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ARTICLE REPRINT

Integrating Training and Documentation

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Since I published the following article in 1994, I have received many comments from people who have been working to integrate their training and documentation functions. For the most part, they have found that the potential problems I detailed in the article do indeed occur in many organizations. They have also found that working out the problems is worth the effort.

Many of the organizations I consult with find it challenging to break down the walls between traditionally independent departments. Merging training and documentation departments can be just as difficult as merging two companies that were once competitors. The differences in culture, goals and objectives, and personalities all contribute to resentment and conflict. But many of the methods that smooth the way in a merger will also work in merging two functional areas. Here are a few ideas.

Leadership from the senior members of the departments. If the managers don't actively and positively support the merger, no one else will.

Patience with the need for processing time. Merging two departments will take time. Simply telling people to work together doesn't make them do so. The individual contributors must become involved in the merger. I've encountered many senior managers who think that cooperation can be mandated by edicts from above. The truth is that it won't happen that way, no matter how dictatorial the management is.

Involvement of customers through joint field studies. Customers can be great motivators for change. Most people involved in training and documentation are genuinely concerned about whether they are providing value to their customers. Finding that customers will be better served by integrated activities will often help the newly merged team members embrace new methods.

Development of a strategic plan. I have found that taking a newly merged organization through a strategic planning process helps the group articulate and agree upon joint goals and objectives. It is important, however, that strategic planning be facilitated by an expert in training and documentation processes as well as in facilitating change. A good facilitator will help keep the discussions focused on the planning process, continually point to the importance of finding solutions, and help participants see the common ground as well as the differences in their goals and practices.

With a comprehensive strategic plan in place, the merged organization has a working document to help them direct their efforts and measure their successes.

Publications and Training: The Challenge of Working Together

In too many organizations, technical publications and technical training are entirely separate functions with little communication between them. As a result, work is duplicated, costs are higher than necessary, and valuable perspectives on customers' needs are lost. For the customer who receives the products of technical publications and training, the consequence is an organization that looks bad because no one seems to be working with anyone else.

When technical writers and technical trainers learn to work together, both groups gain. Technical writers benefit from the close working environment that often exists between trainers and trainees. Information supplied by trainers helps the writers prepare more specific audience profiles for the technical publications, conduct detailed task analysis, and better understand how to meet the documentation users' needs. Trainers are able to aid technical writers by testing prototype publications with customers or employees attending training classes; such classes can provide a realistic perspective on the usability of complex information.

By working closely with technical writers, trainers are able to reduce duplication of effort by using in their training classes documents that have been prepared by technical writers, rather than developing completely independent training materials of their own. And, by using the technical documentation in classes, trainers better prepare trainees for continuing use of these publications after their training is complete.

By working together, often under the same management, rather than separately, technical writers and technical trainers are able to develop a synergy that helps reduce the cost to the organization of developing information and training, increases the effectiveness of technical publications of all types, and potentially reduces the cost of customer service. In addition, this synergy should result in increased customer satisfaction with the entire organization's effectiveness and an increased perception of the value that is provided by both technical publications and training.

Traditional Separation of Training and Publications

When asked about the group that is responsible for technical training in an organization, those involved in technical publications frequently reply, "That's handled in the training department. They're over in building X, I think, but I'm not sure. I've never been over there; I don't really know anything about what they do."

Similarly, technical trainers view the technical publications group as "those people who write manuals that aren't very usable."

Traditionally, training and technical publications have been assigned to entirely different groups in many organizations. The two groups have little or no communication between them. They do not share materials or profit from each other's expertise. In some very large organizations, training and publications are so thoroughly distanced from one another that they are housed in separate geographic locations. When I asked a technical publications group at a major computer manufacturer where training materials were produced for a particular product, they replied that they had no idea who prepared the training materials. They thought training might be handled by "someone in Chicago," half a continent away.

The traditional separation of training and technical publications functions seems more accidental than purposeful. Many technical publications organizations have their roots in engineering or data processing development groups or are associated with the development of policies and procedures. Training organizations appear more closely associated with human resources. Even when training groups are associated with technical development parts of the organization, senior management often keeps them organizationally distinct from technical publications because of political circumstances.

Personality Differences Between Trainers and Writers

Although organizational politics appear to play the most significant role in the separation of training and technical publications groups, there are other more subtle reasons for the separation of roles. In our study of the personality types of technical writers and technical trainers (Hackos and Tilden 1988), Steve Tilden and I found that writers and trainers had significantly different personalities. The majority of the writers we studied, some 75%, were introverts as measured by the Myers-Briggs Type Inventory (MBTI). In contrast, 75% of trainers were extraverts [MBTI spelling].

