



RECORD OF PROCEEDINGS



THE 1984 CANADIAN REGIONAL BUSINESS AND TECHNICAL COMMUNICATION CONFERENCE

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COMMUNICATIONS

A MEANS OF EXCHANGE

RECORD OF THE PROCEEDINGS OF THE 1984 CANADIAN REGIONAL BUSINESS AND TECHNICAL COMMUNICATION CONFERENCE

Robert C. Scott, Editor
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700 Royal Avenue,
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INTRODUCTION

The theme of the 1984 Canadian Regional Business and Technical Communication Conference was Communications - A Means of Exchange. This theme was intended to signify the vital role which communication plays in the exchange of ideas and information, and goods and services. Additionally, in the planning stages, the Conference was seen as an opportunity to bring together communicators from Pacific Rim countries as well as from the traditional areas of Canada and neighbouring states.

In all, some 40 papers were submitted and of these the Conference was able to present 37 papers in 32 separate sessions. The presentations were arranged to permit and encourage maximum participation in all sessions. In addition, two presentations, one on Communications and Effective Management, and another on Teleconferencing were considered sufficiently important to schedule as separate and distinct events, and to open them to the local business community.

Overall, the papers are arranged under the following general categories: Business, Business and Education, Developing Technology, Education, and Management. As well as reflecting this organizational method, the Contents also provides a brief statement about each presentation.

In editing the papers, the Program Committee elected to retain the original language and spelling employed by the author(s). Although to some this may suggest a certain inconsistency, it does, we believe serve as an indication of the richness and diversity which the Canadian and American cultures bring to such a meeting.

In organizing the Conference, it was our wish to end the first day on a lighter note. As such, we were fortunate in securing as key-note speaker, Scott Abbott, co-creator of Trivial Pursuit. A measure of Mr. Abbott's success is his extremely busy schedule keeping up with the demand for the increasingly popular Canadian and American past-time. Although his paper is not represented in this Record, the fascinating story of Trivial Pursuit may be found in many leading magazines.

As Conference Chairman, I am deeply grateful to the staff, faculty and administration of Douglas College for their willingness to support and host the Conference. I am also grateful to the co-sponsors of the annual Regional Conference - The American Business Communication Association (ABCA) and The Society for Technical Communication (STC). Both of these organizations promote the study, practice and teaching of technical communication in its many forms. Those not currently a member of these organizations may obtain additional information by writing to:

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The Conference and this Record would not have been possible without the generous assistance of many people. In addition to the speakers, moderators and participants, there are many whose behind-the-scenes work made the Conference the success it was. I thank them all -

- the faculty, staff and administration of the English and Communications, Community Programs and Services, and Duplicating Departments of Douglas College.
- Douglas College students for their generous participation and assistance.
- my wife Anne for her patience, ideas, support and assistance during these ten hectic months.
- everyone else who helped in any way to make the Conference a rousing success.

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BUSINESS

PROFESSIONAL AND INFORMAL EDITING IN COMPLEX ORGANIZATIONS

David K. Farkas, University of Washington

ABSTRACT

Informal editing by managers and their staff members is widely practiced in organizations. It is likely, however, to waste human resources, create unnecessary friction, and produce inferior pieces of writing. Organizations will generally find it preferable to hire professional editors. If professional editors are used, they should be placed not at the end but rather in the early stages of the document-preparation process.

An essential part of a manager's job is to review important pieces of writing prepared by the manager's staff members and to either make or ask for revisions. In addition, managers often ask subordinates to review the managers' own drafts and to point out whatever problems they find. This review of written work by managers and their staff members is certainly valuable.

Very often, however, this review includes matters of expression as well as content and persuasive strategy. The manager or staff member functions as an editor and deals with such language issues as sentence structure, grammar, punctuation, usage, and spelling.

Although important documents do need to be well written, this informal editing, I believe, is often detrimental to organizations. My purpose now is to point out the disadvantages of informal editing by managers and their staff members and to show that in most cases organizations do better by providing professional editors. I will then show that an editor contributes more when, in contrast to the traditional practice, he is placed in the early stages of the document-preparation process.

THE MANAGER AS EDITOR

The first drawback in having a manager (or any other important and highly paid employee) serve as an editor is that the manager's time is too valuable to the organization for her to spend it editing. Unfortunately, the impulse to correct another person's language errors is generally strong, and the better the manager's own language skills, the more problems she will spot.

Instead of actually making corrections, the manager may simply make note of the problems and leave them for the staff member to fix. But this, too, takes time, especially if the manager later re-examines the staff member's revisions.

The second drawback is that the documents may not really be improved. The manager has ultimate responsibility for the documents and presumably has more knowledge, whether technical knowledge or knowledge of the organization, than does the staff member. But there is no guarantee that the manager is actually the better writer. Poor writers as well as good ones often have strong convictions about writing.

The third drawback is the response of the staff member. The staff member may resent the manager's editing, especially if the staff member believes (whether rightly or wrongly) that the manager's changes are not always necessary nor even beneficial. Also, while a staff member with poor language skills may determine to write better, another may simply accept the situation, or take still less trouble with his writing, using the excuse that "Whatever I write, she just likes to change it anyhow."

A study by James Paradis and David Dobrin of the communication habits of a group of Exxon managers and staff members sheds light on the issue of informal versus professional editing (Ref. 1). Paradis and Dobrin found editing to be "an important management tool" that "shaped a person's work into terms and formats useful to the organization." The supervisors' corrections "reflected greater knowledge of the company's objectives and a better feeling for how the document would be used." But Paradis and Dobrin also found that "few people realized this vital role" and that "most staff members believed that the purpose of editing was merely to eliminate factual and grammatical flaws in a manuscript intended to be an accurate and detailed description of their work." Moreover, "staff members often saw the supervisors' corrections as arbitrary and subjective."

These findings seem to support the idea of adding a professional editor to the document-preparation process. If an editor is used, the manager will be making many fewer comments on the staff member's draft--just those pertaining to content. The review will therefore go more quickly and will focus entirely on substantive matters. At the same time, the staff member's language errors will be handled by a nonsupervisory and hence non-threatening person. Thus, the staff member's negative feelings about the review process will diminish, and reviews will become more productive.

THE STAFF MEMBER AS EDITOR

If a staff member possesses good language skills and especially if the staff member's language skills are better than the manager's, the staff member may be expected to edit or make comments on the language as well as on the content of the manager's drafts. But, again, there are drawbacks with this kind of informal editing.

First, although the staff member's time is less valuable to the organization than the manager's, it may still be too valuable to justify him spending it on the manager's language problems. Second, human relations problems may well arise if the staff member takes pains to make changes in the manager's writing and then finds that the manager (rightly or wrongly) has ignored these changes. Third, the documents themselves may suffer. The staff member is very apt to refrain from making desirable changes in the draft so as not to embarrass or annoy the manager. Often a staff member will make only the most necessary changes or only those the staff member believes the manager is apt to accept. Thus, the manager may simply have the illusion that the staff member has found the material satisfactory.

THE PROFESSIONAL EDITOR

Here are the major benefits in using a professional editor:

1. ELIMINATION OR REDUCTION OF FRICTION. Neither the manager nor the staff member corrects the other's writing errors. In addition, the writer's relations with the editor should be positive, since a good editor regards the ability to work tactfully and productively with authors as one of his fundamental professional skills. Finally, even if friction does develop between writer and editor, it is much less damaging than friction between manager and staff member. The writer's dealings with the editor are only occasional and restricted in scope; the potential emotional impact of friction between the writer and the editor is therefore much smaller than that between a direct subordinate and his superior.

2. QUALITY DOCUMENTS. Language, quite simply, is the editor's specialty. And, in contrast to the staff member, a professional editor will not refrain from using his language skills.

3. COST. Not only can the editor do better work, he can probably do more work in far less time. This greater efficiency and the editor's relatively low salary result in much less costly editing. Of still greater importance, the editor is freeing managers and staff members for the work they should be doing. These savings of money and human resources may, of course, be partly offset by the editor's salary. It is also possible, however, that the organization already has a publications department or public relations department with professional communicators whose expertise managers or staff members can draw upon.

There are also problems in using a professional editor. The first is that the editor may not fully understand the subject matter of the document and may therefore make changes that distort the writer's meaning. These distortions may be decoding errors, in which the editor misunderstands the meaning of the

material or else encoding errors, in which the editor does not realize that his emendation signifies something slightly different from what he thinks it does. Managers and staff members, on the other hand, will almost certainly understand fully the material they edit.

The problem of distortion is, of course, less severe if the documents are not highly technical or deal with one general subject area. If the documents deal with one subject area, the organization can either hire an editor with a technical background in that area or give a generalist editor a chance to develop some knowledge of this area. But especially if an organization generates highly technical documents in many different fields, the problem of inadvertent distortion is significant.

Inadvertent distortion can be controlled if the editor queries any emendation that he suspects may be a distortion of the writer's meaning and if the writer (or another subject-matter expert) gives each query careful attention, even if she is normally inclined to accept the editor's work without much review.

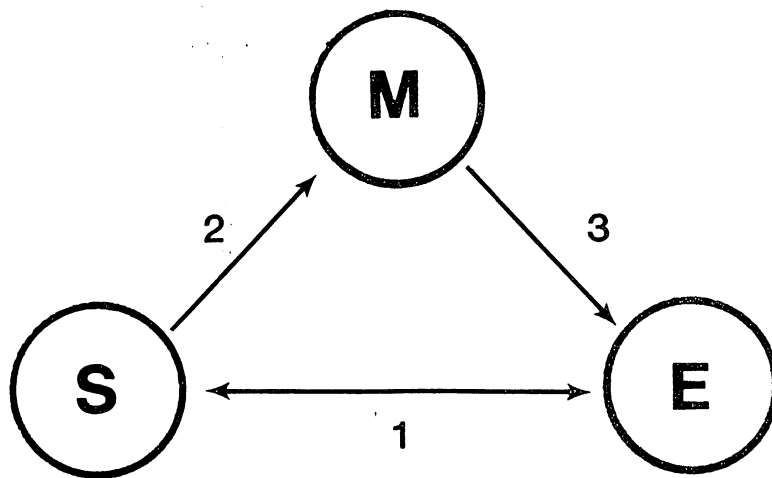
Another problem in using professional editors is increased turnaround time, especially when the editor is not attached directly to a small group of staff members but rather belongs to a centralized editing or publications unit. Turnaround time, however, can be kept down by hiring enough editors and by scheduling their work efficiently.

HOW TO USE A PROFESSIONAL EDITOR

If a professional editor is to be used, when should he get the draft and where should it go after he is done with it? While each organization must make its decisions according to its own circumstances, there are, as described below, several effective configurations for placing an editor in the document-preparation process. These configurations are based largely on two principles: (a) it is desirable to conserve the time of the most highly paid individuals and (b) in order to meet tight deadlines, it is acceptable to expend extra resources. These configurations also break with the tradition of placing the editor at the end of the document-preparation process, when the manager and staff member have finished working on it. As I hope to show below, an editor can contribute more to the organization when placed early in the document-preparation process.

In Figures 1 and 2 a staff member has written documents under relaxed and tight deadlines, respectively. I have assumed that the manager assigned the document clearly and examined an outline and perhaps a rough draft, so that the staff member's completed draft, though not perfect, is not radically misconceived. In Figures 3 and 4 a manager has written documents under relaxed and tight deadlines, respectively. In all of the figures, "M," "S," and "E" stand for manager, staff member, and editor, respectively, and the numbered arrows indicate the stages in which the document moves among these individuals. The two-headed arrows indicate a querying stage, in which the document moves back and forth between the editor and the person handling the queries.

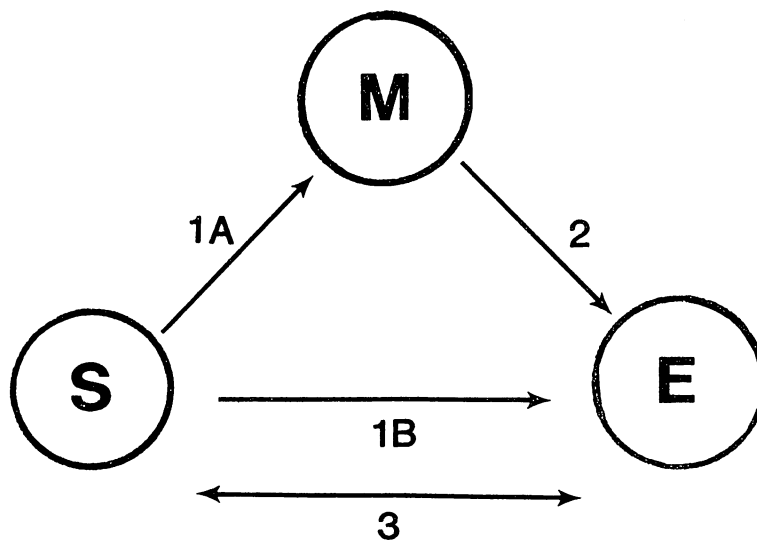
Fig. 1



Staff Member As Writer

Relaxed Deadline

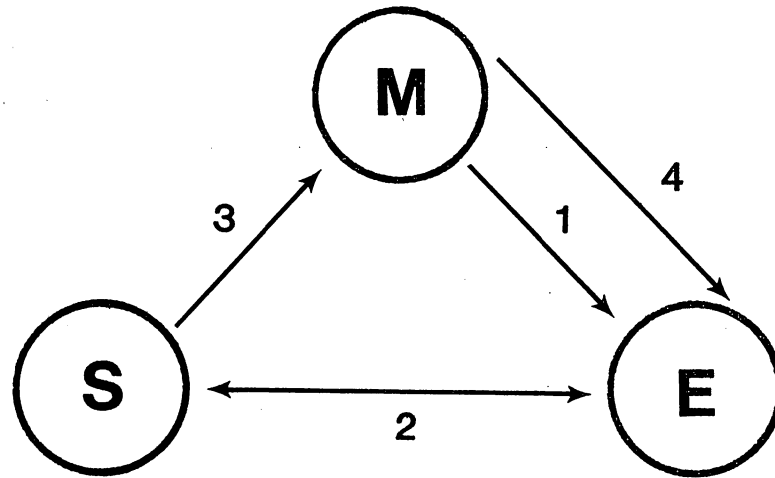
Fig. 2



Staff Member As Writer

Tight Deadline

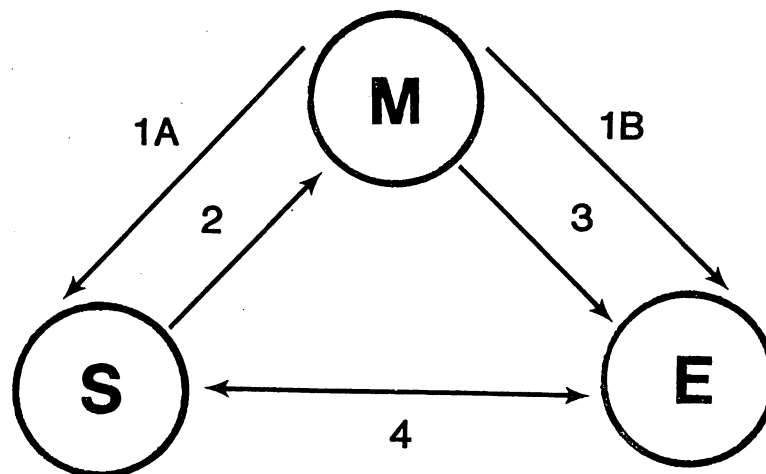
Fig. 3



Manager As Writer

Relaxed Deadline

Fig. 4



Manager As Writer

Tight Deadline

In Figure 1 the staff member gives the completed draft to the editor (1), who edits it and has the staff member respond to his queries. The staff member then sends the draft to the manager (2). The manager saves time in two ways: (a) she reads only edited and hence highly readable material, and (b) she is not tempted to correct errors of expression--there are none. If there are content errors, the manager will make changes and, if she feels the need, send the document back to the editor (3) for him to check these changes. The document then goes to production (which may consist simply of typing). A subsequent responsibility of the editor (in this and the other configurations) is to see the document through production, which may simply entail proofreading a typist's work or else working with such personnel as the graphic designer, photographer, and printer.

In Figure 2 the staff member saves time by giving a copy of his completed draft to both the manager (1A) and the editor (1B). The editor begins editing at once and makes whatever plans are necessary for rapid production. The manager is not looking at perfect copy, but for three reasons is apt to refrain from editing for expression: (a) she is also dealing with the tight deadline, (b) she knows an editor has been added to the document-preparation process expressly to prevent her from wasting time editing for expression, and (c) she knows the document is being edited even as she reviews it. When the manager has made corrections in content, she sends the draft to the editor (2). There is a possible duplication of effort here: the editor may have to re-edit the passages the manager has worked on. But the need to meet a tight deadline easily justifies this extra expenditure of resources. The editor will take his queries to the staff member (3)--or, if necessary, the manager--and then send the document to production.

In Figure 3 a manager has written the document and seeks the staff member's comments. The draft goes initially to the editor (1) and then to the staff member (2). The staff member's time is conserved because he is reading highly readable material and because he is not commenting on the manager's expression. Also, the staff member is spared the problem of deciding whether to point out all of the manager's writing errors. They have already been corrected by an objective outsider, a communication expert who is supposed to be able to find errors in anyone's writing.

The staff member fulfills the manager's request for comments on her draft. In addition, he saves the manager's time by dealing with all (or at least most) of the editor's queries. The staff member then sends the draft back to the manager (3), who incorporates the comments as she desires. The manager, if she feels the need, will then have the editor look over these final changes (4) before the document goes to production.

In Figure 4 the manager saves time by giving copies of the draft to both the staff member (1A) and the editor (1B). The staff member comments on the content (but not on the expression) and sends his copy back to the manager (2), who incorporates whatever changes she pleases. The manager then sends this revised copy to the editor (3), who, in turn, incorporates the manager's changes into the copy of the draft he has been editing, re-editing certain passages if necessary. The editor has the staff member--or, if necessary, the manager--respond to his queries (4) and the document is then sent to production.

CONCLUSION

The communication function requires careful management, just as other organizational functions do. Editing, though it often goes unnoticed, is an important part of the communication function. Organizations will very often find it advantageous to (a) employ professional editors in order to curb informal editing by managers and staff members and (b) place editors in the early stages of the document-preparation process.

REFERENCES

1. Reported by David R. Lampe in The MIT Report, vol. 10, no. 9 (September 1982), pp. 1-2.

David K. Farkas is an assistant professor in the Program in Scientific and Technical Communication in the College of Engineering at the University of Washington. Editing is one of Dr. Farkas' main teaching and research interests, and he is currently engaged in several projects dealing with this subject. Dr. Farkas is a member of both STC and ABCA.

THE THIRD WORD

Maurice E. Hedges, President, Timesave Systems Ltd

ABSTRACT

The art of technical writing demands a persistent ignorance coupled with a constant awareness of the need for absolute accuracy. The society in which we live makes a mockery of the language we have at our disposal, but that is no excuse for using the first or second words that come to mind, when the third word may well be the correct one.

THE TEXT

Stroll down any village street or city boulevard and you will encounter experts, for nearly all of us have special knowledge about something or other. Ask someone to describe what they do and how they do it, and you will find them using words in a precise way, with meanings that can only be fully appreciated within their special interest group.

For those of us who speak and write English, a major problem in communicating our ideas is that we use a small number of words with a host of different meanings. For example, 'bull' to an investment analyst is unlikely to mean a beast, whilst a 'bull head' which would not be used in everyday conversation by either a stock analyst or a cattle breeder would describe a type of stair-edging to someone concerned with floor laying.

Experts revel in their expertise -- it sets them apart from others and helps establish a position in the social strata. A journeyman carpenter -- the term itself seems archaic today, though only 20 years ago it was still widely acknowledged -- would no more think of picking up a screwdriver to insert a wood screw than he would a sledge hammer. Why? One should never 'drive' a screw, but turn it and accordingly what hardware stores sell as a screwdriver was formerly known throughout the English speaking world as a 'turnscrew'.

Before getting down to the meat of my argument I should take two words of current jargon -- 'bits' and 'bytes'. Their original meanings have been discarded. All too often, instead of developing new expressions for new technology, people prefer to recycle old ones, as one recycles newspapers into cardboard packing or rusty cans into roofing sheets.

Take those magical words of the day, 'bits' and 'bytes'

The English language having developed over centuries from a variety of European tongues it is hardly surprising that 'bit' is

found in various forms in Swiss, Danish, Dutch and German and can be taken to mean 'piecemeal'. The word is a contraction of 'bite' and although commonly denoted as a 'small piece' of something may be regarded properly as referring to a 'mouthfull'. Experts have taken the word 'bit' over the years to have special additional meanings. For example it was the term for a small Spanish coin circulating in the West Indies and for a silver coin originally found in the Southern States of America (two bits now being a term for a 'quarter' or 25 cents). It was, and is, the name of the boring tool inserted into a drill chuck, also of the cutting iron in a wood plane.

At the turn of the century an accepted alternative spelling for 'bit' was 'byte'.

If words already have a variety of meanings, why should one be concerned at all that fresh meanings are being coined today? I suggest that now information can be exchanged at the speed of light our vocabulary should be expanded so that the largest number of people can understand what they see and hear quickly.

