate how one formula, Gunning's Fog Index, is used to determine approximate reading levels of business training manuals.[7] The Fog Index is easy to compute, and supposedly indicates the grade level of education needed to easily read and comprehend the material.

Whitney takes exception with these quantifying techniques and gives an example of why short words and brief sentences do not necessarily produce readable and understandable text.[8] Existing formulas concentrate on a limited group of statistical measures and ignore stylistic elements such as eloquence, design, layout, and typography. Whitney agrees with theorists who believe that style is a critical component of readability. "Readability needs to be redefined, because it should be related to more than a few syntactic principles. It is, in fact, a matrix of considerations, only a portion of which can be associated with short words and brief sentences."[9]

Duffy admits that readability formulas do an adequate job in measuring variations in the difficulty of prose, but they cannot be used to predict comprehension.[10] Duffy favors the direct assessment approach, which involves giving a draft of the manual to a sample of the intended audience, then testing comprehension directly.

DESIGN: MAKING TEXT PRESENTABLE

Text design, while perhaps less critical than the logical organization of ideas and the use of precise language, can enhance the effectiveness of written documentation. Huston and Southard provide advice on formatting text which will improve appearance, attract the reader's attention, and make instructions easier to find.[11] For example, brief overviews at the beginning of each unit set the stage for deductive understanding. Informative headings isolate subsections and can help users locate information quickly. If possible, the writer should use the same syntactic structure for headings, preferably verb forms that indicate specific actions. Instructions should be clearly separated from expository prose. Grouping information in short chunks, rather than long paragraphs, is a preferred visual technique which adds to a manual's effectiveness. Listings are another device which allow users to find information quickly and to understand the hierarchical relationship among ideas.

Hartley has written his book for the growing number of non-specialists who are making use of technical advances in print and information processing to produce instructional manuals.[12] Hartley discusses page size, layout, type size, white space, and graphics. Capitals, italics, and underlining should be used sparingly. Illustrations can increase motivation, attention, instruction, and retention. The use of color is often unnecessary and can be distracting. Tables, graphs, charts, and symbols should be kept simple because many readers do not understand the conventions used in graphical and tabular aids. Text design and layout often require a different set of skills from those needed to write clear and precise sentences. For this reason, the best manuals usually represent a collaborative effort.

The principles of organization, language, and design, apply to all manuals, regardless of content. Additional considerations apply to specific types of manuals including two forms frequently used in libraries: policy and procedure manuals and technical documentation.

SPECIAL CONSIDERATIONS: POLICY AND TECHNICAL MANUALS

Most organizations, including libraries, rely on policy and procedure manuals to guide daily operations and to answer personnel questions. Many of these manuals, however, fail to meet these basic objectives. Bloom gives an elaborate account of what is wrong with most policy and procedure manuals and why it is so difficult to correct the problems.[13] In many organizations, the most prevalent problem is manual proliferation; too many manuals can create inconsistency and costly redundancy. The lack of a single authoritative source may result in uncertainty and violations, forcing management to spend more time reiterating correct procedures. Unfortunately, most attempts to revise, consolidate, and codify only succeed in adding another layer of statements and even more confusion. Bloom calls this phenomenon "the manual proliferation cycle" which can only be broken when certain traps are avoided. According to Bloom, more care should be taken in distinguishing between policy and procedure. More time should be spent developing clear selection criteria, providing adequate cross-references, and gathering sufficient feedback on the weaknesses and ambiguities of existing policy statements. Policy manuals should provide a concise presentation of all relevant issues but should not try to plug every loophole or address every contingency. Lengthy, verbose statements are frequently misread and misunderstood.

Wiley concentrates on four major challenges related to writing policy and procedure manuals: compliance with federal, state, and local laws; keeping the manual current; adopting an appropriate style; and handling a lengthy review process.[14] Providing adequate legal references can be a complex process which may require professional assistance. Too few references can increase liability; too much detail can blur the issues. Regularly scheduled review dates, perhaps as frequently as twice a year, can help ensure currency. An out-of-date manual is not only useless; it is potentially detrimental. Some administrators may insist on a deliberately vague style which gives management maximum discretion. However, the statement "Employees shall dress appropriately" provides little guidance and is open to interpretation and disagreement. One way to deal with the problem of interpretable policies is to include a disclaimer giving management the right to make exceptions and disavowing any implied contractual obligations. In some cases however, disclaimers can compromise the credibility of the manual. The final step in producing a policy and procedure manual is the review process. Although it can be time consuming, a thorough review including employees from all levels of the organization ensures completion, readability, and acceptance.

Because of the difficulties and pitfalls associated with creating policy and procedure manuals, some software companies have produced computer programs designed to make the task less onerous. Duff describes one package called Personnel Policy Expert designed and produced by KnowledgePoint of Petaluma, California.[15] The program uses "First Class," an expert system shell which asks the writer a series of questions on topics ranging from AIDS in the workplace to vacation benefits. Using the writer's responses, the program provides a tailored policy statement for each selected subject area. The end product is an online employee handbook which is accessible in a network environment and easily updated.

The art of writing technical documentation, especially computer manuals, has received the most discussion, analysis, and criticism in the literature. Technical documentation which is both readable and accurate can be very difficult to write for several reasons. People with strong computer backgrounds frequently find it difficult to temporarily abandon their specialized language and express their expertise in laymen's terms. Others

with more general backgrounds may have gaps in their technical understanding which can result in insufficient or inaccurate instructions. In either case, the reader is likely to be confused. Asteroff believes a computer manual's "mere presence not only is not reassuring, but is often cause for trepidation."[16] Although Asteroff thinks that technical documentation has improved, primarily due to the widespread use of personal computers, most manuals still fail to teach new users how to apply information and concepts to a variety of situations. It is always difficult to write effective instructions for an invisible audience, particularly when the concepts are complex. Although we are likely to depend on printed manuals for some time, the most effective method of computer training may be through interactive online documentation, which allows the system and user to exchange questions and responses.

Carroll discusses the basic difficulties users encounter when trying to learn a new computer application or technical procedure.[17] Learners are frequently put into a position of trying to execute a complex set of procedures when they do not understand the objectives. If they are overwhelmed and anxious, they may skip the previews and plunge blindly into the instructions. Most learners have trouble disengaging themselves from error tangles, and, unfortunately, most manuals will provide little assistance or reassurance in these cases. Carroll advocates a minimalist design which slashes most of the verbiage and retains a few fundamental principles combined with one or two relevant examples. According to Carroll, more information does not provide better training. In fact, lengthy computer training manuals may actually impede the learning process because most new users want to perform the functions, not read about them. Minimalist training manuals are created by eliminating unnecessary words, repetition, summaries, reviews, practice exercises, and even indexes. The only "excess" allowed is assistance in error correction. Carroll maintains that some manuals can be reduced by as much as 75 percent, resulting in faster and more effective training.

Most of the principles and theories discussed in the literature and summarized in this essay make common sense. No one will be shocked to discover that manuals should be organized with the reader's needs in mind, or that uncommon words and convoluted syntax should be avoided. The art of writing manuals, however, may not be fully appreciated. As we become more dependent on written or online instructions which provide guidance and order, our demand for usable texts may lead to a new wave of effective manuals.

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We always think every other man's job is easier than our own. And the better he does it, the easier it looks.

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