This contrast in types reflects a great deal about the nature of the corresponding jobs that writers and trainers perform. Extravert trainers may be better suited to the performance role required of those who teach workshops. Introvert writers may be better suited to the more solitary tasks of composition, editing, and copy preparation.

Unfortunately, extraverts and introverts often have difficulty working together. Introverts prefer working alone or with small groups of similar types. They dislike meetings, avoid hammering out problems through long discussions, and are somewhat uncomfortable with the perceived "flamboyance" of extraverts. Extraverts, on the other hand, prefer meetings and use active verbal arguments to hone their thinking. They prefer to work with groups and often avoid paying attention to tedious details. They frequently view silence (from the introverts) as acquiescence. Introverts complain that extraverts talk too much; extraverts complain that introverts never have anything to contribute to discussions. Of course, this brief portrait is an oversimplification, but the differences in personality type

between extraverts and introverts make collaboration more difficult.

In addition, many organizations hire differently for jobs in training and technical writing. Trainers are thought to require more technical expertise than technical writers because they are in the front line of explaining the product or process to the users. Many organizations hire writers for their composition skills, rather than their technical knowledge. Consequently, members of either group tend to disparage the skills of the other group. Technical trainers claim that the technical writers are not "technical enough," while technical writers claim that the trainers do not understand the needs of nontechnical audiences.

Problems Due to the Separation of Training and Publications

As a result of this traditional separation between technical writers and technical trainers, a disjunction occurs between information provided to users in technical publications and information provided to them in training classes and training materials. The presentation of information to the user is likely to

- Lack consistency in style and content
- Be inadequately coordinated
- Contain inaccuracies
- Foster usability problems for the user
- Increase costs and decrease quality

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Lack of Consistency

The disjunction between technical publications and technical training fosters an inconsistency in the product or process that impedes user learning of the tasks required to perform successfully. Jakob Nielsen (1993) remarks that the single most important characteristic of a good user interface for a technological product is consistency:

> Consistency should apply across the different media which form the total user interface, including not just the application screens but also the documentation, the online help system, and any online or video-taped tutorials as well as traditional training classes (p. 90).

Nielsen's definition of a total user interface includes both technical publications and technical training. Obviously, these diverse components of the interface will not be consistent if no communication exists among the groups responsible for developing them.

Lack of Coordination. Not only does lack of communication between technical publications and technical training lead to a lack of consistency among publications and training classes, it also leads to an especially unfortunate lack of coordination between the written materials produced by each group. Training manuals are often written differently from user guides and reference manuals.

The differences include organizational patterns, writing style, terminology, format, and even technical content. Basic approaches to teaching new information, especially in emphasis and technique, may differ markedly. Most unfortunately, either the training materials or the technical publications or both may contain inaccurate information, information that no longer corresponds to the product itself, or information that is presented in one source and not the other.

Lack of Accuracy. At one company, I discovered during interviews with technical trainers that the trainers had found several instructions in the user's guides to be incorrect when they tried to apply them in training classes. However, they had never informed the technical publication groups that the instructions were wrong. Instead, they told the class attendees that the manuals were wrong and should not be trusted. Or they asked attendees to make redline changes to the manuals, adding and correcting information.

As a result, the class attendees learned to distrust the technical publications provided with the product and were inclined not to refer to the publications for information after they returned home. They were much more inclined to call customer service whenever they needed information. The lack of communication between trainers and writers seriously disadvantaged the users and the company.

Reduced Usability. For several reasons in addition to inaccurate procedures, technical trainers tend to prepare their own training materials for their students. Training manuals, unlike the reference documentation provided with the product, often include copies of overheads or slides, training exercises, illustrations, and information on products and procedures. Students use the training manuals extensively during the training classes, adding notes to their personal copies as they listen to a lecture or participate in laboratory exercises. The annotated training materials become a valuable resource after they have returned home.

We have learned from usability test studies that learners tend to return to the materials they used during learning, even when these materials do not cover the tasks they are trying to perform. Because they have learned to use the training material during their classes, users are more comfortable with these materials than they are with the reference manuals. I have witnesses test subjects who returned again and again to training materials to answer questions when more complete information was immediately available to them in reference manuals

(which include installation, user, and service guides in addition to the traditional product reference manuals). Obviously, these users trust what they have learned to use and continue to refer to these materials long afterward. Two problems occur when users continue to use training materials as references:

- First, the training materials are rarely updated unless the user retakes the training class in which the materials were handed out. This means that original training materials are quickly out of date.
- Second, the training materials are generally not organized for ease of access and do not present a modular approach to a task.