One generation ago, before wireless (radio) first introduced the world to 'instant information', the spread of ideas and hard knowledge was slow to the point where some even took pride in proceeding at an orderly pace no matter what might prompt short cuts. Somerset Maugham has described in his novels the tea and rubber planters who would receive their copies of The Times newspaper from London by way of the P&O ship, then have them ironed smooth and presented at their breakfast table day-by-day steeling themselves never to peek at the following day's copy. They might read in their Saturday edition that England had been on the verge of beating Australia in the annual Test Match at Lord's Cricket Ground, but they would not dream of satisfying their curiosity by sending for the next one ahead of time. To put this in the right perspective, one should stress that cricket was not so much a sports event as a religious festival!

Because the pace of life was slower everywhere in those pre-radio days, the power of the written word was immense. Journalists said in a thousand words what, today, would scarcely merit fifty because their readers had both the time and the desire to absorb the minutiae of information. Sadly, those who direct what we shall read or hear today seem to believe on the one hand that people have no interest in detail and, on the other, that they are more likely to be enthralled by opinion than by facts.

I have taken a lifelong pride in presenting facts as a basis upon which readers might form their own opinions. Trained as a journalist and broadcaster in days when one was expressly forbidden from introducing comment except within an editorial article on the 'leader' page, I find the swing to rampant editorial opinion as a substitute for hard news quite insufferable. Frankly, after a scant summary of some selected facts on, say, what the Provincial Legislature may be proposing, I am not interested in the ill-formed, inept, instant views of a

twenty year old reporter. I would much prefer to hear another ten seconds of fact.

The trend away from pure news in today's radio, television and papers is the result of corporate desires to cover as much as they can -- even if poorly -- on as low a budget as possible. One has come to the conclusion that those responsible for putting out the news product do not realise what a gross disservice they are performing to the profession of journalism by allowing their wares to be used so blatantly for the spreading of left wing dogma and for arrant self aggrandisement.

In days gone by it was generally accepted that individual journalists tended to be radical in their personal views -- I have known several on right-wing papers in Fleet Street who were card carrying Communists -- but what they wrote for publication was ever factual and unbiased.

How easy it is to be offensive when reporting in seconds a policy developed over months or years, and how hard to be objective. I was known for several years as an 'expert' on public finance, having devoted considerable time to studying the subject. I could happily field cocktail-party assaults with ease on such matters as municipal loans, taxation, deficit funding. However, when a Government paper was handed to me at 10am for review that evening on television or radio I would spend at least six hours applying my specialist knowledge to discovering how best to present the information so that the public would have a fair idea of what the Government was trying to do. I always did my best to provide a basis upon which my listeners could apply their natural intelligence and decide for themselves the merits of the case I set before them.

I am told that no-one has the luxury, today, of being able to devote time over a period of years to becoming familiar with developments in a specialist field whilst continuing with a standard journalistic career; that is hogwash. If managing editors judged the fitness of material on its merits as pure news, and struck out all chances for cheap inuendo, they would find themselves hiring many replacements with high professional standards, a desire to study one or more specialist subjects and an ability to digest weighty material competently.

Just in case someone were to accuse me of criticising only members of the profession of which I used to be a proud member, let me recall the case of the Rt. Rev. Mervyn Stockwood, one time Bishop of Southwark in the centre of London, England. He believed in the power of the press and could be relied upon for good quotes both in official meetings and at Labour Party rallies. His failing was that he favoured rhetoric at the expense, quite often, of fact. The Archbishop of Canterbury, then Dr. Geoffrey Fisher, put up with the embarrassment called Mervyn Southwark for a year or more. Then he issued a general edict that Bishops in the Church of England should endeavour to be totally fair and objective in everything they said, even if as

a result they were dull.

Journalists, too, should be totally fair and objective, though they should always strive to avoid being dull.

What has all this to do with technical writing? The answer, in one word, is 'everything'.

Those who endeavour to describe and explain precisely defined matters use the same language as the rest of us in the hope and trust that they will be understood. It is hard enough, very often, to find suitable words from among those that one has come to recognise as having a certain defined meaning within a given context. With a continually developing language this is specially difficult as the 'right' word of yesteryear may be quite the wrong one to use a year hence. However, technical writers are being hindered in their work by the slipshod activity of a great many people in the popular press, radio and television.

I have been collecting examples of what the public has to tolerate, as support for this paper. Regrettably, the pile is so huge that I have almost begun to wonder whether perhaps I am the one with two left feet, and everyone else is in step!

Here are a few.

A corporate takeover story was headed "US firm buys Canada Dry". It transpired at the foot of the piece that "Canada Dry, which started business in 1904, has been under American ownership since 1927". A better headline might have been "Canada Dry stays American".

A photograph published on 19th March showed cherry trees in bloom, with a caption that "spring is on it's way". Why did the caption not say "spring begins tomorrow"? Why did no-one correct the grammatical error?

Here is a grand little item taken over the wire from Los Angeles. "Reports the Disney studios might be the object of a takeover led by Roy E. Disney, the son of Walt Disney's brother ... " One wonders what became of the word 'nephew'!

A particularly interesting heading, from a grammatical and legal point of view, appeared over an accident photograph: "Collision with truck kills woman". Quite literally, the words said that the woman's car was the one that caused the accident. Such a heading should not have been published as it stated a fact that could not have been established in space of time between the accident occurring and the photograph appearing in print. No doubt the person writing the headline meant to say "Woman dies in truck collision".

For those who may suggest that I have a personal vendetta against the Vancouver Sun and Province, let me record that this

falling away of standards is to be found everywhere. Earlier I mentioned that British institution, The Times. After it was acquired by Lord Thompson of Fleet, founder of the North American chain of Thompson newspapers, the Crown stopped relying upon that paper for quotable law reports. Up to that time it was valid for counsel to refer to the Times Law Reports of a given case in the Court of Appeal, or in a lower court to quote such a report as evidence of a precedent.

Radio announcers in Vancouver and surrounding districts seem to forget that old-fashioned words have well established meanings. In weather forecasts, for instance, they are all too apt to refer to 'lowering' visibility, when they mean 'decreasing'. Someone has to perform the act of lowering whilst visibility can decrease on its own. This is in line, of course, with those who speak of 'past experience' instead of 'experience' and 'future planning' instead of 'planning'.

Paid advertisements contain gems, too. The Hudsons Bay Company, in a full page ad in the Vancouver Sun, invited people to "Meet Ozzy Osbourne live and in person. At the Bay Downtown TODAY. Friday, March 23 at 5:00 pm". However, the ad appeared on Thursday, March 22.

The world of commerce is full of good things. Here is just one. A Visa centre recently advised Bank staff that as an economy measure certain Visa statements would be sent to branches instead of being mailed direct to card holders. The people affected would be "yourself and your dependant family members" -- we may feel sometimes that our families swing round our necks, but this is probably not what the writer had in mind!

Ideas are of little value until they are put into (the right) words. I came across an advertising brochure about a seminar on the database management program dBASE II. It included these words: "If you need a database system, this seminar will help you make the right decision based on the knowledge and experience you will gain". Quite clearly this statement is suspect. The seminar in question could be expected to establish the merits of dBASE II, but as it was not being promoted as a means of learning about all the many different database management systems on the market it could scarcely be expected to aid one very much in making 'the right decision'.

Technical writing demands extraordinary skills. One has to become an expert in the subject being treated yet produce a manual that will be understood by someone with no such knowledge. Harder still to recognise is that after writing the manual, one is quite unable to assess its value because the writer -- who may have started out with a total lack of expertise -- has become more expert than a newcomer even if less sophisticated than those who did the original work on which the manual was based.

What does a certain word mean, in the context of the manual ?

Should there be a glossary and, if so, should it be compiled solely for people with a degree of expert knowledge or also for those who are using the manual as a means of learning ?

Let us suppose that, in essence, the work we are producing has to be capable of helping people with virtually no knowledge of the subject matter . . . and let us assume, also, that when we started on our task we knew nothing about it either. The latter is the ideal situation, for it is next to impossible to write for an uninformed reader if we have already gained considerable knowledge.

In my earlier days I had the good fortune, in the main, of having to learn technical subjects so that I could converse with others whose grasp was considerably greater than my own. The obvious pitfalls to avoid, therefore, were those which stemmed from my knowing too much and not enough. The hardest job I undertook was the radio work on finance because I had to school myself continually to remember that most of my audience knew nothing of the subject and would go out to make a cup of tea if they didn't understand what I was talking about.

For the case in point, therefore, it is vital to cater for the total novice whilst recognising in the same work that as those novices develop their expertise they will expect to find the manual being of help in their more sophisticated search for information.

I remember an audio-visual presentation by one of the world's leading computer companies which was an insult to the average person's intelligence, so infantile and pedestrian was the script. I never did meet anyone who had finished the first side of the first tape. Everyone discarded the exercise within the first half hour.

The fault was that the writer had made a conscious effort to 'baby' the student. I believe that one should try to set an age range for those who are to read one's piece of technical writing, assume the appropriate average competence for that group and act accordingly. They may be uninformed, but we hope they are not 'dumb'.

The problem is as simple to state as it is hard to overcome: having done minimal research and produced a first draft, we are now considerably better informed than those who will read our material for the first time. And when we read through our text and 'improve' upon it, we are in danger of discarding some of our original words as being too elementary. I would suggest that any 'improvement' should consist of enhancements rather than excisions.

To one who has been a professional copy editor on specialist text, I feel bound to stress the need to check, and check again. I have long lived by a simple rule: if you think something is probably all right, you should assume it is wrong -- and check it

even if you have already checked it several times. I have a little area at the back of my head where doubts flash on and off, and experience has taught me to examine every doubt because time and time again I have found that the definitive answer I first reached reflected the poor way in which I framed my question to an expert and which subsequent reading has caused the back of my head to give me a nudge.

This leads me on to a core topic.

When compiling an index, how necessary is it to go beyond the words used by those who did the original work? I suggest that in an age when one word means many things to many people, technical writers should consider using a variety of key words. Much of the technical writer's output, today, is concerned with the world of computers, though the majority of middle aged people who authorise expenditure on computer hardware and software are unfamiliar with this technology. Computer users, too, may well be familiar with a typewriter but are in mortal dread of having to use a computer terminal, yet without happy, informed operators the marketplace has no need of either hardware or programs.

To the sophisticate it is almost indecent to see such words in an index as "Switch on" and "Start", yet with the current trend towards good screen prompts the single most-needed item of information is how to arrive at the first menu !

In conclusion, I wonder if I have to say why this paper is called "The Third Word". Just in case my little entertainment has failed to put forward its underlying message with sufficient force, I will now put it succinctly . . .

When one completes a technical writing assignment, one should always have it checked and double-checked for accuracy by an expert in the field, and for intelligibility by someone who knows nothing about it at all. This may be costly and time consuming, and it may well result in considerable modification. Words may have to be deleted, added or changed, but that should not be a concern. What is finally presented as the finished product will be more than adequate or good; it will be correct.

Maurice Hedges began his career as one of the last apprentice journalists to be indentured in Britain. He was a radio news editor, script writer and broadcaster with the Royal Air Force and later was on the Special Reporting Service of the Press Association in Fleet Street. Subsequently he edited "The Municipal Journal", a technical weekly for municipal government, before launching his own chain of weekly newspapers and technical magazines. He came to Canada in 1975, since when he has held several "special nature" appointments as a business consultant.

PREPARING POLICIES AND PROCEDURES FOR MEGA - PROJECTS

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ABSTRACT

This paper discusses the preparation of policies and procedures for large-scale construction projects. The unique features of this organizational setting and their implications for the preparation of policies and procedures are analyzed. The paper essentially presents one approach which has proven successful in this setting. The key feature of the approach is the creation of a task group with representatives from all project departments who are held jointly responsible for preparing policies and procedures. Other aspects such as manual organization, page format, numbering systems and manual distribution are also discussed.

INTRODUCTION

A policies and procedures manual is a written document used to communicate information about an organization to its members. Policies are the rules. Procedures are the instructions. Together they communicate the who, what, where, why and how of work.

This paper is about writing policies and procedures (PPs) for mega-projects (large-scale construction projects). It is based largely on the author's experience writing and editing PPs for the Vancouver Rapid Transit Project (RTP), an organization created by the B.C. Provincial Government to oversee the design and construction of a 21.4 km light rapid transit line between the cities of Vancouver and New Westminster. Before the system is ready for revenue service in January 1986, an estimated \$854 million dollars will have been spent.

The paper describes an approach to preparing PPs that has proven to be very successful for the RTP. The key feature of the approach is the creation of a PPs task group made up of representatives of the various departments which constitute the RTP. The task group approach relies heavily on each department identifying, preparing and maintaining their own PPs. The paper also describes the implications of a typical project's lifecycle, the organization of a PP manual, format specifications, a review and approval process, word processing and, finally, distribution of the PPs. The paper attempts to provide a complete and practical guide to the preparation of PPs. While the approach was developed specifically for large-scale construction projects, with some modifications it could be used in other organizational settings as well.

PROJECT ORGANIZATION

Lifecycle

A large-scale construction project differs from other organizational settings in several ways that have a significant impact on its PPs. Unlike a business office or government agency, a construction project is a dynamic organization which changes in predictable ways over a finite, and usually brief, lifespan. It begins in the conception phase, progresses through the design and construction phases, and finally ends in the testing and project wind-up phase. The only thing constant in a construction project is change.

Each phase change leads to changes in the organizational structure of the project and, invariably, changes to its PPs. This requires that PPs be organized and formatted in such a way that they can be produced and revised quickly and easily. The preparation and revision of PPs must keep pace with organizational changes.

Another important way that a large-scale construction project differs from other kinds of organizations is that the project team members are often gathered from a variety of sources with no prior experience working together. Initially they act as a team in name only. The lack of experience working together intensifies the need for PPs.

A third, and perhaps the most important difference, is that this kind of organization does not evolve slowly over the years but must be created fully developed. Consequently, its PPs must also be created fully developed. This requires an intensive period of work on PPs that is seldom required in other organizational settings.

Project Management

The creation of the substance of project-related PPs is the art and science of project management. This relatively new specialization incorporates knowledge from the fields of engineering, finance, data processing and psychology. While there are many commonly held principles of project management, there are many variations too depending on the nature of the construction project, its size and scope, the contracts that define it and the whim of the owner, among many. The principles of project management are also changing constantly as a result of changes in technology, law, economics and labour-management relations. The end result is that most projects must develop their organizational structure, and hence their PPs, based on their own unique set of circumstances. One project cannot simply adopt the PPs of another.

There are some engineering firms, however, which specialize in project management. These firms will often organize their projects on a similar basis and adapt a standard set of PPs to suit the circumstances of each project. In most cases, however, the circumstances are different enough to require that the PPs be substantially re-written.

PLANNING

Scope

The first step in planning a PP manual is to determine what subjects it must cover and what subjects will be covered elsewhere in other reference documents. A PP manual is just one member of a family of related reference documents typically created by a construction project organization. The other members may include contract documents, design specifications, a secretary's handbook, and an organization chart, among many. The project PP manual occupies the middle ground between these documents and is partially shaped by the information that is contained or is not contained within them. A PP manual should not duplicate information which is available in other documents. Where another document contains information which is relevant to a PP, it should be cross-referenced.

Organization

Most project organizations are composed of a number of departments, each with responsibility for certain aspects of the work. Since the work is divided up on a departmental basis, the most convenient way of organizing and developing PPs is on the same basis - by department.

The RTP organization consists of the following departments:

- Office Services
- Finance
- Scheduling and Cost Control
- Project Engineering
- Construction Administration
- Systems Engineering
- Legal Services and Contract Tendering
- Public Information
- Property
- Operations

Within each of these departments, various PPs were defined and prepared. For the Scheduling and Cost Control Department, for instance, the following PPs were developed:

- Expenditure Authorization
- Tender-Data Preparation and Review
- Preparation of Pre-Tender Cost Estimate
- Preparation of Project Estimate
- Application of Value Engineering Techniques
- Forecast Cost
- Trend Reporting
- Cost and Schedule Status Report
- Progress Payment
- Reserve Fund Control
- Tender-Evaluation and Cost Comparison
- Backcharges
- Performance Measurement
- Cost Flow

In total, more than 130 PPs have already been developed for the RTP organization.

What Things Require PPs?

PPs should be used to describe:

- departmental and individual responsibilities
- repetitive inter-departmental work processes
- repetitive departmental work processes

Not all work can nor should be rendered into a PP. Work which is normally done exclusively by one person or work which does not involve repetitive processes is not normally described in a PP. Nor should PPs attempt to replace professional expertise. PPs create a context within which individuals can exercise their expertise; they do not replace that expertise.

What are the Benefits of a PP Manual?

There are many benefits of an effective PP manual. The most important ones are that they:

- ensure that work will be done in a uniform and consistent manner
- act as a catalyst in resolving conflicts between departments and individuals
- eliminate redundancy and streamline operations
- increase the pace of the work flow
- improve the quality of work
- save money due to procedural errors
- establish confidence in the project organization
- shorten time and save money training new or temporary staff
- satisfy auditor's requirements
- establish a permanent record of the project's administrative processes

Writer or Editor?

There are two approaches a technical writer can take to prepare PPs. He can write everything from scratch himself or he can rely on project staff to prepare drafts which he edits. Each approach has its advantages and disadvantages.

Writing each PP provides the most control over the quality of the end product but the process takes a long time to complete. It takes a lot of interviewing and information gathering to write a PP. If a large number of PPs are required, many will have to wait a long time before they can be started. For rapidly changing construction projects, this approach is unacceptable unless a large number of technical writers are employed (an unlikely event).

The only practical approach is, therefore, to rely on project staff to draft the PPs themselves. The disadvantage is the lack of consistency in the quality and level of detail of the drafts. The advantage, however, is that most of the drafts can be prepared simultaneously, dramatically shortening the time required to prepare a complete set of PPs. As well, the degree of compliance with the PPs will be much greater if the affected staff have developed and drafted the PPs themselves.

THE TASK GROUP

Department PP Coordinators

One approach which has proven very effective is to establish a policies and procedures task group (PTG). The PTG should be composed of one representative from each department who is designated as that department's PP coordinator. The PTG approach significantly reduces the amount of time required to produce a PP manual by greatly expanding the manpower available to prepare PPs. The department coordinators should be accountable for the following:

- representing the department at PTG meetings;
- identifying required PPs;
- recommending individuals to department head to be assigned responsibility for draft preparation;
- establishing distribution list for review of PPs;
- identifying PPs requiring updates and expediting changes;
- monitoring implementation of PPs for compliance.

The Technical Editor

The role of the technical writer within the PTG is that of overall coordinator and editor. The PP editor should be accountable for the following:

- calling and chairing meetings of the PTG;
- liaison with senior management regarding policy;
- assisting department Policies and Procedures Coordinators in identifying required PPs;
- establishing editorial specifications;
- writing PPs when required;
- editing drafts prepared by department members;
- supervising word processing, proofreading;
- coordinating review of PPs;
- preparing binder, Table of Contents, divider tabs, etc.;
- establishing manual distribution list and distributing manuals and revisions.

Writing

Responsibility for drafting each PP should be given to the staff member most familiar with the process being described. Responsibility for the PP, however, should not end once it has been drafted. The same staff member should also be responsible for ensuring that the PP is always maintained up to date.

The lack of consistency in the quality and level of detail of the drafts can be mitigated somewhat by preparing a short written specification to guide the PP writers in preparing drafts. It's also useful to schedule a number of meetings with the PP writers and department coordinators to go over the specification and ensure they understand what's required.

Task Group Meetings

The members of the PTG should be held jointly responsible for ensuring that PPs are developed in a systematic and timely fashion. To begin with, meetings of the PTG should be held at least once a week until the process is well underway.

Many PPs involve more than one department. The flow of work back and forth across department boundaries creates complex interfaces between the departments. The weekly PTG meetings provide an excellent forum to coordinate the activities of the various departments involved in each procedure. Experience has shown, however, that this process will often uncover latent territorial disputes which may have to be resolved outside of the PTG.

Once the PTG has been established, get the department PP coordinators to draw up a list of the PPs required by their department. The list will more than likely be modified as work progresses, but it provides a good starting point. For each PP identified, ask the PP coordinator to assign one person responsibility for preparing the draft. This is normally done in consultation with the department head. Similarly, a target deadline should be indicated for each PP so that progress can be monitored.

MANUAL DESIGN

The PP manual should be divided into a number of major sections, each corresponding to a department. Each department's section should then be divided into individual PPs. The size of each PP will vary depending on the subject matter, but maximum size should be limited to less than 10 pages, excluding attachments such as blank forms, flowcharts, etc.

Each PP should be divided into two sections; a policies section and a procedures section. Further division is then made depending on the volume and logical breakdown of the text. The separation of each PP into policies and procedures corresponds to how the information is used. Managers will typically refer only to the policies section to find out about a subject, while those responsible for actually doing the work will rely more heavily on the detailed procedures section.

Policies Section

The first paragraph of the policies section should be a concise description of the subject matter of the PP similar to the abstract at the front of this paper and serving the same purpose.

Use of headings such as "Approach", "Objectives", "Purpose", "Responsibility", "Scope" and other similar terms can be useful if rigidly adopted, but the terms are too ambiguous and tend to confuse the average user. Nor do they serve any useful purpose. Instead, include all of the above categories of information together in the policies section without separating them.

Procedures Section

A procedure is a series of numbered, sequential steps designed to accomplish a task. Procedures should be written in playscript format with the 'actor' shown against the left margin and the numbered steps on the right half of the page. Number the steps in the order in which they will actually be done. Sometimes it is useful to draw a flowchart to help determine their order.

Each step should begin with a verb such as issue, revise, or prepare. Many tasks demand decision making which cannot be described adequately. Therefore, some steps will begin with verbs such as determine, evaluate, or choose. Make the steps as concise as possible with no explanation of why the step is necessary. If required, the explanation should be in the policies section. If there is a choice of two or more steps depending on the circumstances, begin the possible steps with "If".

- e.g. 5. If more than \$5,000 then ...
- 6. If less than \$5,000 then ...

Long procedures (30 steps or more) should be subdivided, at appropriate places, into several shorter procedures.

Procedures should include only the important steps required to get the job done. Omit the routine steps such as photocopying and filing.

Organization Chart

The project organization chart will prove to be invaluable in preparing PPs because it provides the position titles of all staff and their reporting relationships. When referring to individuals within a PP, use their position titles, don't use their names. Position titles usually change less frequently than the people that fill the positions. Make sure that the position titles used in the PP manual are exactly the same as shown on the organization chart.

Your interest in the organization chart may result in you becoming the official "keeper of the chart". This additional responsibility should be accepted willingly because of its close ties with the PP manual. The organization chart should be updated every month or two and distributed to all manual holders. For large organizations, the original chart should be maintained by a draftsman on reproducible media. Copies can then be made simply and cheaply on a blue-printing machine.

Numbering Systems

An alpha and/or numeric numbering system should be used in conjunction with each PP and its various sub-headings. Choice of this numbering system is largely a matter of personal preference. The trend in technical manuals and other documents prepared for technical people seems to be toward strictly numerical systems. Regardless of the numbering system chosen, however, it should not exceed the fourth place (i.e., 4.9.2.1). Further divisions of the text can be indicated using unnumbered subordinate headings.

Controls

Each PP must include heading, issue, page and attachment controls. Because the most suitable housing for the manual is a 3-ring binder which allows material to be added or deleted easily, pages can go missing or fall out of order. The above controls ensure that even in the worst case, a manual can always be returned to the correct order with 100% certainty.

Each page should carry the section (department) name and the title of the PP. The PP number should also be shown in the upper right corner of each page to allow the user to locate the desired PP easily.

Since most PPs are updated periodically, issue or revision controls are required. When a PP is first issued, it should be assigned issue number "01". The issue number should appear on every page. If a change is made to any page within the PP, reprint and re-issue the entire PP as issue number "02". Don't replace just the changed pages - it makes it more difficult for the manual holder to keep his manual up to date. If you keep each PP small, it won't create much additional copying.

The changes from the previous issue should be indicated by some means. I mark each line in which a significant change has been made with a vertical line in the right margin. It allows the user to quickly locate the changes from the previous issue. I don't bother marking minor editorial changes.

Each PP should be page numbered separately from other PPs. Don't number pages sequentially from one end of the manual to the other - the addition or deletion of a single page would require that every page be re-numbered. The total number of pages in that PP should also be referenced as part of the page number (e.g. PAGE: 1 of 7) This will tell the manual user whether or not pages are missing.

Most PPs will include blank forms, lists or example documents related to the PP. These can be either integrated with the PP or attached to the end of it. By including blank forms suitable for photocopying, the manual serves the additional function of controlling and distributing the various forms required by the project. Where forms are difficult to fill out, include an example copy of a properly filled out form as well.

Each attachment should be referenced in the text immediately following its first mention. Attachments should also be listed somewhere in the text, preferably at the bottom of the last page, so the user can be certain all attachments are present.

Cross-References

Try and keep cross-references to a minimum. Each PP should be complete in itself without the need for extensive cross-referencing. But don't duplicate large amounts of text to avoid a cross-reference. If a change has to be made to the content of that text, then both PPs will have to be changed.

When referencing another section, use only the number and title of the PP. Don't reference a subsection number or page number - these often change when revisions are made to the referenced text.

Table of Contents

In addition to listing the titles of all available PPs, the Table of Contents can be used to list the latest issue number of each PP. By referring to the Table of Contents, the user can quickly verify that he has the current issue of each PP. A revised Table of Contents should then be sent to all manual holders at least once a month.

The Table of Contents can also be used to provide the name of the person responsible for maintaining each PP. The editor of the PP manual must answer questions about the format or distribution of PPs, but should always refer questions about the technical content of a PP to the "responsible" person. With PPs covering the whole range of project activities, there's no way the editor can, or should attempt to be, the definitive authority on each one.

The responsible person should be the person who drafted the PP and is most involved with the work function being described. As such, that person should answer all technical enquiries and ensure that the PP remains up to date. It is important to have an appropriate person assume responsibility for each PP.

Word Processing

There is no alternative to word processing. It would be false economy to have PPs typewritten. PPs on large construction projects are rarely ever stable; many will undergo frequent revisions as a result of changed conditions, realignment of responsibilities or just management whim. Some PPs will go through as many as a dozen changes during their lifetime. This is the kind of work that word processors were designed for - don't try and do it without them.

It's a good idea to become familiar with the various features and capabilities of the system that you're using. Most systems will justify the right margin, give you headers and footers, perform global searches and do document merges. These features have many uses in preparing PPs. Experiment and use these features to their best advantage, but be aware of their limitations too. Right justification, for instance, should not be used on narrow column text; it tends to leave awkwardly large spaces between words.

Consult with the word processor operators and ask them for their recommendations. They can often do things that you didn't even know were possible. Consulting them also helps to maintain a good working relationship with them.

And don't forget about diskette security. It's not uncommon for a diskette to be damaged or for the machine to malfunction in such a way that the magnetic copy of your document is partially or totally lost. Make sure the operators are backing up your diskettes regularly or after each major revision.

Packaging

Some thought should be given to how the contents of the manual will be packaged. Because of the constantly growing number of PPs and the need to issue frequent revisions, use a 3-ring binder or other binding system that allows the manual holder to quickly and easily update the manual. I prefer the binders with the clear plastic cover and spine sleeves. I can print up covers on card stock and insert them myself far more cheaply than having the plastic binders printed. At the end of the project, the binders can be recycled for other uses. And of course, as with any document of this size, divider tabs should be used to help the user locate PPs easily. The overall appearance of the manual should also be given some thought. A tidy and professional looking manual will lend credibility to the material contained within it.

Don't overstuff the binders; they won't open properly and will be awkward to use. Have the PPs copied double-sided. This reduces the number of pages required by approximately half. If you do, request a slightly heavier weight of paper be used because the standard weight of photocopy paper is too transparent. And by reducing the apparent volume of PPs, you increase the likelihood of the manual being used.

REVIEW AND APPROVAL

PPs must go through a review and approval process. There must be an opportunity for those with some involvement with the function to review the draft and comment on it before it gets implemented. Because many PPs involve a number of different disciplines across several departments, a formal review by all concerned is mandatory. It not only helps to rid the PP of 'bugs', but it communicates the PP to the appropriate staff and encourages their compliance with it by giving them a role in its development. A satisfactory review by all concerned also tells the manager responsible for approving the PP that it's ready for sign-off. While responsibility for determining who's going to approve PPs does not normally lie with the editor, it should be remembered that the person who signs each one off must have sufficient authority to enforce compliance of all those involved. Since many PPs involve more than one department, this usually has to be the head of the project.

DISTRIBUTION

Logistics

The temptation when it comes to distributing PPs is to give a copy of all PPs to all manual holders. It is by far the simplest approach although the volume of paper can become horrendous. A more serious problem is that it violates a basic axiom of PPs that the likelihood of manual holders referring to their manual varies inversely with its apparent size.

A more sensible approach is to customize each holder's manual and provide him with only those PPs that he needs to perform his job. There is no reason that everyone needs to have a copy of every PP. High level managers may insist, however, and with some justification, that they get the full set.

Customizing each manual creates a substantial logistical problem however. At the RTP, there were more than 100 manual holders and more than 130 different PPs. Because many PPs have to be revised and new issues distributed, accurate records must be kept of who has what. This record keeping can be handled quite easily by a large matrix chart plotting manual holders along one axis and manual sections along the other.

Electronic Database

An even better solution, however, is to use word processing equipment to maintain this information in a database. The advantage of using word processing equipment is that with little effort you can use its global search capabilities to print out a distribution list for any given PP. Or if facilities are available, you can use a microcomputer with a database management program such as dBase II.

The above systems can also be programmed to print out another document essential for a customized manual distribution system - a contents list for each manual. Each manual holder needs two lists in his manual; a list of all the available PPs (Table of Contents) and a list of the contents of his manual (List of Inclusions). Without the latter, a manual holder has no way of verifying that his manual is complete.

The essential specifications for an electronic database to maintain these records, therefore, are that first, it can print out a distribution list for any given PP, and second, that it can print out a list of PPs for any given manual holder.

MAINTENANCE

If the PP manual is to remain the primary vehicle of communicating information about work processes within the project organization, it must be kept up to date. An out-of-date manual very quickly loses its credibility and with it, its usefulness. A project manual is like a garden in spring - it requires constant tending. Even once it is essentially complete, someone must still be assigned responsibility for keeping it up to date.

Periodically, have someone audit the manuals in the field. Many manual holders don't bother to insert the new material they receive so their manuals quickly fall out of date. Their manuals should be revised for them and they should be encouraged to insert the new material as they receive it.

Getting PPs read and complied with can be a difficult problem. The PP editor should not attempt to become the enforcer of project PPs. This function should be the responsibility of the department head or the department's PPs coordinator. Relying on each department to enforce compliance encourages them to assume responsibility for their PPs.

The most important thing that the editor can do is to ensure that the manual contains only useful up-to-date information, is organized in such a way that the desired information is easy to find, and the writing is clear and concise. If the manual is allowed to get out-of-date, information is difficult to find or the writing is poor, the manual will be left to gather dust.

CONCLUSION

Large-scale construction projects demand good PPs. The large number of new employees with no previous experience working together requires that PPs be produced quickly and cover virtually all aspects of the project organization. The key to preparing PPs quickly is to create a task group with representatives from all departments who are responsible for identifying and supervising the drafting of the PPs. This greatly reduces the preparation time by dramatically increasing the manpower available to prepare PPs.

The rapidly changing nature of a project organization also requires that PPs be revised and re-issued quickly and easily. This requirement has many implications for manual organization, page format, numbering systems and housing, etc.

It's also important to get each department and the various staff involved with the PPs to assume responsibility for them. Encourage this by relying on them to define and prepare their own PPs, to answer all technical questions related to the PPs, and to enforce compliance with them.

Most importantly, however, the manual must be easy to use, well written, concise and up to date. Without these essential qualities required of all technical manuals, the manual will not serve the function for which it is designed; to serve as the primary vehicle of communication of project policies and procedures.

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A STUDY OF THE EXTENT OF TRAINING, THE PERCEIVED
ADEQUACY OF THAT TRAINING, AND THE PERCEIVED
NEED FOR ADDITIONAL TRAINING OF DATA
PROCESSORS, ACCOUNTANTS, AND
WORD PROCESSORS

DARWIN MANSHIP - BOISE STATE UNIVERSITY

ABSTRACT

Data processors, accountants, and word processors in Utah and Idaho were sampled to determine the extent and adequacy of their training and the need for additional training in their professions.

More than half of the respondents stated that they held baccalaureate degrees from colleges and universities, that they considered their education to have prepared them adequately, but that they needed additional training now to allow them to keep pace with growth and change. The setting preferred for receiving this instruction was the seminar or workshop with a close second choice listed as a semester course at a college or university. The courses perceived as most worthwhile for this training were listed as data processing and business communication.

INTRODUCTION

Statement of Purpose

The purposes of this study were to determine the extent and source of training, the perceived adequacy of that training, and the perceived need for additional training of data processors, accountants, and word processors in Utah and Idaho.

Background

Since "technology" became a household word, educators and business personnel have attempted to forecast its impact and to prepare students and workers to fit into this rapidly changing business scene. For each person who felt that the pace of this change would slacken, many more believed it would accelerate. The latter group has proved to be the more accurate.

One result of this preparation has been the addition of numerous courses at nearly all grade levels to teach information processing. Computers with data processing and word processing capabilities now fill classrooms that were previously filled with typewriters or empty work tables. Businesses have established

word processing and data processing centers and departments and have recruited college graduates who possess skills in these areas.

Educators and businesses need to pause periodically and assess where they are now and where they go from here in this changing technological scene.

The purposes of this study were to determine the extent of training, the perceived adequacy of that training, and the perceived need for additional training of professionals in the data processing, accounting, and word processing fields.

METHODS AND PROCEDURES

To elicit information from workers most directly affected by these changes, a questionnaire and letter (Appendix A) were sent to a random sample of 256 workers drawn from the membership lists of the following groups:

Idaho Society of Certified Public Accountants	69
Utah Society of Certified Public Accountants	80
Idaho Chapter of International Word Processors	26
Utah Chapter of International Word Processors	20
Data Processing Managers Association (Idaho)	61

TOTAL	256
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A mailing list from the Utah Data Processing Managers Association was not made available for this study.

The letter and questionnaire were addressed personally to each member of the sample. The mailing included an addressed envelope that required no postage to return each response. No follow-up was sent, and the results were tabulated on the basis of responses received within four weeks after the mailing.

In addition to the tabulation shown in Appendix B, a cross-tabulation of responses to the questionnaire items was completed. This cross-tabulation related the responses to items 1, 4, 9, and 12 to other items on the questionnaire. This permitted an analysis of the relationship among those items. The cross-tabulation of all these items is available as supplementary material identified as DWDSPSST-A5-10576 computer printout at Boise State University. This report summarizes and interprets the tabulations as well as the cross-tabulations.

FINDINGS

Of the 256 questionnaires mailed to members of the professional organizations, 162 were returned within four weeks. This number represents a response rate of 63.3%. Eighteen of the responses were not usable because they had been double marked or were marked with only verbal responses which could not be tabulated. The 144 usable questionnaires represented 56.25% of those mailed. Appendix B shows the tabulation of the raw data for those 144 questionnaires that represent the basis for this study.

Administrators (42) and accountants (36) represented the largest groups by responsibilities or position. These groups a successively increasing number of years of employment with fifty-nine of those surveyed indicating that they had been with their present employer for more than ten years. In those categories representing number of years since the last formal education also showed successively increasing numbers with 64 of the respondents indicating that their last formal education was completed more than ten years ago.

More than half (81) of the respondents stated that their highest degree was the bachelors degree. Only nine reported that they had not had any formal education since high school.

The courses considered most important in preparing these employees were Accounting, English Composition, and Business Communication. Courses in Management, Data Processing, Human Relations, and Mathematics also were highly ranked. Item 20 asked those surveyed to indicate the two college courses they would like to take or retake to improve skills in their present jobs. The courses listed most often were Data Processing, Business Communications, and Human Relations.

Seventy-five respondents expressed that the college or university classes were the source from which they had acquired the skills to function in their present positions. Forty-one, however, stated that these skills had been acquired through on-the-job training. Nearly all (125) of those surveyed indicated that their formal education had prepared them very well or adequately.

When asked what kind of course they would like to take now to qualify them more fully in their present job, the choices were Data Processing (27), Management (17), Business Communication (14), and Financial Management (13). Seminars or workshops were listed as the most desirable place to receive this instruction. A semester course in a college or university was chosen by 50 of the respondents for this training. The cross-tabulation showed a consistent range of choices for these courses as related to the responsibilities and the positions of the respondents.

SUMMARY AND CONCLUSIONS

In a survey of data processors, accountants, and word processors in Utah and Idaho, more than half of those who responded indicated that they had received the training for their present jobs through college and university courses. The next largest group (41) stated that they had acquired these skills through on-the-job training.

Professionals in these fields are generally satisfied with the preparation they have received in their formal education. They state, however, that they need brush-up courses or additional training to allow them to keep pace with changes and advancements in these areas of technology.

The most sought-after setting for this training is in the seminar or workshop. This choice is followed closely by the full-semester course in a college or university.

As perceived by these professionals, the courses most necessary for additional training in order of preference were:

- Data Processing
- Business Communication
- Human Relations
- Personnel Management
- Report Writing

Colleges and universities should expect a return to college classes of many of these workers who are seeking additional training and an upgrading of skills through these courses. In addition, instructors of these courses should assess the possibilities for presenting workshops and seminars to make this training available.

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APPENDIX A



November 1, 1982

PROFESSIONAL AND EDUCATIONAL INFORMATION QUESTIONNAIRE

Will you please take just a few minutes to complete the enclosed questionnaire.

The information you give will help colleges and universities do a better job in preparing students to become better skilled word processors and data processors. Information from you will be especially valuable in presenting data that is truly representative of the professionals who are now working in these fields.

I have secured mailing lists from your professional organizations and have agreed to furnish them with the findings of this study. Through them this information will be available to you.

A few minutes of your time now will be enough to complete this questionnaire. Then just slip it into the enclosed envelope and return it to me. Isn't that easy! Your help will be appreciated.

Darwin W. Manship, Professor
Marketing and Administrative Services

Enclosures (2)

QUESTIONNAIRE

Please circle the letters of the items that best fit your responses regarding your job or training.

1. Indicate the description that best fits your responsibilities or position.

- | | |
|-------------------|---------------------------|
| a. Administrative | f. Accountant |
| b. Supervisory | g. Programmer |
| c. Secretarial | h. Systems Analyst |
| d. Clerical | i. Typist |
| e. Word Processor | j. Other (Describe) _____ |

2. For how long have you worked for your present employer?

- a. Less than 1 year
- b. More than 1 but less than 3 years
- c. More than 3 but less than 6 years
- d. More than 6 but less than 10 years
- e. More than 10 years (How many?) _____

3. How many promotions or job changes have you had during that time?

- | | |
|----------|------------------------------------|
| a. None | e. Four |
| b. One | f. Five |
| c. Two | g. Six |
| d. Three | h. More than six (How many?) _____ |

4. Approximately how many people are employed by your company?

- | | |
|------------|--------------|
| a. 1 - 5 | e. 51 - 100 |
| b. 6 - 10 | f. 101 - 200 |
| c. 11 - 20 | g. 201 - 500 |
| d. 21 - 50 | h. Over 500 |

5. Which of the following describe functions you perform for your company?
(Circle all that apply.)

- a. Administrative decision making
- b. Office management and supervision
- c. Accounting
- d. Bookkeeping
- e. Budgeting and financial planning
- f. Records management (creation, storage, retrieval)
- g. Letter and memo dictation
- h. Letter and memo transcription
- i. Report writing
- j. Data processing
- k. Word processing
- l. Marketing and sales
- m. Research
- n. Other clerical
- o. Other (Describe) _____

6. How long ago did you complete your last formal education?

- a. Less than 1 year
- b. At least 1 year but less than 2
- c. At least 2 years but less than 4
- d. At least 4 years but less than 6
- e. At least 6 years but less than 10
- f. Ten or more years (How many?) _____

7. Indicate the highest level of formal education you have received.

- a. Less than high school graduate
- b. High school graduate but no college
- c. Trade or vocational-technical school
- d. Attended college but did not graduate
- e. Bachelors degree
- f. Masters degree
- g. Doctors degree
- h. Other (Specify) _____

8. Rank order the three courses (1, 2, and 3) that were the most important in preparing you for your present job. (No. 1 represents the greatest importance.)

- | | |
|------------------------------|-----------------------------|
| _____ English Composition | _____ Typing |
| _____ Human Relations | _____ Records Management |
| _____ Psychology | _____ Business Law |
| _____ Accounting | _____ Mathematics |
| _____ Business Communication | _____ Statistics |
| _____ Data Processing | _____ Management |
| _____ Shorthand | _____ Report Writing |
| _____ Marketing | _____ Other (Specify) _____ |
| | _____ Other (Specify) _____ |

9. Based on typical job entry requirements for your job, where did you acquire the skills necessary for you to function on your present job? (Indicate only one)

- | | |
|------------------------------|--------------------------|
| a. High school | e. Workshop or Seminar |
| b. College or university | f. Self taught |
| c. Trade or technical school | g. Other (Specify) _____ |
| d. On-the-job training | |

10. How well did your formal education furnish you with the necessary job entry requirements?

- a. Very well b. Adequately c. Inadequately d. Very poorly

11. What kind of course would you like to take now to further qualify you in your present job?

(Specify the course title) _____

12. If such a course were offered to you, where would you prefer to receive the instruction?

- a. College or university semester course
- b. Trade or technical school course
- c. Seminar or workshop
- d. In-house training session
- e. Correspondence course
- f. Other (Describe)

13. Which of the following are included in your company's organizational structure? (Check all that apply)

- a. Data processing department
- b. Word processing department
- c. Steno pool but no word processing department
- d. Personal secretaries

14. What kinds of automated information processing equipment does your company own or lease? (Check all that apply)

- a. Mini-computer Own____ Lease____
- b. Main frame computer Own____ Lease____
- c. Word processor Own____ Lease____
- d. On-line computer Own____ Lease____
- e. Off-line computer Own____ Lease____
- f. Centralized data processing department Own____ Lease____
- g. De-Centralized data processing department Own____ Lease____
- h. Other (Specify) _____ Own____ Lease____
- i. None

15. To what extent is automated data processing used in your company?

- a. To a great extent
- b. Somewhat
- c. Very little
- d. Not at all

16. To what extent is automated word processing used in your company?

- a. To a great extent
- b. Somewhat
- c. Very little
- d. Not at all

17. To what extent is word processing and data processing interrelated in your company?

- a. Same department, same supervision
- b. Same department, different supervision
- c. Different departments, same supervision
- d. Different departments, different supervision
- e. Not applicable

18. Based on your present knowledge, approximately how many of the following professionals will your company need to hire during the next year for replacement and expansion?