Many training materials have no indexes and very rudimentary tables of contents, making the information in them difficult to find. Training materials are often organized chronologically from introductory material and exercises through more advanced tasks. For example, many years ago I used a training manual to learn to use a word processing program. Soon after completing the training exercises in the manual, I needed to add page numbers to a document. I remembered that page numbering was one of the exercises I had tried. I turned to the training manual, using the index (there was one) to find the section on numbering pages. Although I followed the instructions carefully, I was frustrated when I printed my pages—a small "/p" appeared in the bottom right corner of each page rather than the page number I wanted. Even after several attempts, I could not get the page numbers to be printed.

Only after I discovered an earlier lesson that included the missing part of the procedure was I able to succeed in reaching my goal. The page-numbering lesson depended on the user having mastered an earlier step in the procedure. The lack of a self-contained, modular approach to the procedures caused me several hours of frustration. I quickly learned that I could not use the training manual as a user's guide. Unfortunately, no other user's guide existed for the program. That meant memorizing the training lessons or struggling with the training manual as a poorly organized reference tool.

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Increased Cost and Decreased Quality

It is clear that our users are not served when training materials and technical publications do not work together smoothly to provide complete information. Neither are those who must produce the information served by a lack of communication and coordination between the two groups. When training and publications fail to work together, we find that

- Training materials and technical publications may be inconsistent and neither may be consistent with the product interface.
- Significant technical information known to one group may not be communicated to the other group.
- Training materials may be inappropriately used for reference after training is completed.
- Users refer to out-of-date training materials with which they have become familiar during training.
- Vital information about users as learners is not communicated to technical writers.
- Vital information about user tasks is not communicated to technical writers.
- Trainers lost the advantage of getting help in preparing high-quality training materials.
- Costs increase when information is duplicated.

We have often observed that when technical writers have no opportunity to communicate with technical trainers, technical publications suffer. Technical trainers have an enormous advantage that technical writers often lack—frequent direct communication with users. All technical writing guidelines emphasize that technical writers must "know the user" to design and produce publications that will meet user needs. When technical writers and technical trainers do not work together, the technical writers are deprived of the opportunity to learn more about the users and to share in the insights the trainers have about user needs.

In many instances, technical trainers, especially those skilled in instructional design, may have a more comprehensive picture of the tasks that users want to perform with the product. Technical writers who work primarily with development or marketing groups may not be aware of the full range of user tasks. As a result, the technical documentation they prepare tends to be insufficiently task oriented. The task orientation of technical publications might be significantly improved if trainers and writers worked more closely together and viewed documentation and training as part of the same system of aiding the customer.

On the other hand, technical trainers often lack the close access to the development organizations that technical writers

have. As a result, training materials and course plans may include incorrect or out-of-date information about the product or process. Technical trainers often lack the skills to prepare clear, consistent, well-formatted text. Trainers whose skills are primarily in delivery and interaction with students may be poor writers or not know how to prepare text to enhance readability and usability. Technical trainers who do not work closely with technical writers are deprived of the assistance that writers might provide in designing and producing high-quality training materials.

Quite obviously, the customer suffers when groups responsible for the customer interface do not work together or have a unified strategy for providing training and information. Less obviously, the originating company also suffers from the separation of documentation and training. Not only are materials duplicated unnecessarily, increasing development and production costs, but the same information must be gathered by two different groups, increasing the costs of front-end analysis and research.

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Advantages of Working Together

Through this review of the current state of affairs between many technical publications and technical training organizations, the advantages of working together become clear. A unified approach to the training and documentation parts of the user interface is in the customer's best interests. If the two groups work together and formulate a unified strategy of customer support, it is highly likely that the customer's requirements will be better satisfied.

The advantages of a close collaboration of trainer and writer in the development of training and user information are many:

- Development costs are saved because development tasks are not duplicated.
- Training and user's guides are developed simultaneously so that both are ready on time.
- The trainer's understanding of users and tasks benefits the technical writer designing task-oriented user guides.
- The writer's work during the development cycle and the close association between writers and developers benefits the development of training materials.
- The writer's skills in design, formatting, composition, editing, and proofreading help the trainer produce more attractive and usable materials.
- Writers are able to obtain feedback from participants in the training classes about the effectiveness of the user's guides.
- Users benefit from a more unified approach to training and documentation by being trained to use their user's guides and by experiencing less confusion about when to use their training materials and when to move on to a user's guide after their training is complete.
- Users who do not attend training benefit from an improved user's guide that facilitates their learning process.