- a. Word processors _____
- b. Data processors _____
- c. Secretaries (But not word processors) _____
- d. Accountants (But not data processors) _____
- e. Programmers _____
- f. Key punchers _____
- g. Office managers _____

19. Based on your present knowledge, where will your company seek these prospective employees?

- a. State employment agencies
- b. Newspaper classified
- c. Local (State) colleges and universities
- d. Other colleges and universities
- e. Trade and technical schools
- f. Private employment agencies
- g. Promotion from within the company
- h. Other (Describe) _____

20. If you could take (or retake) two college courses now to improve your skills on your present job, which courses would you take? (Choose two)

- | | |
|---------------------------|--------------------------|
| a. Accounting | j. Records Management |
| b. Data Processing | k. Personnel Management |
| c. Business Communication | l. Statistics |
| d. Word Processing | m. Economics |
| e. English Composition | n. Business Law |
| f. Shorthand | o. Psychology |
| g. Typewriting | p. Other (Specify) _____ |
| h. Report Writing | q. Other (Specify) _____ |
| i. Human Relations | |

In the space below will you please express any opinions you may have about the relative importance and relationship of data processing and word processing functions in today's business office. You may itemize ideas, show rankings of courses, skills, or attitudes. Your statements will be tallied where possible. Others will be read and summarized.

APPENDIX B

QUESTIONNAIRE RAW DATA

1. Indicate the description that best fits your present responsibilities or position.

a. Administrative	<u>42</u>	f. Accountant	<u>36</u>
b. Supervisor	<u>18</u>	g. Programmer	<u>5</u>
c. Secretarial	<u>6</u>	h. Systems Analyst	<u>5</u>
d. Clerical	<u>0</u>	i. Typist	<u>0</u>
e. Word Processor	<u>6</u>	j. Other(Describe)	<u>26</u>

2. For how long have you worked for your present employer?

a. Less than 1 year	<u>3</u>
b. More than 1 but less than 3 years	<u>8</u>
c. More than 3 but less than 6 years	<u>31</u>
d. More than 6 but less than 10 years	<u>43</u>
e. More than 10 years	<u>59</u>

3. How many promotions or job changes have you had during that time?

a. None	<u>39</u>	d. Three	<u>26</u>
b. One	<u>24</u>	e. Four	<u>9</u>
c. Two	<u>25</u>	f. More than four	<u>18</u>

4. Approximately how many people are employed by your company?

a. 1 - 5	<u>24</u>	e. 51 - 100	<u>14</u>
b. 6 - 10	<u>11</u>	f. 101 - 200	<u>12</u>
c. 11 - 20	<u>13</u>	g. 201 - 500	<u>12</u>
d. 21 - 50	<u>17</u>	h. Over 500	<u>40</u>

5. Which of the following describe functions you perform for your company?
(Circle all that apply)

a. Administrative decision making	<u>89</u>
b. Office management & supervision	<u>85</u>
c. Accounting	<u>62</u>
d. Bookkeeping	<u>21</u>
e. Budgeting & financial planning	<u>58</u>
f. Records management	<u>45</u>
g. Letter and memo dictation	<u>60</u>
h. Letter and memo transcription	<u>22</u>
i. Report writing	<u>59</u>
j. Automated data processing	<u>33</u>
k. Automated word processing	<u>31</u>
l. Marketing and/or sales	<u>33</u>
m. Research	<u>31</u>
n. Other clerical	<u>18</u>
o. Other	<u>16</u>

6. How long ago did you complete your last formal education?

a. Less than 1 year	<u>5</u>
b. At least 1 year but less than 2	<u>4</u>
c. At least 2 years but less than 4	<u>13</u>
d. At least 4 years but less than 6	<u>14</u>
e. At least 6 years but less than 10	<u>41</u>
f. More than 10	<u>64</u>

7. Since completing your last formal education, have you attended any professional seminars or workshops? If so, how many?

a. Yes <u>135</u>	b. No <u>9</u>
1 - 3 <u>35</u>	
4 - 6 <u>24</u>	
7 - 10 <u>12</u>	
More than 10 <u>64</u>	

8. Indicate the highest level of formal education you have received.

a. Less than high school graduate	<u>3</u>
b. High school graduate but no college or university	<u>6</u>
c. Trade or vocational-technical school	<u>8</u>
d. Attended college or university but did not graduate	<u>21</u>
e. Bachelors degree	<u>81</u>
f. Masters degree	<u>22</u>
g. Doctors degree	<u>2</u>
h. Other	<u>1</u>

9. Rank order the three courses (1, 2, and 3) that were the most important in preparing you for your present job. (No. 1 represents the greatest importance.)

	No Response	<u>1</u>	<u>2</u>	<u>3</u>
English Composition	94	10	18	22
Human Relations	115	4	7	18
Psychology	140	2	2	
Accounting	57	74	11	2
Business Communication	110	3	12	19
Data Processing	115	13	9	7
Shorthand	141		2	1
Marketing	134	2	3	5
Economics	136		4	4
Typing	122	11	10	1
Records Management	140	1		3
Business Law	121		18	5
Mathematics	115	4	11	14
Statistics	139		3	2
Managment	112	5	14	13
.Report Writing	132	1	4	7

10. Based on typical requirements for your job, where did you acquire the necessary skills for you to function in your present position?
(Indicate only one)

a. High school	<u>7</u>
b. College or university	<u>75</u>
c. Trade or technical school	<u>5</u>
d. On-the-job training	<u>41</u>
e. Workshop or seminar	<u>1</u>
f. Self taught	<u>6</u>
g. Other	<u>4</u>

11. How well did your formal education furnish you with the necessary skills?

a. Very well	<u>32</u>	c. Inadequately	<u>16</u>
b. Adequately	<u>93</u>	d. Very poorly	<u>2</u>

12. What kind of course would you like to take now to qualify you more fully in your present job?

NOTE: Courses are ranked in descending order of choices indicated by respondents.

Data Processing	<u>27</u>	Other, Business	
Management	<u>17</u>	Related	<u>26</u>
Business Communication	<u>14</u>	Other, Non-	
Financial Management	<u>13</u>	Business	<u>22</u>
Accounting	<u>7</u>		
Human Relations	<u>6</u>		
Report Writing, Math,			
Marketing, and Record			
Management (Each)	<u>3</u>		

13. If such a course were offered to you, where would you prefer to receive the instruction?

a. College or university, semester course	<u>50</u>
b. Trade or technical school course	<u>8</u>
c. Seminar or Workshop	<u>58</u>
d. In-house training session	<u>7</u>
e. Correspondence course	<u>8</u>
f. Other	<u>2</u>

14. Which of the following are included in your company's organizational structure? (Check all that apply)

a. Centralized data processing	<u>88</u>
b. Distributed data processing	<u>60</u>
c. On-line word processing	<u>59</u>
d. Steno pool but no word processing	<u>9</u>
e. Stand-alone word processing	<u>74</u>
f. Personal secretaries	<u>94</u>
g. Records management department	<u>52</u>

15. To what extent is automated data processing used in your company?

a. To a great extent	<u>109</u>	c. Very little	<u>6</u>
b. Somewhat	<u>23</u>	d. Not at all	<u>6</u>

16. To what extent is automated word processing used in your company?

a. To a great extent	<u>75</u>	c. Very little	<u>11</u>
b. Somewhat	<u>40</u>	d. Not at all	<u>17</u>

17. To what extent are word processing and data processing interrelated in your company?

a. Same department, same supervision	<u>19</u>
b. Same department, different supervision	<u>10</u>
c. Different departments, same supervision	<u>11</u>
d. Different departments, different supervision	<u>67</u>
e. Not applicable	<u>34</u>

18. Based on your present knowledge, approximately how many of the following professionals will your company need to hire during the next year for replacement and expansion?

Number needed -	1	2	3	4	5 or More	Total
Word Processors	27	13	3	1	2	76
Data Processors	25	6	2	2	1	56
Secretaries	11	7	2	2	4	59
Data Entry Operators	25	3	3	0	3	55
Data Processing Programmers	11	11	0	1	3	52
Word Processing Programmers	5	0	0	0	0	5
Data Processing Systems Analysts	11	7	2	0	1	36
Word Processing Systems Analysts	2	2	0	0	0	6

19. Based on your present knowledge, where will your company seek these prospective employees? Rank your choices 1 (highest), 2, and 3.

	1	2	3
State employment agencies	13	15	12
Newspaper classified	36	18	11
Local (State) colleges & universities	19	15	22
Other colleges and universities	2	6	6
Trade and technical schools	2	10	7
Private employment agencies	7	13	10
Promotion from within company	28	16	11
Other	7	6	4

20. If you could take (or retake) two college courses now to improve your skills on your present job, which courses would you take? (Choose two)

a. Accounting	24	j. Record Management	5
b. Data Processing	47	k. Personnel Management	31
c. Business Communication	35	l. Statistics	6
d. Word Processing	9	m. Economics	9
e. English Composition	12	n. Business Law	16
f. Shorthand	1	o. Psychology	7
g. Typewriting	1	p. Marketing	9
h. Report (Technical) Writing	21		
i. Human Relations	32		

THE EVOLUTION OF THE QUALITY CONTROL ANALYST
(NEE TECHNICAL COMMUNICATOR)

Susan Rocke, TransAlta Utilities

ABSTRACT

The role of the technical communicator as we have envisioned and perpetuated it over the years should be changing as rapidly as the technology we are describing.

Further, we should be assuming more responsibility in the area of education. Where we have been honing our pencils, we should be developing word processing skills and atomizing our throats.

This paper will focus on the transition of the role of the technical communicator from traditional written communiques to the less familiar communication requirements in the setting of office automation.

This paper will describe:

- . The setting for such a role: how we have evolved from pencil to keyboard; comparing the past to the present and predictions for the future.
- . The role: a job description.
- . A work plan to fulfill the role.
- . Career opportunities that can be identified from assuming the role.

The paper will be accompanied by various "outputs" that have evolved from stems of interest associated with the role.

The Setting

Office automation -- what a cliché, what a variety of interpretations! Let me impose mine on you now to establish the backdrop for the direction of this paper.

There will be no paperless office. At least, not until we can carry computers to meetings as easily and naturally as writing tablets...and not until we can draw and write and erase on the surface as we do on paper.

What a relief -- there's still room for technical writers. But the catch is we must acquaint ourselves with and avail ourselves of these fascinating electronic tools that are constantly evolving before their documentation has been prepared.

We writers and editors fill the requirements of the electronics industry today. Ask anyone who has recently purchased a personal computer, for example, and s/he will complain, without acrimony but rather with resignation, that the documentation is as horrible as contracting the mnemonic plague.

Put away your pencils. Key your information into a wonderful machine that can assist your production and capture your thoughts quickly. That's what office automation is: using automated tools to increase your productivity and to free you for more interesting and challenging tasks.

The prediction for the future is that your skills of writing, editing, and interfacing with various levels of decision makers within your business setting will be needed for a long time.

The Role

These tasks can include providing education for new users in the proper use of computers and their numerous software packages. You can write customized documentation packages to suit any business setting. You can identify to management those areas where your talents can assist in achieving corporate goals.

Within this field of employment, your title may change from time to time. That's good marketing! I've suggested the title: Quality Control Analyst. Within a computer systems group, this individual could perform duties such as operating a reliable documentation centre. This centre could include an inventory ranging from system operating manuals through to portable software packages to be loaned out to users. The keeper of these documents could indulge in developing guidelines for users to prepare their own documentation, or s/he could offer assistance both in editing and critiquing documentation.

These job functions, however, suggest traditional documentation handling. Here is the difference. With the advent of a whole new generation of computerese called fourth generation languages, the market has exploded with software products incorporating a user friendly approach. The trend of the computer industry is to encourage using fourth generation languages within the user community. Fourth generation languages are designed for use in on-line systems and are characterized by their on-line help instructions. Other advantages are, that for the novice user, "coding" is reduced to a friendly, English-like request, e.g., Find x with date = 840303. With this kind of modus operandi, the need for formal courses has diminished.

But the need for human interface has increased. Whereas formal instruction in a classroom environment is inappropriate, the end user must still be introduced to the power that lies behind this new and often overwhelming environment. He must learn to identify his own uses for the tools his management offers him. And you can be instrumental in fulfilling the communication requirements that remain persistent and unidentified in many office settings.

The Work Plan

My own advent into this lucrative career path began two years ago when I joined a utility company that had, among their many major decisions, committed themselves to office automation.

Although I had been active in the computer systems area for a few years writing end user documentation, my credentials stressed my academic background and communication skills. I was pleasantly surprised, then, to be invited to join their Information Centre as a systems analyst. This title had always suggested to me a technical background in programming and analysis among the third generation languages such as Cobol, Fortran, and Pascal.

I no longer hesitate to quote my title, because my immersion into their office automation mandate has provided me with more cocktail party terminology than I could have ever hoped to accrue through more traditional paths.

My first assignment that spanned eight months was as the sole supporter, hardware, software and userware, of a pilot project to introduce thirteen word processing machines that could communicate with our mainframes and minis to select senior confidential secretaries.

Together, the fourteen of us learned a lot about the machine and its impact on their working environment. It was imperative to communicate new discoveries of the machine's capabilities to ensure the acceptance of this tool among the users.

DECmate II NEWS evolved one weekend in a spasm of creativity. Its format became a familiar harbinger of new, interesting techniques. It was always printed on pink paper and users were encouraged to keep the sheets in three ring binders. Figure 1 is a real screen print out, photo reduced, with a border drawn around it. This method of presentation ensured accuracy while delivering the message. Figure 2 became a recognizable, effective method of procedure presentation with this group of users.

The pilot project was a success and management proceeded with broader dissemination of this equipment to fifty-one users. The functions of my job were also expanded to include demonstrations on how to use the word processors as terminals.

At the same time, management encouraged their 2,600 employees to form a computer club. This ploy was immensely successful in promoting lively interest in the office automation strategies of the company.

However, the questions that arose from club members and from the new word processor users began to form a pattern in my mind. New or potential users were not afraid of automation, they were afraid of not being given enough information. This was the basis for designing, co-ordinating, and conducting the first Beginner's Workshop within the corporation.

The workshop was sponsored by the Computer Club (read outside of normal working hours!), and the executive was not prepared for the overwhelming response to our offer. Classes ran for two lunch hours per week, with one week equal to one workshop -- for ten weeks straight. A total of seventy-eight

DECmate II NEWS --

-- COMMUNICATIONS MENU --

KS = Keyboard to Screen
KP = Keyboard to Printer
KH = Keyboard to Host
KD = Keyboard to Document

HS = Host to Screen
HP = Host to Printer
HD = Host to Document

DS = Document to Screen
DP = Document to Printer
DH = Document to Host

TD = Test document

Type \R to recall the Communications Menu or
Type \H to recall the Communications Menu and hang up the modem
Press Gold MENU to recall the Main Menu.

Specify options then press RETURN.

KS KP

HOW TO USE THE DECmate AS A TYPEWRITER:

- . at the COMMUNICATIONS MENU, erase the default settings (KH and HS)
- . enter the settings shown here; press RETURN
- . when blank screen appears. anything you type will be printed out. When you press CARRIAGE RETURN at the end of the line, you will continue typing at the beginning of the same line.
- . After pressing the CARRIAGE RETURN to continue typing, press the grey LF13(LF) key to advance the platen
- . don't make any typing errors!

06 July 83

Figure 1

DECmate II NEWS --

PROCEDURES TO COPY A VAX FILE INTO A DECMATE DOCUMENT

ACTION	DESCRIPTION
1. CX<RET>	Go to the COMMUNICATIONS MENU.
2. <RET>	Press RETURN to accept the pre-set options.
3. Log on to the computer.	Log on instructions are available.
4. \$DIR	Look in the DIRECTORY for the filename you wish to transfer over to your DECmate.
5. \$TY filename\R HD<RET>	Return to the COMMUNICATIONS MENU. Add the option HD, press <RET>. You will be prompted to create a new document on your document diskette that will receive the VAX file.
6. <RET>	Press RETURN to begin the transfer.
7. \$R	When the transfer has finished, you will see the \$ prompt. Return to the COMMUNICATIONS MENU to remove the HD option.
8. <RET> <RET>	Return to the VAX.
9. \$LO	Log off.

22-AUG-83

Figure 2

club members ranging in levels from clerks through to senior vice presidents attended the sessions.

Figure 3 illustrates the format of the course outline for Day 1, a group address method of communication. The Day 2 outline as shown in Figure 4, contains explicit instructions for an interactive computer session.

The Computer Club's membership grew to 130 members, and again a vehicle of communication was required and identified. I consulted with the club's executive and with their concurrence launched the first issue of THE DATA EXCHANGE, Figures 5 and 6.

The newsletter was popular. In fact, I received a request from one director to add his name to the distribution list -- he felt left out! In Figure 5, under Continuing Education, a second workshop was advertised: Personal Computers - Applications for the Home. It never left design mode.

Management's office automation schemes escalated to support their decision to provide all senior vice presidents with personal computers. While I'm confident this group would have enjoyed the workshop, it became obvious that the functions of the Computer Club were beginning to parallel management's strategies. In the few months of its existence, the Computer Club had served its purpose well and opted for an early retirement.

In the meantime, those users who were diligently exploring the worlds of both fourth generation languages and personal computers, under the auspices of the corporate office automation mandate, began clamouring for assistance. They were reasonably conversant in their applications, but needed guidance in communicating between different machines and software packages. Thus evolved the HOW TO series, Figures 7, 8, and 9.

Again, a familiar, constant format gave this customized documentation its credibility among the users. The preparation of this ad hoc documentation was simple and error free: the machine had a "print screen" button. I simply simulated the exercise being described and printed the screens sequentially. These screen formats required minimal explanations as evidenced in Figure 8.

Preceding the proliferation of personal computers among the senior ranks, there was an organization change within the systems group. The Information Centre blossomed into a full fledged group with its own manager. Its role was stated clearly: to provide on-going support to the extensive user community and to assist in the implementation of office automation products.

The Information Centre now had to announce its presence and its mandate to the user community. A meeting with fifteen representatives from various departments throughout the company identified an urgent need for open communication among all users of the company's computer resources.

One of the resulting commitments to open the channels and induce the flow of information was a communique entitled DIRECT ACCESS. The Computer Club's THE DATA EXCHANGE newsletter had paved the way for a management approved and supported monthly publication that represented the company's commitment to office automation.

TRANSALTA COMPUTER CLUB

BEGINNER'S WORKSHOP

DAY 1

Course Outline

- Objective
 - To introduce you to a computer. We hope that afterwards you will be able to tell us what you would like to see in future workshops.
- Tour
 - Begin with blank floor plan. Describe the location of the facilities, also incorporating:
 - different terminals gathered here today: VT102, VT100, LA120, DECMate II;
 - concept of hardware, wiring from terminal to broom closet to Develcon switch to computer; use telephone to circuit board analogy. Modems, microwaves.
 - Describe the procedure to follow to enter the terminal room.
- Log On
 - get computer's attention.
 - identify yourself as an authorized user (you will be billed, too!):
 - username
 - password
 - \$VXB
Username:STUDENT5
Password:STUDENT5
\$\$SHOW TIME - concept of command language
- Directory
 - space to work in
 - create; delete; edit files

Figure 3

TRANSALTA COMPUTER CLUB
BEGINNER'S WORKSHOP

DAY 2

Course Outline

Action

Description

1. Turn on the terminal.

Toggle switch, left, back of screen.

2. Log in to the system.

Instructions, Day 1.

3. \$EDIT any file name

Create a file by editing a file that does not exist, e.g.,
\$EDIT SUSAN.FIL<RET>

4. Enter information.

Absolutely anything you wish, e.g.,
your name, location, local, computer
experience

5. GOLD COMMAND
Command: EX<ENTER>

Execute (save) the contents of the
EDIT buffer

6. \$DIRECTORY

Note that your new file has been added
to the directory. The system has
automatically added a version number
to the file.

7. \$MAIL

Ask the system to connect you to the
electronic mail facility.

8. MAIL>HELP

Note that the prompt has changed from
the home base \$ to the MAIL prompt.

The VAX is a friendly system that has
helpful documentation stored for your
use whenever you type the HELP command.

Figure 4

THE DATA EXCHANGE

TransAlta Computer Club Monthly Publication



September, 1983

Page 1

LOG IN...

to our first newsletter, and as our banner boldly declares, this will be a monthly vehicle for us to keep in touch with each other.

A reminder to our membership, or any other interested party, our executive for the 83-84 seasons consists of:

President: Mike Nugent-Smith
.7114

Programme Director: Curtis Janis
.7398

Treasurer: Susan Rocke
.7218

Newsletter Editor: Susan Rocke

Our fiscal year ends on March 1st. Our Annual General Meeting will be held towards the middle of February where new council members will be elected (or former council members relocated!) and council positions will be expanded to accommodate the needs of our growing membership.

SHARED RESOURCES....

By now, most of our members (a soaring 115 of us) have heard of or have participated in our BEGINNER'S WORKSHOP.

We had an overwhelming response to the workshop - about 65 members signed up - and we have been encouraged to follow up. If you recall the poster, however, we could only accommodate 8 members per

two day session, beginning August 16. A rough calculation will tell you that, in fact, we're still running it!! Therefore, our next workshop will not begin until the second week of January '84.

A big vote of thanks to TransAlta and the Systems Development Department for providing us the opportunity to conduct this workshop using their resources, both hardware and real people.

A special thanks, too, to Grant Gale, for regularly guiding our members through the computer room and for drawing technical analogies among the equipment acquisitions that even we could understand!

CONTINUING EDUCATION...

On Site

There's a new workshop currently under design... this means, we're still open for suggestion for format, scheduling, etc.

Awaiting your feedback, we will outline our design here:

Title: Personal Computers -
Applications for the Home

Times: Each session consists of two
lunch hours: Tuesdays and
Thursdays

Figure 5

- Events:
- * Decide the Software
 - * Design the System
 - Choose from:
 - Recipe Index and Cross Reference
 - Tool Inventory and Update
 - Family Budget
 - * Deliver the Product

OFF SITE

The executive has had a number of requests for advice from the membership on courses that are offered by our educational institutions such as SAIT, University of Calgary, and Mount Royal College.

Don't stop asking questions!... but we need a little time to collect ourselves.

By our next newsletter, we hope to have acquired a resident sage who can guide you in the matters of choice and of administrative requirements should you solicit the company's support (\$) in your endeavors.

Wanted: a resident sage. Bill Gaskell, will you volunteer?

HARDWARE...

Lanpar Technologies are currently offering all TransAlta employees the opportunity to buy an Osborne 1B (double density) micro computer c h e a p: \$1,795.

Here's the info:

- portable
- 64K RAM
- dual double density drives
- 5 software packages
- (CP.M, Wordstar, Mailmerge, Supercalc, MBasic, CBasic)

Contact: Dwayne Lewis
Lanpar
253-8866

TREASURER'S REPORT...

Thanks to the \$2 membership admission charge, we were able to offset the cost of renting a meeting room in the Westward in the earlier months of our existence.

We officially became a KVA club and acquired a \$300 grant.

Our current balance is:

PLAN 24 - \$200.00

Chequing: \$ 22.00

held in the Hydro Credit Union.

We estimated the computer charges for our workshop to be in the neighbourhood of \$300. The Systems Development Department will certainly be advising us on the matter soon!

UPDATING THE DATA EXCHANGE...

Mark it on your calendar -- re-arrange your ERDs -- cancel your vacation -- you can look forward to receiving the TCC DATA EXCHANGE every third Friday of the month.

Therefore, copy deadline must be the 12th of each month.

Your submissions are wanted! Forward them to: Susan Rocke, Room 903.

FOR YOUR FILES...

Catherine Schmaltz, Public Affairs, forwarded a copy of a recent article from Homemakers magazine, September issue. The article is called "At Home with the C-O-M-P-U-T-E-R" and promises to make "you want to have one for yourself".

Figure 6

**HOW TO TAKE YOUR ADE TABLE
INTO DATATRIEVE**

Prepared by: Documentation Centre
Room 903, 7218

Date of Issue: 25 November 1983

Figure 7

4

WELCOME TO ADE

digital
Ade: SAVE worksheet as <DECMATE> ROCK EXTERNAL DATATRIEVE
* Enter a Table name

Give the external file(s)
a name.

DESCRIPTION:

You're creating two files outside (EXTERNAL) of ADE for use by DATATRIEVE. (Reference p. 7-9, ADE User's Guide)

The first file has the .TBL extension and it contains the data.
The second file has a .DTR extension and contains DATATRIEVE descriptions. Read on...

Figure 8

**HOW TO TRANSFER
A DECTYPE DOCUMENT
FROM THE VAX TO THE DECMATE**

**Prepared by: Documentation Centre
Room 903, 7218**

Date of Issue: 24 November 1983

**HOW TO USE THE DECMATE II
AS A TERMINAL**

**Prepared by: Documentation
Centre, Room 903**

November 17, 1983

Figure 9

Volume 1, Number 1 of DIRECT ACCESS boldly declared in its opening remarks called Define DIRECT ACCESS,

The Information Centre will assume responsibility for compiling and publishing this newsletter. Ideally, you the reader will be inspired to provide us with your feedback, and with contributions that you would like to see included in this monthly publication.

The format, as illustrated in Figure 10, was fairly traditional -- there's not much poetic license to be exercised within the computer lexicon.

The Information Centre decided to blanket the company with the first issue. The FEEDBACK sheet, Figure 11, encouraged readers to let the Information Centre know whether they would like to continue receiving the publication. FEEDBACK would measure the success or failure of the Information Centre's attempt to reach out to users.

The response was very encouraging, and as illustrated in Figures 12 and 13, Number 2 made the presses recently. The FEEDBACK section featuring questions and answers, Figure 14, proved to be a worthwhile source of information to the readers.

DIRECT ACCESS is still under development. The front cover has been streamlined from Number 1 to look less cluttered. The entire second issue was produced from a mini computer file on computer A married with an employees directory tape, spooled to a tape, and then produced finally on computer B.

As the editor of the publication, I was intimately involved with the production of both fledgling issues. However, for Number 3, I will gladly extricate myself from the world of programmers to concentrate on my task at hand -- editing and contributing to the publication to sustain its momentum among the users.

Career Opportunities

As I review the events of the past two years with you today, I realize that the adage "in the right place, at the right time" applies. But I insist on another proverb of common experience: "credit where credit is due", in other words, "an opportunity identified".

I received a Bachelor of Arts from the University of Ottawa with a Home Economics concentration in 1974. I received a Bachelor of Arts from the University of Calgary in English Literature in 1976.

INFORMATION TAPE INFORMATION DISK INFORMATION PROCESSOR INFORMATION CPU INFORMATION

DIRECT ACCESS ...

DATA INFORMATION SOFTWARE INFORMATION HARDWARE INFORMATION USERWARE INFORMATION

PUBLISHED BY THE INFORMATION CENTER

VOLUME 1 March 1984 NUMBER 1

Contents

Users' Induction

Define DIRECT ACCESS

FEEDBACK

SYSTEM NEWS

Hardware Update

Software Version Updates

FEATURES

Call USS ...

Version 2 - New and Improved Datatrieve

DOCUMENTATION UPDATE

New Documentation

Customized Write-ups

Reference Library

Reference Material

HARDCOPY

Library Holdings

Figure 10

FEEDBACK
DIRECT ACCESS
C/O DAVE FAVREAU
T2-4W
3842

NAME _____ DATE _____

DEPARTMENT _____

LOCATION _____

LOCAL _____

☐ YES

I WOULD LIKE TO RECEIVE
DIRECT ACCESS
MONTHLY

NO ☐

COMMENTS/SUGGESTIONS _____

Figure 11



Published by the Information Centre

VOLUME 1
NUMBER 2

DIRECT ACCESS
APRIL 1984

CONTENTS

EDITORIAL

FEEDBACK

SYSTEM NEWS

FEATURES

Revolutionary Method for Producing Newsletter
Computer Planning Answers Your Questions
Tips & Techniques Progress Report
Introducing TransAlta Energy Systems
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Eggert's Elucidations...Evaluating Graphics

MICROS

Micro Chips

DOCUMENTATION UPDATE

HARDCOPY

EDITORIAL

EDITORIAL

Welcome back to DIRECT ACCESS. Your overwhelming FEEDBACK response encouraged us to forge ahead with Number 2. Have you noticed the subtle differences in its format? The production of this issue is described by Diane Cushing in her article entitled REVOLUTIONARY METHOD FOR PRODUCING NEWSLETTER, in FEATURES.

Some new sections have opened in this issue, too. With RAINBOWS proliferating throughout TransAlta, we've created a MICROS section for information exchange. Within FEATURES, this fledgling publication has attracted a regular columnist, Harold Eggert of the Data Administration Group. Eggert's Elucidations will review current software packages, comment on hardware configurations, or whatever topics FEEDBACK brings him.

As editor, I benefited from a new tool that is available on VAX C: DECspell. Each article, in the form of an RMS file, was passed through DECspell to ensure that this publication agrees in principle with the American Heritage Dictionary -- DECspell's 70,000 word source.

We promised a monthly issue, and although this one is still within the April boundaries, it doesn't jibe with last month's publication date (we're a week late).

Now, armed with two months experience and supported by our 250 subscribers, we will establish the following production schedule:

Copy contribution deadline: 3rd, 4th, 5th each month

Publication deadline: 9th, 10th, 11th each month.

FEEDBACK queries are welcome at any time. Responses will be published chronologically, based on date of receipt.

Susan Roche
Editor

FEEDBACK

Part 1 contains 62 exercises such as: yales yield yule, jetty, fatty, gritty; that you must complete with 100% accuracy before you can graduate to Part 2, the speed typing exercises.

For users with access to RAINBOWS however, we have a typing course called TT100 available on a booking out basis (there are nine copies) from the Information Centre. There are no known bugs in this software. It adopts a sensible approach by letting you proceed to subsequent exercises after an honest effort has been recorded.

Noteworthy, too, -- overloads on the VAX make SPD response time less than desirable. The RAINBOW offers you dedicated service.

10. Could you please publish some information on the use of the RAINBOW and DECmate PCs, e.g., the types of language that can be used, methods of transferring files from the PC to the VAX and what types of files can be transferred with existing software.

Doug Huber

Our RAINBOWs can operate under MS-DOS and CP/M86/80 operating systems. The DECmate uses a word processing operating system called WPS and the DECmate can also be configured to operate a CP/M80 system as well.

For the PCs, our Computer Planning group continues to search for appropriate software. Currently, for the RAINBOWs, we have LOTUS 1,2,3 (spreadsheet, graphics) and POLYXFER.

All of the PCs can transfer files to and from the VAXes. Both ASCII and binary files can be transferred. However, should a FORTRAN file be transferred on to the RAINBOW, then you must have FORTRAN on the RAINBOW to execute it.

Document any specific software you are interested in on FEEDBACK, and we will ensure that the request gets forwarded to the Computer Planning group, and then addressed in the next FEEDBACK.

11. I would like to attend an advanced/intermediate Datatrieve training course -- any hope?

Dave Favreau, supervisor of User Software Support, is actively searching through Digital's Educational Services to obtain computer based instruction (CBI) on Datatrieve. These courses are usually tutorials, accompanied by workbooks.

12. When I go to log on, sometimes the Dataswitch will not respond, even after breaks, especially in the morning. Why is this?

There was a nagging problem in the software of Dataswitch 1 that affected all users outside of TAU 2 (Dataswitch 2). Here's what was occurring.

On any terminal, your first <RETURN> initiates a connection with a pre-programmed chip that resides on an SPS board: Subscriber Protocol Supervisor. This software bug caused a lock up, preventing any new

My experience has been in the support of the development of new manual and computer-based accounting and other information and control systems, including the conducting and analysis of required user interviews, preparation of procedure documentation, staff training and other related design and implementation assistance to users.

I have been Secretary, Society for Technical Communication, Calgary Chapter for the past three years.

MANAGEMENT, DIRECTORS AND EMPLOYEES -
RE-OPENING COMMUNICATONS CHANNELS

Judith Winter - J. Winter Resources

PAPER RECEIVED TOO LATE
TO BE INCLUDED IN THIS
PUBLICATION

BUSINESS AND EDUCATION

Corporation in the Classroom: U.T.D.C. in
the technical communications classroom

John Anderson, St. Lawrence College, Kingston, Ontario

ABSTRACT

In an attempt to integrate my students into corporate communication, I consulted the Urban Transit Development Corporation at their Millhaven test centre. (They are the designers of the new B.C. transit system)

The public relations officer, proposal writer and personnel director were invited to speak at the college. What resulted was a series of videotaped interviews, tours and corporate publications to provide an enriched study that only the professor/consultant is usually exposed to.

Student response was enthusiastic. The result has been a strengthening of ties and responsibilities between college and corporate life. This came partly as a surprise since with my increased marking responsibility and the insecurity of the business climate, I had not expected this cooperation.

In an era of youth unemployment, business bankruptcy and general slow economic recovery, what role can the communications teacher and corporate executive play in improving the communication skills of technology graduates?

Cindy Nutter, a public relations director, Dick Giles, a proposal writer and Ken Maserve a personnel director took turns leading discussions with college students this year. They offered interesting insights into the challenges of communicating in the multimillion dollar world of Canadian urban transit. Usually, it is primarily the teacher or professor who has the value of dealing with corporate personalities and problems. However, these people have given tours, lectures, videotaped interviews and corporate publications to enrich the technical communications program.

The advantage for technologists of seeing each person from the same company is to envision an organizational profile of the personalities, aims and communication styles. This provides the meaningful setting for follow up exercises when you know who you are writing to and who else might read your reports, resumes, or presentations. As well, the nature of this organization, which has research, manufacturing and support services divisions, offers a variety of writing situations. Moreover, the fact that the articulated light rail vehicle (streetcar) and intermediate capacity transit system (B.C. trains) have civil, mechanical and electronic components to their projects appeals to technical background of the student writers.

Firstly, let me introduce Cindy Nutter - a vivacious and technically knowledgeable young woman. Her job involved giving international trade show exhibits, handling the media and giving tours to potential buyers or local politicians. Her contribution was to provide an example of a woman who has earned respect in the male dominated "train" world. Her promotional literature, slide talk and tour of the manufacturing facility gave the necessary background to the company. As well, seeing her name in the local paper defending the "monocoque" design or discussing temporary "layoffs" because of faulty floor panels added to the interest.

In terms of follow up study, the technical descriptions were evaluated for their emphasis, logical development, readability and layout. Typical areas appear below.

Complete R&D Services

UTDC Research & Development Ltd... **excellence** in new ground transportation products **through research, development, testing, and practical in-service demonstrations.**

Research and development is fundamental to both the past and future success of the Urban Transportation Development Corporation. UTDC Research & Development Ltd., a subsidiary of UTDC, researches, develops, and demonstrates products and systems which improve the attractiveness of ground transportation to owners, operators, and users alike. UTDC R&D is dedicated to delivering products that its customers need and want, and that will make their systems more efficient, more productive, and more appealing. Products developed to date by the UTDC group are helping to make Canada a world leader in the rail transportation field.

The R&D methodology involves data collection and analysis to establish the **need, requirements, and technology options** for the development of a product. Once these concepts and ideas are identified, systematic **designs and tests** are conducted to create new products. It is always UTDC R&D's objective to prove new products by demonstrating their effectiveness both in a test environment and in revenue service.

UTDC R&D takes a systems approach to all its research activities. The impacts of new technology are thoroughly evaluated to ensure that the full system impact is known.

The work of UTDC R&D encompasses new rail transportation systems, vehicles and components, bus subsystem technology, energy and propulsion systems, and guideway construction technology.

The projects of UTDC R&D are sponsored not only internally by the UTDC group, but by transportation and research agencies across Canada and throughout the world. Clients have included the U.S. Department of Transportation, Washington Metro, London Transport, the Ontario Ministry of Transportation and Communications, Transport Canada, VIA Rail Canada, Ontario Northland Railway, and the Toronto Transit Commission, as well as private-sector companies which supply the transportation marketplace.

Innovation in Public Transportation

UTDC R&D Ltd. has a mandate to serve both the UTDC group of companies and the rail transportation industry.

The R&D function in UTDC has produced

- the world's most advanced urban transportation system (ICTS),
- the world's most advanced and energy-efficient 4-axle streetcar (the CLRV), and
- the world's most advanced and competitive 6-axle streetcar (the ALRV).

UTDC R&D has established a reputation as an international expert in:

- Linear motors
- Steerable trucks for urban transit, commuter, and freight applications; and has a growing reputation for excellence in
- R&D services,
- transportation system and component development, and
- product testing.

UTDC R&D is working now on the development of improved and new products to allow transportation companies and operating authorities to move people and freight in and between cities more comfortably, efficiently, and attractively.

Product development is ongoing at UTDC R&D in the areas of

- advanced truck and suspension systems
- guideways
- linear motors
- vehicle control systems
- tunneling systems
- advanced vehicle designs
- alternative energy systems
- new transportation systems
- systems and train simulation software

As a result, the editing of the factual and diplomatic writing skills were based upon prior knowledge of the manufacturing process, quality control and finished product as well as knowing Cindy.

Next was Dick Giles, a proposal writer--a 'cosmopolitan Englishman' with a physics background. His office wall was a mass of organizational schedules and personnel. His seminar examined the challenges and problems of bidding for multi-million dollar contracts from Hong Kong and mainland China to the "docklands" in England. The proposals discussed ranged from 10 - 12 pages to massive volumes. The areas of discussion for an R.F.P. (request for proposal) were listed below

- Proposal Methodology
- Annotated Table of Contents (ATOC)
- System Configuration Summary
- Responsibility Breakout
- Work Breakout Structures (WBS)
- Proposal Organization
- Proposal Plan Schedule
- Manpower/Budget/(WRO)

However, the main problem, as usual, was to achieve a customer-oriented and consistent style with so many divisional engineers involved in report writing.

As a follow up exercise, the proposal format and time/task breakout ~~was~~ examined for organizational logic and continuity. The massive documents were ignored because that although dated they were confidential. Moreover, their mass precluded any thorough investigation by post secondary students in a one semester report writing course. The effect of this introduction was to generate tremendous interest in being part of a \$200,000 proposal project! But, more importantly it gave an understanding of the organizational communication necessary both internally and internationally. As a consequence, a response to a request for proposal on a multimillion dollar contract can be made in 3 weeks.

In terms of follow up, there were no direct proposals based on U.T.D.C. technology. But, perhaps with further thought, and knowledge, I would like the college to start making suggestions for research as a joint venture with U.T.D.C. If any of the readers of this article have suggestions, please write.

Lastly, Ken Maserve, the personnel director gave his overall philosophy regarding what he looked for and wanted to see in company employees. He outlined how to handle rejection in a world where 1 out of 5 are predicted to be out of work. He strongly advised returning to the "well" - your support group of family, friends, religion, or in Ken's case a yogic retreat underwater. His background of changing jobs every 2 - 4 years by firing himself was also a personal disclosure that was typical of his direct, articulate and personal manner. Later, in his presentation he gave evidence why there shouldn't be a personnel department. Next, he gave follow up interview suggestions to candidates who asked for more interviewing experience. Finally, he outlined how to cope with the "downsizing" of corporations and the difficulty of upward mobility in his organization.

The final impression was one of appreciation by most students. They seemed to enjoy being exposed to the personalities of these people. Since some of our graduates are hired by U.T.D.C., the value is obvious for them. For still others, it provided insight into large scale Canadian technological research and development.

The corporate personnel seemed to be glad of the opportunity to be involved with the college. I hope the relationship will flourish -- perhaps into research areas. With increasing enrolments and academic responsibility, this exchange offered a welcome relief.

For myself, after 10 years of teaching business and technical writing, I felt a sense of renewal from the insight of others into communicating effectively. I would be glad to show any materials or exercises with anyone interested.

My academic background has ranged from Trent University B.A. 1970 to Memorial University and Queen's B.Ed. 1974. My present sabbatical in 1984 will be in University of Victoria studying with Frank Smith in reading development. My professional background has been in editing the "Dialogue" of the College Association for Language and Learning, giving seminars to parents and engineers on communicating in meetings and reports. My current hobby is developing a 8 week technical report writing course on computer. This summer, I hope to be assisting in the proposal writing department at U.T.D.C.

EVALUATION - THE ULTIMATE MEASURE OF COMMUNICATION?

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ABSTRACT

Evaluation penetrates every aspect of life, from the cradle to the grave. In medicine and education, business and recreation, assessments are made of the environment, people, processes and products for varied purposes. These purposes may or may not be appropriately oriented, while procedures used vary in efficiency and effectiveness and from up-to-date to outmoded. Since evaluation is assumed to have impact on possible future actions, it is prudent to seek better ways of completing the various steps involved. Strategies for improvement of personnel appraisals and their communication are presented, highlighting situations in business and education. Problems and issues and appropriate responses are discussed.

INTRODUCTION

Evaluation today begins before birth, as geneticists and gynecologists use sophisticated techniques to probe for characteristics and abnormalities of the unborn. From medicine, education, geological exploration, high tech industry, business and recreation, examples of appraisal are plentiful. Their purposes vary. Some are themselves appraised and found of doubtful value. Procedures used may differ to fit appropriate situations, but may also range from outmoded to up to the minute.

In particular, evaluations deal with gathering of evidence, assessing data and expressing conclusions as recommendations or actions. All these tasks involve communications components. Perhaps the more critical ones for business, industry and education are those intended to state clearly the *purposes* and the *results*.