In one project that I designed and managed for a manufacturer of highly technical computer software, the technical trainer conducted the front-end analysis of the potential users and the tasks they wanted to accomplish using the software. The trainer had considerable experience working with users of the software and thus had a very detailed understanding of user characteristics and needs. The trainer understood the differing degrees of knowledge and experience that users brought to the training classes and to the product and understood the type of information they needed to use the product effectively.

In fact, the technical trainer was able to provide valuable insights for the technical writers about audience and tasks, with little additional cost to the organization. The writer, who had little experience interacting with users, gained needed information. The information provided by the front-end analysis had been previously unavailable to the writer, who was not given the opportunity to conduct a front-end analysis because management did not provide the resources to do the research.

This is not to say that all front-end analysis should be done by technical trainers, but in the absence of other resources to conduct this vital research, the experience of the trainers in working with users provides an invaluable expedient.

In this project, the trainer and writer used the insights developed through the front-end analysis to create a training plan and a documentation plan for the user's guide. They worked together on the plans, ensuring that the trainer would be able to use the user's guide as part of the classroom training process. The writer organized the user's guide to accommodate the trainer's understanding of the tasks that users wanted to learn to perform. The trainer's insights into the typical user's learning process also helped the writer plan the task sequence for the user's guide to parallel an effective learning process.

As a result of this collaboration the trainer reorganized the training program so that it focused earlier on user tasks than the previous versions of the program had done. Through my task-analysis seminar, both trainer and writer had become aware of the need to concentrate on user tasks and to facilitate adult learning by encouraging doing rather than listening. The

trainer began to function more like a coach in the classroom, rather than a lecturer. The writer began to see the difference between product-oriented tasks and user-oriented tasks that placed product functions into a larger, work-oriented context.

The collaboration of trainer and writer resulted in their producing better training and a better manual. They reduced development costs by sharing information. The trainer understood the users, their tasks, and their learning needs, while the writer had considerably more knowledge of the new product developments, having worked directly with the developers for several months.

This team of writer and trainer also reduced development costs because the trainer minimized the amount of independent training materials produced. Instead of developing an entirely separate training manual, the trainer used the user's guide in class, supplementing the guide with copies of overheads and in-class laboratory exercises. Whenever the class participants needed additional information to help them perform a laboratory task, the trainer referred them to the appropriate task-oriented section of the user's guide. Through collaboration, one set of materials was developed, printed, and distributed to users instead of two.

Not only did the trainer and the writer, as well as the organization, benefit from reduced development costs, the user also benefitted from a collaborative approach between the two groups. The user who attended the training class received a more unified set of materials, with parts clearly to be used during training and other parts clearly for self-learning back on the job.

The unified information eliminated the potential confusion between training materials and user's guide for the user, and the user learned during training how to find information in the user's guide. Instead of continuing to rely on familiar training materials for future reference, the user learned to rely on information that was expressly developed for independent learning and ease of access.

The traditional classroom materials had never been designed for future access, lacking indexes as well as structure that promoted locating information on demand. The traditional user's guide had lacked a comprehensive task focus that helped users learn complex tasks. Through the collaboration of trainer and writer, the users gained information that would help them become more independent in their use of the product and help them gain that independence more quickly. They also learned to use technical documentation that will be periodically updated as the product changes, rather than continuing to refer to out-of-date training material.

The writer gained another advantage from the collaboration with the trainer. Because the user's guide was included in the training classes, the writer obtained valuable feedback from class participants. The participants were asked to rate the quality of the user's guide, and the writer also had the opportunity to interview the participants and learn how to improve the user's guide to better meet their needs. Such detailed and focused feedback is rare when users are asked to communicate with technical communication departments only through reader response cards or surveys.

Of course, the writers do not learn how the manuals function over the longer term, but they acquire more feedback than they would ordinarily obtain. The benefits of this feedback accrue to users who do not have the advantage of attending training on the product but must rely on the user's guide to learn how to use the product more effectively.

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Disadvantages of Working Together

Although the advantages of collaboration between technical training and technical publications are many, the disadvantages are few. Most of the disadvantages are structural —they occur because of organizational patterns in the company rather than because they lead to ineffective outcomes.