Most of the evaluation situations in the business world involve interactions between people, processes and objects of some kind. Since many evaluations are of these interactions as seen in performance of people, the specifications of those aspects of the performance to be appraised should also have been clearly stated, understood and translated into operational behaviour. We find discussions in business and educational literature that the tasks of specification are frequently either difficult to do well, or those responsible fail to find the time to ensure completion. Similar problems may apply to stipulation of steps in processes or specification of required characteristics of the kinds of people or objects involved. The result may be the inadequacy of the appraisal process which follows. People, processes and products are misevaluated and subsequent actions misdirected as consequences.

If the expectations, criteria and standards, and statements of purposes of appraisals are clear, then the evaluative procedures are often clarified. In the office, the secretarial pool supervisor is expected to maintain smooth flow of work to originators, specified as return of finished correspondence and reports within a prescribed time with each piece of work meeting

quality standards matching the corporate policy. Performance of the pool can then be monitored and reasons for any exceptions to the specification criteria or standards noted. In turn, the supervisor's performance appraisal may include judgements as to the effectiveness in meeting the expectations of the role.

Usually personnel appraisal data is gathered by a variety of methods, including measurements or quantitative assessment and interviews with people, usually probing qualitative issues. Quality in performance often can be partly assessed quantitatively. But the problems and subsequent issues that arise surround questions of objectivity of the procedures.

Ultimately, all evaluation has subjective elements. *Someone* decides to use ultrasound techniques to discover characteristics of the unborn. A superior, or perhaps a group, decides that personnel in an organization will be assessed, in part, by a time and motion study technique. *Someone* reviews the quantitative data and applies different subjective weights, to some extent, to the various elements. A teacher's multiple choice test is only objective *after* the teacher chooses the kinds of questions, sets the specific content and the difficulty levels of each item in question phraseology. The test as a whole is set at a challenge level.

Objectivity is perceived by individuals to exist when prejudices, biases and emotions are believed to have been put aside. The concerns of appraisers will clearly have *some* emotional overlay, but the procedures in evaluation should not betray their preferences or biases in favour of any particular kinds of results. Easier said than done!

STEPS IN PROCEDURE

Now let us review the kinds of steps that may be involved in personnel evaluation, and how certain approaches can control the subjective bias of the evaluators. Firstly the purposes of appraisal procedures might be stated as

1. feedback. Accurate assessment is necessary to maximise effectiveness and efficiency of effort to improve job performance. Improves morale if helping, encouraging and supportive manner is adopted.
2. review for salary or status change. Assessment accuracy and due process allows decisions on raises and promotions to be justified which in turn improves morale and provides incentives.
3. career planning. If strengths and weaknesses of performance are determined fairly, discussions of ambitions and prospects are made more useful for management as well as the individual. Forecasts for succession for promotional positions and future vacancies can be facilitated.
4. job equalization. Accurate assessment of performance can lead to adjustment of workload to suit both the expectations and the abilities of the individual to complete the tasks effectively (qualitatively) and efficiently (quantitatively).
5. staff development. Remedial training and education to improve unsatisfactory performance, action to maintain or to improve satisfactory standards of performance and to build superior working relationships may require accurate appraisal of the current work of each person involved. New technology may also instigate urgent need for data to support personnel selection and development decisions.
6. management by objectives. Assessment of progress towards objectives of organizational subdivisions and individuals may be viewed as a continuous or periodic process.
7. termination or transfer. Periodic accurate assessments accumulated in

an individuals' personnel file are often necessary to support decisions which may be disrupted.

It should be noted that in all cases comparisons are anticipated between the job specifications (expectations) and the job performance characteristics with individual abilities and experience. Each purpose has a significant implication for morale of the individual evaluated *and* for the rest of the organization affected by the person's job performance. (Oberg 1972) Evaluation processes carried out in justifiable ways may be viewed as necessary for a healthy functioning organization and to *avoid potential trouble*. This may indeed be the critical *underlying purpose* for such evaluation procedures.

Secondly, data gatherings for personnel appraisal may involve any or all of the following strategies

1. Records of changes in conditions, interrelationships affecting the individual, specifying job description and expectation changes in the period to be reviewed.
2. Production counts, including time.
3. Records of quality comments vs criteria and standards.
4. Records of events or incidents involving individual, e.g. customer comments.
5. Copies or samples of work including any plans or communications involving the individual.
6. Anecdotal commentary by the individual's co-workers with whom his work may relate on specified criteria and standards.
7. Ratings by co-workers/supervisors or scales on a scale known to the individual and validated by supervisors or "experts" on that job as appropriate to the tasks performed, including adaptation to any changed conditions.
8. Records of education, training or counselling relative to work performed with dates and outline of content, evaluation or commentary of instructors or counsellors of results or outcomes.
9. Self-evaluation by the individual using criteria and standards agreed upon, with or without use of a prescribed form.
10. Interview with individual to discuss any and all matters affecting expectations, performance, personal development and potential adaptations to evolving circumstances to obtain perspectives, attitudes and feelings about the job tasks, personal performance and future prospects.
11. Comparison data from similar jobs and incumbents, for comparing individuals to general standards, *not* comparing two individuals.

Use of assessment procedures involving several techniques and personnel protects the final evaluation from possible charges of discrimination. It is important that none of the techniques allows commentators or raters opportunity to make non-job related statements or judgements. In particular, personal trait and characteristic comments unrelated to performance may become dangerous. Partiality or taste, whim or fancy should have no place in any such process of evaluation. Unfortunately, reality may be different! Some types of discrimination are specifically barred by various provinces' legislation. See Table 1 (Canadian Labour Law Reporter, 1979 p 901-3).

In the Third step, judgements are formulated. In Management By Objectives, and other strategies, they may be dangerous if the judgements are only in relation to complete fulfilment of each goal. All too frequently circumstances change during a review period, requiring modifications of targeted outcomes. It seems important that performance in process and adaptation to such changes be incorporated in such appraisals in order to do justice to all concerned.

Table 1.

PROHIBITED GROUNDS OF DISCRIMINATION

	Federal	Alberta	British Columbia	Manitoba	New Brunswick	Newfoundland	Nova Scotia	Ontario	Prince Edward Island	Quebec	Saskatchewan	Northwest Territories	Yukon Territory	Total
Race	X	X	X	X	X	X	X	X	X	X	X	X	X	13
National/ Ethnic Origin	X	X	X	X	X	X	X	X	X	X	X	X	X	13
Colour	X	X	X	X	X	X	X	X	X	X	X	X	X	13
Religion	X	X	X	X	X	X	X		X	X	X		X	11
Age	X	X	X	X	X			X			X			7
Sex	X	X	X	X	X	X		X	X	X	X	X	X	12
Marital Status	X	X	X	X	X	X		X	X		X	X	X	11
Criminal Conviction	X		X											2
Physical Handicap	X			X	X					X	X			5
Physical Characteristics		X												1
Ancestry		X	X		X			X			X	X	X	7
Political Belief			X	X		X			X	X				5
Family Status				X										1
Sexual Orientation										X				1
Civil Status										X				1
Language										X				1
Social Conditions										X				1
Creed						X	X	X	X		X	X	X	7
Place of Residence												X		1
Place of Origin		X	X		X			X			X	X		6
Total Number	9	10	11	10	10	8	5	9	8	11	11	9	8	

Fourthly, in the interpretation and rating conclusion phase, evaluators must be aware of and combat several tendencies found to exist by researchers. These include

1. the halo effect. Rating someone high on all characteristics because of one or two strong ones.
2. being overly generous or overly strict. Either tendencies may cause interdepartmental or organizational comparisons to be distorted.
3. central tendency. This may appear where inadequate data has been gathered, as a "safe" procedure.
4. personal bias. Personal feelings or biases and preferred ways of doing things can result in distortion from an immediately preceding appraisal. One tends to downgrade the next person after a superstar and overrate mediocre after a poor case. (King 1984)

The relative weighting of evidence about the performance of any individual performing organizational roles may be changed from person to person as they mature and shape themselves *and* the job tasks in accord with feedback and their personal orientations. The important concern is to provide consistent relative measures and judgements of overall effects of the job performance both in progress and by results. One person's style in progress (e.g. running roughshod over others) may be disruptive to others though their own results may be superior.

In the interpretive stage, communication and interaction by interview with the individual is essential. Some interview strategies will be discussed later. Mutual agreement on the importance or value placed on some aspect of specified behaviour may result in modification of a task specification for the future as well as of the priority or weight given in forming conclusions in the current review.

Weighting or priorities of evidence are obviously potentially controversial. Where significant, these weights or priorities should be specified and known to the individuals. This parallels best practice in testing in education where marks are indicated in the margin for each item so that effort and time can be allotted by students accordingly before work begins.

The fifth step involves formulating an overall appraisal incorporating the appraisal interview. The use of a prescribed form and procedure helps to ensure fair balance and that the individual will recognize justified criticism and recommendations. A form or a summary of some type should be signed by the parties itemizing and acknowledging understanding of the principal outcomes of the appraisal as discussed in the interview.

APPRAISAL INTERVIEWS

It is this appraisal interview which can be crucial to the on-going development of the individual and ultimately of the organization. Here the results are communicated as findings and recommendations. The format should vary with the essential purpose. Feedback, individual development and justification of employee salary or status changes are different groups of purposes best dealt with in *separate* interviews. (McGregor, 1957)

For a feedback interview, it is desirable to establish a helping relationship with open interaction from the outset. With this in mind, planning the interview and deciding elements of the procedure should include these steps:

1. look over all appraisal materials. Select important items for discussion. Consider the 1 or 2 more important recommendations only.
2. inform the interviewee of the time and purpose of the interview at least a week in advance and ask for a self review of achievements, problems and future objectives to be prepared for the time period involved.

Provide a copy of any relevant quantitative data gathered. (King, 1984, Fletcher, 1984)

3. select a room with comfortable, informal atmosphere familiar to the interviewee if possible. Avoid sitting across a desk from the interviewee. Privacy is important so try to eliminate interruptions.
4. begin by stating the individual's progress. Show knowledge of specific aspects of performance, that you did your preparation. Concentrate on the important matters, not trivia. State a wish to assist in their development.
5. review briefly the purpose of the interview and the conditions and time period of the appraisal.
6. examine the job specifications and criteria and standard statements for evaluation. Ask for information about changes in the job and any relevant conditions which may have occurred during the time period.
7. ask how the individual sees the strengths of their performance in relation to the criteria and standards, and any additional strengths believed to be present but not included so far.
8. ask where they feel performance of tasks might be improved over the next time period with accompanying changes or developments of themselves, colleagues or modification of facilities.
9. indicate sources of independent evaluation data and outline the findings re: strengths, room for improvement. Invite any interpretations and comments. Review and discuss alternative conclusions.
10. more discussion towards some formal statements of recommendations and objectives for the individual and his related colleagues and their conditions for the next time period. Try to reach consensus on a priority list of these. Include possible revisions of job description and criteria and standards for evaluation. These will be included in the formal appraisal summary form completed after the interview.
11. restate willingness to try to support individual's efforts at self-improvement and development as well as specified improvement in qualitative and quantitative performance. Mutually decide on individual development steps and support to be provided for the next time period. These decisions will appear on the appraisal summary.
12. arrange for the interviewee to read and sign the appraisal summary form after it has been prepared.

A similar interview, well planned and executed, can be targeted towards development of the individual. The appraisal process still involves judgements of data on effectiveness and efficiency of the person performing the refined tasks. But it specifically examines the emergent, evolving pattern of change in behaviour on the job. It seeks indications of growth, between periodic assessments. There can be similar self assessment-seeking relative strengths and weaknesses in performance and growth-to be compared with the other evidence. The interview will become more a discussion of needs and potential means of satisfaction. Coaching and counselling is the interviewer's mode of operation. The resulting summary focusses on the short and long term strategies for development of the individual likely to produce the most effective growth in overall performance and enhancement of potential for promotion.

On the other hand, justification of salary, tenure, promotion, transfer or termination is an interview of a different colour. Fletcher, (1984) suggests that for this purpose the self-appraisal process is prone to greater personal bias and inflation of the assessment. Meeting the person's view of their performance with evidence from several other independent sources does not produce the same kind of open atmosphere. Alternative perspectives and

strategies are seen as more potentially threatening. Personality traits and characteristics may emerge as potential discrimination issues more often.

Frequently in justification cases, the interviewer takes a more formal approach in presenting the independent sources of data. There is a tendency to offset a generous self-appraisal by stressing the negative or weaker aspects from other data. In consequence, even where there is a salary increase or promotion such appraisals may be seen negatively by the interviewee. So may begin a breakdown in the collaborative-productive attitudes sought in the other kinds of appraisal interview. Should the interviewer be seen as a more authoritarian style of superior, the subordinate's attitudes will probably be perfunctory. The communication conveyed will simply state "where they stand". Without opportunity to respond to perceptions of inadequacy in the appraisal data, employees may view the superior as an adversary.

Should an interviewee become upset or elated by the process, the continuation of an interview is pointless. Further discussion is better postponed. Debating the organization's evaluation is pointless since at best it would be a win-lose argument. (Kelly, 1984)

Effective communication of appraisals is to be regarded as a consequence of a more humanistic philosophy of organizational management. It anticipates multi-lateral sharing of data, ideas, perceptions and judgements of both the performance and the appraisal process itself. Far from simple, communication of evaluation at its best is a sensitive, carefully planned, multi-dimensional continuous task. Behavioural research consistently finds reinforcement for the theory that those encouraged, praised and supported grow, those criticized and those ignored do progressively worse. This adds to the concern that many appraisal interviews justifying salary or status positions prove strongly negative for those who overrate themselves. These interviews are therefore damaging to future attitudes and performance. Kelly, (1984) elaborates that senior management may add to the problem by requiring supervisors to distribute ratings to conform to an expected distribution. In such an environment, one must agree with Kelly that appraisal must be viewed by evaluators as an essentially negative task.

But perhaps with a policy of prompt feedback, the appraisal-communication task could be made easier. Caruth, Middlesbrook and Rachel (1982) conclude that the process should be part of "much more than a once-a-year task". They offer further suggestions that supervisors should follow up frequently on interview decisions.

Gilbert (1982) offers a strategy for appraisal called PROBE. It involves a set of questions (see Table 2) to elicit a profile of general behaviour in any job, which should reveal barriers to effective performance. It does not seek details, merely "No" answers which will identify areas in which problems will require some remedial action.

The dimensions of performance being PROBED reflect Gilbert's view that individual behaviour is controlled by more than the individual's experience and ideas. The environment is involved in the actions of the person from stimuli to response to reinforcement. He suggests performance can be changed by modifying any one or more of the stimuli, response or reinforcement through the individual's experiences, ideas and environment. These changes are exemplified in a contrast in performance of someone assembling a tricycle for a daughter's present following instructions supplied, versus someone assembling the same tricycle on an assembly line after months of doing so. The experience, skills, knowledge, ideas and conditions are significantly different.

But questioning in an interview is far more complex. Mandel's (1974)

TABLE 2
PROBE Questions

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E—QUESTIONS ABOUT THE BEHAVIORAL ENVIRONMENT

A. DIRECTIONAL DATA

1. Are there sufficient, readily accessible data (or signals) to direct an experienced person to perform well?
2. Are they accurate?
3. Are they free of confusion—"stimulus competition"—that slows performance and invites errors?
4. Are they free of "data glut"—stripped down to simple forms and not buried in a lot of extraneous data?
5. Are they up-to-date and timely?
6. Are good models of behavior available?
7. Are clear and measurable performance standards communicated so that people know how well they are supposed to perform?
8. Do they accept the standards as reasonable?

B. CONFIRMATION

1. Is feedback provided that is "work-related"—describing results consistent with the standards and not just behavior?
2. Is it immediate and frequent enough to help people remember what they did?
3. Is it selective and specific—limited to few matters of importance and free of "data glut" and vague generalities?
4. Is it educational—positive and constructive so that people learn something from it?

C. TOOLS AND EQUIPMENT

1. Are the necessary implements usually on hand for doing the job?
2. Are they reliable and efficient?
3. Are they safe?

D. PROCEDURES

1. Are the procedures efficient and designed to avoid unnecessary steps and wasted emotion?
2. Are they based on sound methods rather than historical happenstance?
3. Are they appropriate to the job and the skill level?
4. Are they free of boring and tiresome repetition?

E. RESOURCES

1. Are adequate materials, supplies, assistance, etc. usually available to do the job well?
2. Are they efficiently tailored to the job?
3. Do ambient conditions provide comfort and prevent unnecessary interference?

F. INCENTIVES

1. Is pay for the job competitive?
2. Are there significant bonuses or raises based on good performance?
3. Does good performance have any relationship to career advancement?
4. Are there meaningful non-pay incentives (recognition, and so on) for good performance (based on results and not behavior)?
5. Are they scheduled well, or so frequently as to lose meaning and so infrequently as to be useless?
6. Is there an absence of punishment for performing well?
7. Is there an absence of hidden incentives to perform poorly?
8. Is the balance of positive and negative incentives in favor of good performance?

P—QUESTIONS ABOUT BEHAVIORAL REPERTORIES

G. KNOWLEDGE AND TRAINING

1. Do people understand the consequences of both good and poor performances?
2. Do they grasp the essentials of performance—do they get the "big picture"?
3. Do they have the technical concepts to perform well?
4. Do they have sufficient basic skills—reading and so on?
5. Do they have sufficient specialized skills?
6. Do they always have the skills after initial training?
7. Are good job aids available?

H. CAPACITY

1. Do the incumbents have the basic capacity to learn the necessary perceptual discriminations with accuracy and speed?
2. Are they free of emotional limitations that would interfere with performance?
3. Do they have sufficient strength and dexterity to learn to do the job well?

I. MOTIVES

1. Do incumbents seem to have the desire to perform when they enter the job?
2. Do their motives endure—e.g., is the turnover high?

Strategy for Selecting and Phrasing Questions in an Interview relates levels of structure to levels of planning, the amounts of data and the reliability of results needed. The questions range from widely divergent "free association" to convergent "structured" in his paradigm (see Figure 1), with the resulting information ranging from general to specific accordingly.

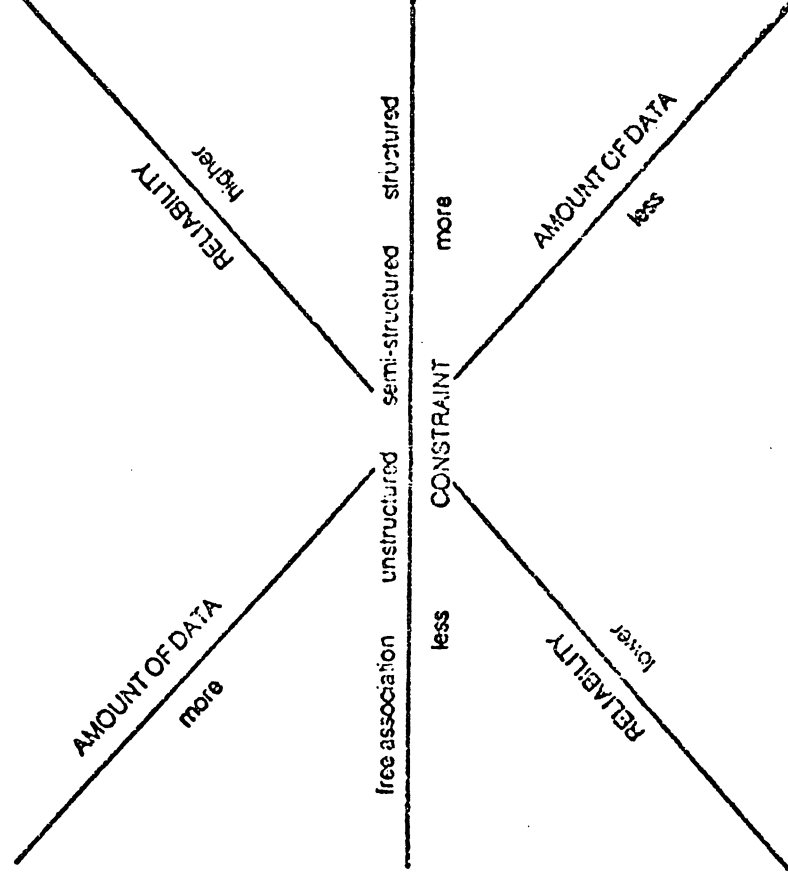


Figure 1 Question-Analysis Model

We could proceed further in the paradigm to the patterns of questions, and find probe (linear, specific), role-playing (divergent, general) funnel (divergent to convergent) and inverted funnel (convergent-specific to divergent-general) sequences. The last case resembles the *non direct* interviewing strategy Caruth, Middlebrook and Rachel (1982), while the highly structured linear model is similar to their *direct* type. The non-direct, "inverted funnel" style suits the feedback and development forms of interview, while the direct, linear style fits the common circumstances of the status justification type.

Roger's and Farson (in Huseman, R.C. et. al. 1977, pp. 561-576) bring out the importance of active listening in interview situations. They emphasize that multiple messages can be transferred by the interviewer through spoken questions and responses to answers, body language and more attentive listening, such as respect for the individual, their views and feelings, and consideration for their background circumstances as well as showing interest or need for their information. Climates created by interview arrangements, settings, choice of words and voice in introductory remarks, statements and questions build willingness and confidence to give open answers, or not. Important for

the more open atmosphere is the absence of evaluation, criticism and moralizing, permitting growth of trust. Individuals will reach a point where they will share perceptions and appreciations of their strengths and weaknesses leading to suggestions for further action. Reinforcement through "reflective feedback" (or brief summaries of the interviewee's input of information, feelings, beliefs, attitudes and values) tends to defuse potential frustration and even anger resulting from evaluation data.

Risks for interviewers do exist in the Rogerian technique. Interviewees may persuade the interviewer to adopt or at least understand their point of view, with unforeseen consequences. Some interviewee expressions may be unacceptable for the organization or society, reflect clashes of personality, beliefs, values. They may cause defensive emotions in the interviewer which, if voiced, would undo the positive benefits to be gained from frank exchanges of view.

A major study completed in a life insurance organization discovered that supervisors with certain characteristics had company units with higher productivity ratings. These supervisors in comparison with those with lower productivity were less closely supervised themselves, checked production less, listened to employees more, placed less emphasis directly on production or goals, encouraged participatory decision making with subordinates more, trusted subordinates to fulfil role expectations more and informed them of the value of their efforts to the company more. The ramifications of the study for supervisors attitudes and practices in appraisals and their communications are obvious. (Survey Research Center, University of Michigan and Kahn, 1952).

CONCLUSION

Communications reflect philosophies, attitudes and relationships between individuals. More humanistic relationships and positive attitudes are expected to emerge from more frequent, frank, open-exchange discussions of evaluations of all dimensions of performance in business and education. More formal relationships and negative attitudes are the expected results of highly structured one-way-information transfer normally occurring annually or infrequently. With the emergence and growth of the philosophy of employee involvement in such management and labour cooperative enterprises as Quality Circles, or Organizational Development, the more authoritarian interviewer will soon need to change philosophy, management style and modes of communication. One of the highest priorities for the late 1980's will clearly be the evolution of more sophisticated techniques for evaluating the ways in which we communicate evaluation!

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USING THE ANALYTICAL MATRIX AS AN ORGANIZATIONAL STRATEGY

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ABSTRACT

The analytical matrix or grid is a heuristic device which allows all individuals involved in the writing for a publication to understand the contributions each must make. The high demand for quick organization can be met, accuracy can be obtained, and creativity enhanced by using the matrix in the planning stage. This paper provides an example of a matrix suitable for a collaborative project. Research of cognitive psychologists, reports from industry and results of a questionnaire help explain why the matrix is useful.

THE ANALYTICAL MATRIX: A HEURISTIC FOR COLLABORATIVE PUBLICATION

Heuristics are discovery devices that help individuals establish concepts. Some heuristic methods used for organization in publication are

1. the storyboard method--useful for information that has many possible sequences
2. the flow chart--useful for information that has linear progression and loops
3. the six questions: Who, What, When, Where, Why, and How--useful for journalistic information.

Young, Becker and Pike have researched another kind of heuristics based on particle, wave, field theory. Others have researched other methods. W. Ross Winterowd's book, Contemporary Rhetoric: A Conceptual Background With Readings, (New York: Harcourt, Brace, Jovanovich, 1975) is a book I recommend for further information on this subject.

The specific heuristic method I focus on here is the analytical matrix used to coordinate collaborative efforts directed at publication. The analytical matrix allows publication managers or editors to set apart key informational points which can then be juxtaposed, portrayed graphically and organized so that contributors can see at a glance what it will take to coordinate information and produce the published product.

Organization

The matrix is useful as an organizational strategy because it allows ideas to be laid out side by side in a sequence that may be easily arranged, juxtaposed, examined, eliminated, discussed and rearranged in various patterns and sequences. In many ways the analytical matrix is like the storyboard method. Its advantages over the storyboard is that the information in the matrix is contained in a smaller, fixed areas and, therefore, can be conveyed easily over the computer screen. A matrix format devised on a word processor is illustrated below.

¶	¶	¶	¶	¶	¶
¶	¶	¶	¶	¶	¶
¶	¶	¶	¶	¶	¶
¶	¶	¶	¶	¶	¶
¶	¶	¶	¶	¶	¶
¶	¶	¶	¶	¶	¶

Accuracy

Accuracy can be obtained if the matrix with its complete information block is routed to the contributors. A matrix containing partial information for a device description is illustrated below.

¶Components of Device ¶	¶	¶	¶	¶
¶Names of Contributors¶	¶	¶	¶	¶
¶	¶	¶	¶	¶
¶Page numbers	¶	¶	¶	¶
¶Key Terms	¶	¶	¶	¶
¶	¶	¶	¶	¶

Style

¶Titles	¶	¶	¶	¶	¶
¶Briefs	¶	¶	¶	¶	¶
¶Illustrations	¶	¶	¶	¶	¶
--size	¶	¶	¶	¶	¶
--kind, exploded	¶	¶	¶	¶	¶
--cutaway, internal	¶	¶	¶	¶	¶
--photograph, graphic	¶	¶	¶	¶	¶
¶Captions	¶	¶	¶	¶	¶

To be optimally useful the analytical matrix should allow ideas to be laid out on the grid used by all those working on the project.

Creativity Enhanced

The question to ask as one is working with these heuristic devices is 'Can people organize and discover what needs to be done without a conceptual framework?' As I have been researching this subject for the past eight years, the answer I find repeatedly is NO. However, the association between the conceptual frameworks or paradigms can also become a focal point. The world famous cosmologist, Dr. Stephen W. Hawking, examines the universe in terms of its contradictions, especially examining one theory in its relationship and inconsistency with another. As Hawking seeks, " . . . to understand how particle physics and gravity interact," the cognitive framework or paradigm he uses involves an examination not merely of the interactions but also the contradictions and the links among those contradiction. I refer to the "The Universe and Dr. Hawking," by Michael Harwood, The New York Times Magazine (January 23, 1983) pp.16-64. Lest I be accused of begging the question I will add a big Perhaps to the examination of creativity, or in using the analytical matrix as an organizational structure. Perhaps the juxtaposition of one matrix with another can help in creativity. The act of creativity whether within the big bang theory or in the small daily tasks of writing for a publication occur with such suddenness that difficulty exists in examining it, analyzing it, or in determining whether creativity has occurred at all.

Arthur Koestler in his study, The Act of Creation (London: Hutchinson, 1964), describes creation as the intersection of two disparate matrices. "Matrix" he defines a "any ability, habit, or skill, any pattern of ordered behavior governed by a 'code' of fixed rules." In Koestler's view, creation is "bisociative"; that is, the creator perceives "a situation or event in two habitually incompatible associative contexts" (Koestler, p.38.). The matrix is currently used at places like General Electric and Hughes Aircraft in a concrete form to aid the act of creation for collaboration. Koestler and others suggest why this matrix works, people in industries such as in General Electric report that it does.

I was alerted to the usefulness of the three dimensional matrix as a structure that can help put information into a meaningful form when cognitive psychologist, Guilford, used it to analyze human intellect. His cube is useful here in two ways. One, it provides a look at the way in which an abundance of information can be represented so that the ideas may be examined. Two, the information in Guilford's cube indicates the kinds of cognitive structures of the human mind. His analysis provides a basis of why we structure information the way we do. Another cognitive psychologist who examined how the human mind organizes information is L. S. Vygotski, a Russian psychologist who examined and identified some of the most basic organizational strategies. He reports that the first step is to sort "syncretic conglomerations" or heaps of information. The child, for example, when he begins to sort a group of various blocks into identifiable piles is using one of the most basic organizational strategies.

"The young child is taking his first step toward concept formation when he puts together a number of objects in an unorganized congeries, or 'heap,' in order to solve a problem that we adults would normally solve by forming a new concept." Thought and Language. Trans. E. Hanfmann and G. Vakar (Cambridge: M.I.T. Press, 1962), p.59.

Aleksandr Luria's research is also relevant. In his study of uneducated people from the valley and mountain villages of Fergana, Luria observed that at some stages these people would employ graphic thinking in order to describe a concept. Luria's subjects reconstructed graphic situations by describing to the questioner their own mental picture of what a situation was like when they could not give any other answer to the question of classification. For example, one man described his experience of being jiggled in a car rather than classifying the car.

Luria states:

Our research indicates that at a certain stage in development of cognitive processes, people do not employ verbal and logical methods to group objects but reconstruct graphic situations in which the later [logic] can function. Consequently, in this mode of thought [early development] the primary function of language is not to formulate abstractions and generalizations about categorical relationships but to revive suitable graphic, practical situations. Cognitive Development: Its Cultural and Social Foundation. Trans. Martin Lopez-Morillas and Lynn Solataroff, Ed. Michael Cole (Cambridge: Harvard Univ. Press, 1976), p.91.

The primitive stages of development or organization examined by these researchers provide us with reasons why graphic organizational methods are effective: they help us see the most basic forms for organizing concepts. Often these basic steps are helpful when working with a large number of people on a complex subject. The steps aid in categorizing information from basic to more complicated steps. The matrix also allows for evaluation as each step is completed. How it is used depends on the project and the contributors. The editor can easily check the written information against the matrix.

Let me provide an analogy. There's an expression that the best time to start a garden is last year. Planning the ground work for both gardens and publication is similar. Both the poor garden and the poor written product result from misplaced plantings. The information like seeds can get bottlenecked within the seeder or can get mixed up in the distribution. The analytical matrix provides a set of categories much like a garden plot that enables the gardener and helps distinguish the best location for areas. Weeds or other unwanted material can be more easily distinguished and plucked; useful material flourishes more readily, receiving the nutrients, it needs. Accuracy in identifying, labeling and supporting the desired material is more readily achieved. Careful organization, control and then further planning for other results can reap fresh cross-pollinated varieties, perhaps new and improved varieties that will lend to

fresh insights and benefits for all.

Many who have studied the processes of thinking, such as Jean Piaget and W.G. Perry, indicate that people develop as thinkers in different phases that increase in complexity. We, as editors, writers, consultants, teachers can best allow for different phases of complexity by supplying models, paradigms, matrices or other structures that make the task of thinking and writing more simplified. If individual writers are sufficiently organized to perform a written task after a conference with the publications manager or editor then no matrix is needed; however, usually increased numbers of people working on a project, increased complexity of the product itself, calls for increased organization, to ensure accuracy and insight. These qualities are ensured if some written structure is provided so that all contributors know what is expected and know also what the guidelines are. For the experienced writer and gardener no plan need be provided for the experienced carry with them their own paradigms unless ofcourse the structure of the ground work has changed so drastically that the experienced need to provide new plans.

Our study on writer-editor relationships suggests that interpersonal relationships improve if both the writers and editors collaborate early in the assignment. The analytical matrix is one strategy that can be used in helping to enhance collaborative efforts. Other strategies that can be used in early collaboration are the work allotment flowcharts to schedule the progression of work so that each person can see the steps that must be taken to complete the project, the storyboard method involving brainstorming, using cards or two-page spreads or models to figure the progression of ideas and the ideas themselves.

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THE CASE FOR CONSULTING

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ABSTRACT

Consulting offers teachers of business and technical writing an excellent route for gaining expertise in their subject. It should be regarded as professional development rather than conducted surreptitiously as an unofficial extracurricular activity.

THE PROBLEM

Why do some traditional administrators in Canadian one- and two-year colleges view consulting by their teachers as "moonlighting"? And why do some also seem to think that teachers who do consult must be watering down their teaching because they devote so much of their energy to conducting private business? How can we effectively reach such administrators and prove to them that consulting often is the only route available for teachers of business and technical communication who want to increase their expertise in current communications practices?

The administrators' views can be rationalized, for either they cannot overtly encourage their teachers to "moonlight" or they have had bitter experience of a teacher whose outside activities have far exceeded what could be classified as "experiential consulting"; a teacher who could rarely be found in the college, who frequently missed or cancelled classes, and, even when he or she was present, tended to monopolize the department's telephone, using it as a private business line. Unfortunately, such experiences have blurred the positive effects of consulting, so that college administrators now find it difficult to do other than cast a jaundiced eye on those of us who consult as a means for developing our subject knowledge.

Surprisingly, this negative view of consulting is held not only by administrators. Recently the administration of a midwestern province's community colleges appointed an ad hoc committee, composed almost entirely

of instructors, who were charged with identifying the staff's views of what "staff development" should comprise. The committee, in turn, called for recommendations from all teaching departments. The communications department at one college listed "Consulting" as one of its primary recommendations and added a corollary that consulting should be recognized as cost-free professional development. But the committee was literally horrified at the suggestion and, although a member from the communications department fought eloquently and tenaciously to have it listed, the committee refused by a strong vote even to consider it.

Teachers at colleges which are part of a provincial government's education system face an additional problem. As civil servants they must not take part in any activity which can be construed as a conflict of interest, or do any work--at least during business hours--for which they are paid. Thus teachers who want to consult are thwarted immediately. If, for example, a client asks a teacher to present a short in-house writing course for staff members, the teacher is placed in an impossible position. Presumably he or she should reply:

"I can present the course for you in the evenings or on Saturday mornings if you like, for \$XXX. But if you want it presented during the normal workday I'll have to do it for you free of charge."

With so many inhibitions and constraints it is surprising that any communications teachers do consulting. Yet they are out there.

STEPS TOWARD A SOLUTION

We cannot expect college administrators to change their views just to convenience us, because they are required to work according to terms of reference established at a much higher level and for a much broader spectrum of employees than only instructors. Even if they do sympathize with our predicament they are unlikely to approach the hierarchy and ask for a change on our behalf for fear they may be setting a precedent. A change in attitude will occur only if we make a concerted effort to demonstrate both to them and senior administrators that consulting is an important means for acquiring expertise in the topics we teach.

We have to demonstrate that, if we are to empathize with our students, we must not only be fully aware of business's and industry's requirements, but also have experienced the pain of writing a comprehensive report under a tight schedule. We need to have felt the constraints placed upon business administrators, engineers, technologists, and marketing specialists when they write in a working environment, we need to have worked for a supervisor who "edits the hell" out of our precious prose, and we need to have experienced both hand-writing a draft report and typing it directly into a word processor.

Although each summer some excellent courses on the teaching of technical writing are offered by a limited number of educational institutions

(such as Rensselaer Polytechnic Institute, the University of Michigan, and the University of Minnesota), they still are unable to provide what I consider to be an essential ingredient: first-hand experience of writing in a real-world work environment. And their cost can be an additional impediment in an era of cost-conscious travel budgets.

Consequently I am convinced we have to generate a groundswell of opinion which will persuade college administrations that the benefits of consulting far outweigh the disadvantages some of them currently perceive. The benefits are significant:

1. Consulting exerts no pressure on the professional development budget; indeed, from the college's viewpoint it is a cost-free activity.
2. Teachers who consult not only become more knowledgeable but also can gain an immense fund of practical ideas from which to create realistic classroom assignments.
3. Professional consulting carried out by a college's teachers can enhance the college's reputation in the business community.

CONCLUSION

Our objective should be to encourage college administrations across the country to recognize that, for teachers of business and technical communication, consulting is a legitimate form of professional development; that where books, courses, and seminars teach what to do and partly how to do it, consulting forces teachers really to do it.

* * *

(I realize that many teachers attending our panel session will be seeking advice on how to start into consulting rather than a treatise on why they should consult. Although I have chosen not to address the "how" in these notes--primarily because I have written about it twice recently^{1,2} and a new book on consulting published by the American Business Communication Association is now in print³--I will make copies of my previous papers available and will expect to address the topic during the session.)

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In addition to teaching technical communication at Red River Community College and running his own low-profile consulting business, Ron Blicq is Education Chairman of the Professional Communication Society of the Institute of Electrical and Electronics Engineers Inc (IEEE) and has written four books and two correspondence courses on technical and business communication.

BUSINESS COMMUNICATIONS MANAGEMENT
- A NEW PROGRAM PROPOSAL

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ABSTRACT

A proposed Business Communications Management diploma program at Mohawk College in Hamilton, Ontario, has received enthusiastic endorsement from executives. The three-year program is designed to provide college graduates for the increasing demand by management for professionals with the ability to gather, shape, and present company information in clear, concise English. Consequently, its curriculum places heavy emphasis on the development of English Language skills and on subjects that will enable the graduate to feel comfortable discussing law, finance, economics and marketing with specialists. Field work during the course is an essential ingredient.

The idea for a 'Business Communications Management' diploma program came to us three years ago. Jack Frëiburger, a colleague of mine, had been presenting a series of weekend Business Communications seminars for people in junior and middle management. The response was so enthusiastic that Jack thought we should develop a 3-year diploma program for full-time undergraduates.

Jack and I set to work to design a course of study that would graduate students as "communications facilitators". The proposed program, now awaiting ministry approval, is unique in Ontario and quite possibly in Canada. We knew that senior executives were desperately seeking graduates who possessed well-developed English language skills--people who could write and speak with precision and clarity. Executives had been telling us that the greatest weakness of any graduate today is the inability to communicate and to originate and interpret information.

If our program were to be successful we must produce graduates who could communicate comfortably with specialists. They wouldn't have all the answers but they would feel confident to discourse with and to write to and for specialists in widely diverse fields: economics, finance, marketing, law, corporate structure, labour-management relations and government affairs.

Sounds like a tall order? It is not really that complex. The key is to provide graduates with considerable experience in writing and communicating effectively in English. The solid core of the program emphasizes language skills. The other courses provide introductions to diverse disciplines so

that the graduate will feel competent. But executives assure us that this specialist knowledge will be learned easily on the job.

If our program proposal is approved, we shall be producing our first crop of graduates in the spring of 1988.

FIELD PLACEMENT A MUST

Our primary aim is to produce graduates who will be talented users of the English language but it is very important that they possess practical experience. This will come from field training during the program. Results of a questionnaire to chief executive officers showed us that field placement is all-important. It is the translation of theory into practice. We have been urged to make constant referral during courses to real-life situations. Executives comment that many students lack general knowledge information and find it difficult to translate classroom theory into practice.

Consequently, you will notice Field Placement I and Field Placement II during semesters four and five of the program of study. Each field placement will be for a period of seven weeks.

PROGRAM OF STUDY

<u>Semester One</u>	<u>hours/wk</u>	<u>Semester Two</u>	<u>hours/wk</u>
Language Studies I	4	Finance for the Non-	
Introduction to Public		Financial Manager	3
Relations	4	Human Relations	4
Marketing	4	Effective Speech	4
Research Techniques I	6	Report Writing I	4
Leisure Education	2	Language Studies II	4
Typing and Word Processing	3	Graphics	4
Media Study	4	Introduction to Data	
		Processing	4
	<hr/>		<hr/>
	27		27
 <u>Semester Three</u>	 <u>hours/wk</u>	 <u>Semester Four</u>	 <u>hours/wk</u>
Writing Lab I	6	Writing Lab II	6
Business Organization	3	Effective Speech and	
Research Techniques II	4	Audio Visual Project	4
Communications Law	4	Television & Radio Study	4
Economics for Non-		Field Placement I	
Economics Managers	3		
General Education			
Elective	3		
	<hr/>		<hr/>
	27		Placement + 14

[illegible]

During semesters four and five when field placement is seven weeks, course hours will be doubled.

CAREER OPPORTUNITIES

I have referred to the questionnaire to chief executive officers. In this questionnaire, we asked where our graduates would be most useful and the following were ranked as most important: executive assistance, report editing, monthly and year-end report writing, inter-departmental communication, internal publication writing, format design of company literature, consumer issue management, corporate liaison with various publics and communication training.

In reply to another question, the majority of executives could foresee our graduates working in general administration, sales and marketing, personnel, information and public affairs departments.

MAILING TO CHIEF EXECUTIVE OFFICERS
AND THEIR RESPONSE

Once the program was developed we were advised by the representative from the Ministry of Colleges and Universities to obtain an estimate of the placement potential for our graduates. This input would come from officers in corporations where the graduates would expect to find employment. Consequently, we sent a mailing to chief executive officers in business and industry, government agencies, health services, professional and trade associations or boards representing a wide variety of organizations within the greater Hamilton and Toronto areas.

We asked the executives to examine the program of study and to complete the brief questionnaire. We knew it was important to assure them that their companies would be under no obligation resulting from any positive statements that they made regarding the proposed program's validity.

QUESTIONNAIRE

NAME: _____ POSITION: _____

COMPANY: _____

Please complete and return, using the enclosed stamped, self-addressed envelope.

1. If you were assessing a communications generalist for your company, in which order of importance would you consider the following content specialization to be most useful?
 - () Excellent writing, speaking and presentation skills?
 - () An appreciation of corporate dynamics and governmental liaison?
 - () Ability to help technical and administrative personnel to originate and disseminate information?
2. In which of the following areas would a communications generalist be of most use within your company? Please check one or more in order of importance.

- | | |
|--|--|
| _____ executive assistance | _____ report editing |
| _____ corporate liaison with various publics | _____ design of audio-visual aids |
| _____ government regulation interpretation | _____ monthly & year-end report writing |
| _____ consumer issue management | _____ meeting co-ordination |
| _____ inter-departmental communication | _____ co-ordination of labour management communication |
| _____ advertising liaison | _____ communication training |
| _____ format design of company literature | _____ internal publication writing |
| _____ speech writing | _____ other (please specify) |
| | |
| | |
| | |

3. In which departments of your company would a communications generalist with the skills indicated above be of most use?