The most significant disadvantages of collaboration between trainer and writer include

- Physical constraints that discourage working together
- Organizational politics that discourage cooperation
- Personality conflicts between trainers and writers

Trainers and writers who hope to collaborate on development of training and documentation may discover that the locations of their respective organizations discourage working together. Sometimes training and technical publications are geographically distant from one another—different cities, different parts of the same metropolitan areas, or even different locations within the same office complex. The lack of physical proximity does not make collaboration impossible; it simply makes it more challenging. But physical constraints are easier to overcome than political constraints.

Technical training and technical publications groups may report through different parts of the corporate hierarchy. Managers may be jealous of their spheres of influence and unwilling to work cooperatively with their counterparts in different parts of the organization.

Because they come from such diverse backgrounds and often have very different personality types, training management and publications management may find it difficult to work together, as may individual trainers and writers. Both

groups may believe that they have special insights about how users are to be approached that are in direct conflict with the strategies of the opposing groups.

It would be easy to say that the political conflicts that seem to occur all too frequently between technical training and technical publications are trivial and should be put aside for the good of the company and for the benefit of the customer. Unfortunately, in many large organizations as well as small ones, a cooperative approach to meeting customer needs is very difficult to achieve. Without a tradition of working collaboratively and taking advantage of the benefits of cross-functional teams and without the support of upper management, cooperation may never occur. Unfortunately the customer is the loser.

The solution, of course, is to find ways of putting aside personal conflicts and overcoming organizational barriers. Members of each group who wish to become champions of collaboration rather than feuding should seek out interested collaborators in the other group and look for ways to work together, even on a small scale. Other disadvantages are possible:

- Collaboration appears at first to be more time consuming than working independently.
- More-usable technical publications and training materials may take more time and expense to produce than less-usable ones.
- Cost savings accrue to the company as a whole rather than to the individual department.
- Customer benefits are difficult to measure and accrue over a longer time period.
- Customer internal cost savings result in improved profits but are not apparent in the budgets of each development group. Different approaches to writing may result in conflict between trainers and writers rather than cooperation.
- Different approaches to user learning processes may result in conflict as well.

Despite the possible disadvantages, they appear to be outweighed by the advantages. If you believe that customers will be better served by collaboration rather than competition and conflict among internal development organizations, you need to look for ways to work together effectively. The first step is mutual respect, which often comes from dialogue. Once respect exists, organizational barriers are more likely to be removed.

Organizational Modes that Work

Perhaps the best organizational structure to foster cooperation between technical training and technical publications is a unified one. One department with the same senior management will often encourage the development of collaborative processes. Cooperation is most likely to occur, of course, if the department level management is

- Aware of the opportunities that collaboration will bring
- Aware of the potential for conflict arising from different personality types, approaches to design and development, and technical skills
- Aware of the types of support needed by both groups to be most effective

Unfortunately, many organizations that have merged training and publications have experienced problems, often because the senior management of the department represents one of the two disciplines. When department-level senior management takes sides, the potential for conflict increases.

We have seen this conflict emerge when a publications-trained individual manages both groups and fails to appreciate the needs of the technical trainers or the skills they bring to the development process. Similar conflict can emerge when an individual with training in instructional design manages both groups and does not learn what technical writers do and what they need to work most effectively.

The individual who finds himself or herself managing two diverse groups like training and publications is responsible for learning about each group and helping them use their strengths most effectively. The best manager will understand the needs of each group and encourage cooperation and collaboration. The manager will facilitate the development of cross-functional teams who work together on the development of training and documentation.

If technical training and publications cannot be placed under the same management, it is best that they have similar reporting structures. Even if the immediate departmental managers are different, the same senior management may make it easier for the two groups to collaborate. If the senior managers can be educated about the benefits of working together and can aid in defining the best opportunities for collaboration as well as keeping differences under control, the organization and the customer will benefit.

If the training and publications organizations report to different senior management, the task of promoting collaboration usually becomes more difficult. It may be best for an individual writer who wants to work with training to seek out a trainer who works with the same technology and develop a cooperative relationship. Or the technical trainer who wants to work with publications may need to find a writer willing to help.

Once a collaborative effort can be shown to be successful, department-level management can be approached to assist. Often, all that is needed is someone willing to take the initiative. Only in the most recalcitrant and staid organizations will cooperative efforts be discouraged. ◘

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