_____ production	_____ public relations
_____ sales	_____ purchasing
_____ marketing	_____ security
_____ accounting	_____ consumer relations
_____ personnel	_____ engineering
_____ research and development	_____ maintenance
_____ traffic	_____ other (please specify)

4. Please estimate the possibility of employment opportunities for a communications generalist in the foreseeable future. (Economic conditions permitting).

_____ EXCELLENT _____ GOOD _____ FAIR _____ POOR

5. Do you have any questions or comments about the proposed program?

The response to the questionnaire was enthusiastic. I have already touched upon answers to questions 2 and 3. From the standpoint of gaining acceptance of our program we were interested especially in question 4 dealing with placement potential. From a mailing to 450 chief executive officers of leading Ontario organizations, we have received 162 replies. Of these, 74 or almost 50 percent rated the likelihood of hiring graduates as "FAIR". Another 41 rated the possibility of hiring as "GOOD" and 3 rated the possibility as "EXCELLENT". Only 44 out of 162 rated the likelihood of employment as "POOR" and the majority of these were in a position where company hiring was at a temporary standstill.

We expected that a general mood of caution would prevail because of economic conditions. It was delightfully surprising, therefore, to find such a high level of enthusiasm and optimism. Many well-known executives from leading corporations replied in detail. We were amazed by the amount of attention given to the proposal and by the detailed, thoughtful answers.

In reply to question 1, almost all of the respondents emphasized the enormous need for recruitment of persons with excellent writing, speaking and presentation skills. They listed this as most important and basic, even though the other abilities as listed are extremely important.

In their comments many executives, as I have previously noted, expressed the importance of field placements during the program to ensure that the graduates would have the practical experience to complement and strengthen their academic achievement.

Also in their comments, executives generally agreed that the design and content of the course were impressive and that students attaining the skills described would have an advantage when competing for a position. Moreover, they emphasized that the graduates' training would improve their opportunities for advancement.

A number of executives singled out the following courses as exceptionally good topics: Language Studies, Report Writing, Effective Speech, Data Processing/Word Processing, Finance for Non-Financial Managers, Economics for Non-Economics Managers, Human Relations, Business Organization and Public Issues Research and Forecasting.

Executives emphasized, as I have noted already, that the program should place even more emphasis on language and writing because the other subjects can be learned fairly easily on the job. Many feel that the level of English usage has declined. One executive predicted that many replies would note the prospects for employment "FAIR" only because the need for such skills would not be recognized by most people whose own standards are low.

I assure you that all of the constructive criticisms will be carefully considered and incorporated where feasible.

ADMISSION REQUIREMENTS

Candidates for the program will write a series of literacy tests and will appear for personal interviews. They must possess an Ontario Secondary School Graduation Diploma and show outstanding performance in English courses at the senior and advanced levels. We estimate that the market can absorb only 15 graduates per annum. Allowing for attrition we will accept 25 new candidates in first year.

AWAITING APPROVAL

The program has been submitted for approval and we are anxiously awaiting the decision of the Council of Regents, the governing body of the Colleges of Applied Arts and Technology in Ontario. I might say that the development of the program involved careful research and countless revisions. In this demanding task, Jack and I received valuable advisory assistance from executives from business and government organizations.

The program had been ready for mailing to chief executives for their comments for some time. We held the mailing until the country's economy showed some improvement. I think our decision to wait was worthwhile. It was frustrating to prolong the potential starting date of the program, but to mail the questionnaire during a period when so many companies were laying

off employees would have forced officers to respond in a much less positive way.

Quite aside from the positive response from executives, here is another factor that tends to favour acceptance of our program by the Council of Regents. We will be able to mount the program utilizing existing human and physical resources. Instructor talent from Language Studies, Business and Media Studies departments within the college will cover most of the courses. I think it would be advisable, however, to bring in experts from business and industry to teach all or portions of very specialized courses such as Public Issues Research and Forecasting, Canadian Government-Structure and Policy and perhaps several others.

In addition to the instructor talent, the college has computer, word processing equipment, newsroom, radio station, television studio and advertising department facilities available.

This program that has generated so much excitement is ready to go once we have Council of Regents' approval. When and if that happens, we'll start work in earnest to meet that starting date of September, 1985.

Donald H. Brennagh received a Bachelor of Arts degree in General Arts from McMaster University, Hamilton, Ontario in 1951. He had seventeen years of experience as a newswriter, copywriter and advertising executive with major agencies and corporations before joining Mohawk College of Applied Arts and Technology in 1968. He was appointed Head of the Language Studies Section in 1974.

BUSINESS COMMUNICATION AND ENGLISH AS A SECOND LANGUAGE

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ABSTRACT

Educating non-native speakers in business communication requires a recognition of difficulties English presents to second language learners. This paper explores some strategies for more effective communication in the areas of written and spoken English and oral presentations. Many of the materials commercially available for technical communication courses can be supplemented to better serve the non-native speaker. Effective short courses can be designed to meet the needs of foreign business students and professionals in Canada for training.

INTRODUCTION

In recent years there has been an increase in the number of foreign professionals who are sent to North America on business. In addition, there are executives who come to Canada for various periods of time to participate in training programs. There are also foreign students enrolled in specialized programs in universities and community colleges who intend to return to their countries upon acquiring management skills. Each of these groups has certain needs in common. Not only do these people face the same communication concerns as the English-speaking business executive or student, but these individuals are also confronted with a language problem. Despite the fact that most of the members of these groups will have had a considerable amount of English instruction in their own countries (e.g., a university student must have passed TOEFL or equivalent to attend university here) they will still encounter difficulties specifically related to business communication.

The English taught in standard ESL programs is either oriented to grammar and literature or is geared towards oral communicative competence since it is usually intended to serve the needs of a broad spectrum of students. However, English for Special Purposes (ESP) programs have recently been introduced. These programs have been established in order to offer the specialized language required for a variety of fields (e.g., petroleum engineering, medicine, aviation technology). Just as communication courses are recognized as necessary components in the education of Canadian management

personnel, specialized ESL courses dealing with business communication are essential to the foreign executive who wishes to function more effectively in North America.

As well as the standard curriculum in courses designed for native speakers, such as syntax, style, North American business correspondence format, and oral presentations, the foreigner requires additional ESL instruction pertaining to these areas. Certain aspects of communication that can be assumed in courses for native speakers must be explicitly addressed for the non-native, for example, pronunciation, register or degree of formality, and North American business etiquette.

WRITTEN ENGLISH

In teaching business communication to the non-native speaker (NNS), the instructor should be aware of some problem areas. One might assume that the student would be lacking the technical terms related to his field. In fact, often this specialized vocabulary is familiar to students, either because the English words have been borrowed into their languages, or they have previously encountered them in business. Therefore, despite occasional gaps, the student will likely be familiar with the jargon of his field.

There are, however, a number of syntactic constructions in English which do present difficulties. The expression of cause and effect relations, space and time, logical relations, properties, definitions, assumptions, and superordinate-subordinate relationships are all problematic to the NNS. For example, the if-then construction ("If there is a merger of companies X and Y, then company Z is likely to be forced into receivership.") must be explicitly taught as a logical sequence. In recent years a number of ESP textbooks have appeared, many of which address the aforementioned constructions which are most commonly encountered in professional writing (e.g., English for Careers Series, Nucleus Series, Writing Scientific English, etc.). Although these books are directed to specific professions, the linguistic phenomena they address are equally important to middle and upper level management in any commercial enterprise.

On the other hand, the kinds of constructions emphasized in traditional English classes need not necessarily be the focus in an NNS business communication class, depending on the ESL background of the students. Often, executives from other countries have had intensive instruction in written English and lack mainly an appreciation of the distinction between technical writing and other forms of written and spoken English. Screening is an effective way to identify the grammatical needs of individuals.

North American technical writing tends to be concise, and is often perceived as stark by the NNS. However, the student must adhere to the conventions appropriate to this style if his writing is to be well received. In addition, the principles of organizing

a written report are just as important to the NNS as they are to the North American student. Further, the notions of simplicity and clarity must be emphasized, since writing styles in the first language may be radically different. Circumlocution, hyperbole, overuse of metaphor, and obfuscation are typical faults found in the English writing of non-native speakers.

Non-native speakers consistently exhibit a lack of facility with sentence transitions which serve to clarify relations and interconnect statements. Connecting terms such as however, thus, therefore, alternatively, in contrast to, etc. are either misused or not used at all. Students need practice in both the comprehension and use of these terms. They must also be taught that the effective use of examples will make a written report or correspondence more easily understood.

North American conventions of written correspondence, such as salutations, differ from those of other cultures. These differences must be explicitly pointed out to the NNS to ensure that he will not rely on his first language habits. Numerous examples of forms appropriate for differing degrees of formality (dependent upon the purpose of the correspondence and the familiarity with the recipient) should be provided as models.

SPOKEN ENGLISH

Many foreign professionals may have a good grasp of English but in many cases, this competence will have been acquired from books. For this reason, their speech may often sound stilted, as if they were speaking in a written register. Cultural factors may also affect the tone of spoken English due to differences in formality (Condon & Yousef, 1975). Oriental societies, for instance, tend to use very formal registers in conducting business. Some cultures value speech that is considered rather flowery by North American standards (e.g., Hindi speakers). Another characteristic of certain cultures is subtlety in speech, a quality North Americans often perceive as undesirable. Just as North Americans have been cautioned to be less direct in their speech in foreign countries, non-native speakers must learn to take the opposite approach here.

It would be worthwhile in any training program to devote a segment of the course to North American idiosyncrasies. The instructor should familiarize students with standard greetings and appropriate responses (e.g., "How are you?" should not elicit a medical report). Executives should be informed that first names are used much more frequently than titles here and it is not uncommon for subordinates to address their superiors by their first names. In any interaction, eye contact is very important to North Americans, as is an optimum distance between individuals in a conversation (Goffman, 1973). Non-native speakers should be made to understand that in a conversation North Americans tend to listen quietly, using phatic devices such as nodding and saying "uh-huh". It is acceptable to interrupt occasionally with related points or

requests for clarification, but for the most part the listener remains silent until the speaker has finished.

A very sensitive area that should be discussed in a communication class is the value that North Americans place on certain aspects of personal appearance. Some of these are less obvious than dress codes and yet can have far greater impact. Table manners, personal hygiene, and conventions concerning coughing, sneezing, etc. should be explained in detail.

Appropriate conduct in social situations is another important aspect of business that can differ from culture to culture. Awkward situations for foreign visitors frequently arise at business lunches. Guidelines should be provided, for example, as to the etiquette of who orders, how to avoid alcohol if so desired, and who pays. Students may not even be aware that an invitation to "go for coffee" or "go for lunch" may more often than not be an invitation to discuss business.

ORAL PRESENTATIONS

In the non-native speaker's mind, the most formidable problem when delivering an oral presentation is a foreign accent. However, an accent need not be unduly distracting for an audience; a number of factors contribute to the relative acceptability of an individual's speech. The foremost of these is the language background of the student. In general, European accents are more easily understood by English speakers than accents from other languages. It is far more difficult for the North American ear to adjust to accents which alter English intonation and stress patterns significantly (e.g., Cantonese or Japanese). It is an extremely common misconception that pronunciation will improve significantly with extensive drill training on individual sound segments. Factors that confound far more than mispronunciation of individual sounds are stress, intonation, and disfluency (cf. Brazil, 1980; Smyth). In particular, long pauses, false starts, repetitions, and unfinished sentences are excruciatingly distracting to an audience. A training program for foreign executives would do well to include a component which centres on improving fluency. Special attention should be paid to developing sensitivity to the intrinsic rhythm of English, something that is taken for granted in a rhetoric or speech class designed for native speakers.

In order to minimize any negative effects an accent may have, the NNS should be very well-prepared for oral presentations. It is advisable for an NNS to write his speech in full, read it through a number of times and then prepare cue cards for the actual presentation. It is especially important for the foreign executive to prepare in such detail because familiarity with the text will promote fluency.

Other strategies for ensuring the effectiveness of oral presentations by non-native speakers are not necessarily language-

related. Extensive reliance on visual materials can help compensate for difficulties that the NNS may experience. Many foreign businessmen may have had little practical exposure to visual aids and therefore would benefit from intensive direction in this area. The North Americans' concern for punctuality and effective use of time must also be recognized in giving an oral presentation. An audience-centred approach (cf. Skopec, 1982) is especially important for the NNS because there is often an assumption that the foreigner will not be aware of local concerns. All of these strategies assume a rigorous organization, surely the most vital aspect of any oral presentation.

SUMMARY

There is a growing population of foreign students who require specialized instruction in business communication. Because of cultural differences and certain linguistic problems, an ESL component must be added to communication programs for foreign executives to ensure more effective interaction in North America. In-plant courses, community college programs, and courses in foreign countries should be established to meet the needs of these professionals.

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WRITING FOR PROFESSIONAL PUBLICATION

Donna Lee Dowdney, Ph.D.
President, Writing Enterprises International

ABSTRACT

When you write articles for publication, you must consider not only the topic you want to write about, but you must also analyze the potential readers and publications. To write effectively, you will need to use a writing process that will carry you from the initial idea to final publication. The writing/marketing process we have developed includes:

- . Selecting a topic, audience, and publication
- . Organizing ideas into a framework
- . Sending query letters to editors
- . Writing and revising the manuscript

We developed three tools to aid people in the writing/marketing process: (1) a Writer's Strategy Form; (2) a Publication Analysis Form; and (3) a Marketing Analysis Form.

WRITING FOR PROFESSIONAL PUBLICATION

Why Write for Publication?

People write for professional publication for a variety of reasons. Some write to communicate ideas to their colleagues and to inform others about new technologies, procedures, or practices. Some write because writing helps clarify feelings and ideas and gives deep personal satisfaction. Others write because they want people to recognize them or their company, product, or service. Academia frequently requires that faculty "publish or perish".

For whatever reason you write, you must keep the readers' needs and interests paramount. People read professional publications to hear about new developments, concepts and approaches. They want to become better informed through new interpretations and opinions. They want to learn how to be more effective professionally and are curious about new professional activities, products, and services. Whatever you write should meet your readers' interests and needs.

Types of Articles and Organizing Frameworks

Several types of articles and organizational frameworks are possible to use. You might want to describe a new technological development by including its benefits, providing documentation, and stating conclusions. You might want to present a new application of an existing product, service, system, or concept or to document

research by presenting an abstract, introduction, conditions of research, work performed, findings, proposed follow up, and summary.

Another format could show people how to do something by using questions and answers and a discussion of developing a process. News stories about how you solved a problem will interest colleagues concerned about similar problems. A simple organizing framework is introduction/body/conclusion. A management framework may use Lewin's change model of unfreeze/move/refreeze. Cause and effect, issue/solution, chronology, description, theory/practice, pro/con, or assess/plan/implement/evaluate are all possible organizing frameworks.

You can take the same article idea and re-work it in other formats to produce new articles. You can also re-slant the topic for various audiences. For example, I frequently write about software testing. The April 1983 issue of Computer Dealer published my article about the benefits of software testing. The article indicated the types of software errors requiring testing, qualities of good software, and testing techniques. My article in the December 1983 issue of Software Times dealt with an industry issue of whether it is time for software standards. The article profiles one independent software testing company. Another article, appearing in the February 1984 issue of Small Business Computers, deals with evaluating independent companies giving buyers unbiased software standards. It deals with concerns business people have about selecting computer software. Inflight will publish my article dealing with ways consumers can select tested software. Other articles present techniques of software testing, how "bugs" are caught, software approval seals, and testing graphic standards for software. There are endless ways to deal with topics through varying the theme, audience, and needs of publications.

A Writer's Strategy Form will help you, whether you write about business, management, travel, or computers. This tool simply involves filling in the blanks and will help you focus on your subject, audience, purpose, and market. The Writer's Strategy Form states: "I intend to write a (type of article) about (brief statement of subject) for (brief description of audience) to (convince, inform, inspire) them about the (status or need for something)." Then add one more sentence: "It would be appropriate to publish this in the following journals or publications:" (List the publications).

Marketing the Manuscript

In planning to market your manuscript, you must read the publications in which you would like to see your article appear. A good practice is to read several previous issues of the publication to see if your topic or a related topic has been dealt with and if so, how it was presented. A Publication Analysis Form will help you analyze publications through focusing on length and type of article, number and kind of quotations, presentation of statistics, use of headings, point of view, average sentence and paragraph length, transitions used, existence of charts/graphs/photographs, and type of documentation or references.

To find out which publications to review, consult the following reference sources:

- . Writer's Market (use only the current year)
- . Literary Marketplace
- . Ulrich's Periodical Directory
- . Ayer's Directory of Publications
- . Business Publication Rates and Data

After you have selected several publications, prepare the "Marketing Analysis Form" indicating the name and address of the publication, the editor, circulation, and payment. Request "Writer's Guidelines" and sample issues from the publisher. Then design a query letter to the editor.

The Query Letter

The query letter answers the following questions about your article: What? Where? When? Why? Who? How? What is the article about? How will you approach the information? How are the reader's needs and editorial policies addressed? Is the content important to the audience? Why are you qualified to write the article?

You may send several query letters at one time to determine interest in your article. (However, send your article to only one publisher at a time.) Keep good records of your query letters and manuscripts. Indicate the date sent, the response of the editor, and other relevant information. If an article is rejected, examine the reasons for rejection to determine if you should make changes in the manuscript, or if it is simply inappropriate for the publication.

Your published articles will show that you have understood the writing/marketing process in your selection of topic, reader, and publication. It will reveal that you have organized your ideas into a workable framework, analyzed potential publications, and have effectively written and revised your manuscript.

Donna Lee Dowdney, Ph.D., is president of Writing Enterprises International, a Palo Alto, California business communications consulting firm. Over forty of her articles have appeared in publications as diverse as Small Business Computers, Computer Dealer, Software Times, IBM Palo Alto Newsletter, Silicon Valley Tech News, Writer's Connection, Glass Digest, California Highway Patrolman, Decision, and Nursing at Stanford. She teaches "Writing for Professional Publication", "Writing for Managers" and "Writing for Support Personnel" at Stanford University Medical Center. She also writes manuals for high technology companies, various healthcare institutions and management consulting firms.

TECHNICAL WRITING IN BRITISH COLUMBIA

Diane Forsyth, Spicer Communications Group, Inc.

ABSTRACT

Technical writing, long established in the United States and Eastern Canada, has only recently emerged in British Columbia as an identifiable career choice. This is then, an opportune time to address some of the key concerns of technical writers and their employers. What is a technical writer? In view of the absence of a certified program for technical writing in British Columbia, what are the alternative possibilities for developing technical communication skills? What job opportunities exist in this province, and of what benefit to an organization is a technical writer?

INTRODUCTION

Much of the material in this paper is the culmination of an effort to write a job description for a technical writer in the computer division of the B.C. Hydro and Power Authority. To this end, I discussed theoretical and practical points with management and fellow employees in defining the duties, the responsibilities, and the formal education required for the position. The views presented are a synthesis of four years of this information gathering.

WHAT IS A TECHNICAL WRITER?

In a guest editorial for Technical Communication, the journal of the Society for Technical Communication, Richard Meyers uses an interesting approach in tackling this question by emphasising the parts of the job title: TECHNICAL WRITER, TECHNICAL writer, and technical WRITER. A TECHNICAL WRITER is one who effectively combines a thorough technical background in a scientific field with excellent writing skills. This, perhaps more than a definition, is the goal of anyone aspiring to be a top (or superhuman) technical writer. The TECHNICAL WRITER can be an elusive animal, with the TECHNICAL writer or technical WRITER being more the norm.

Technical writing has been a career in the United States for at least 40 years. In British Columbia where a real interest in technical communication has only recently surfaced, a TECHNICAL writer is often what is initially used to handle the documentation task. A TECHNICAL writer is usually first and foremost a trained technician who has been assigned documentation duties in addition to the regular technical work. This is not always a satisfactory arrangement for producing readable user's manuals, bulletins, newsletters, and operations procedures. Using a technician as a part-time writer can cause more problems than are being solved.

- For the employee forced to document technical information, this can be a frustrating experience. Not possessing the skills for the documentation process (research, writing, proof-reading, and editing), can quickly lead to job dissatisfaction. Time spent writing detracts from efforts normally exerted doing what they do best, technical work.
- For the employer managing technical staff members, there is the risk of losing valuable employees who feel they are not being allowed to do what they were originally hired for.

Also, either because of budgetary constraints or through lack of knowledge about what a technical writer does, the employer is missing out on one of the benefits of a professional technical writer. A technical writer, in addition to organising technical material, should be more broadly involved in the corporate communications planning function. This is the blueprinting and implementing of a plan which coordinates the internal and external information of a company as part of an overall corporate strategy.

At the other extreme, is the trained writer with a scanty or otherwise less than acceptable technical background. There are repercussions both positive and negative, in having a technical WRITER on staff. This person has at least the devotion to the craft of writing and the ability to cope with communication problems. As well, a technical WRITER can view complex technical subjects with the inquiring naivety of the non-technician, and this in many cases is the target audience for the information.

There is a drawback though in that the time of highly-paid technicians can be wasted explaining basic concepts to the writer. Ultimately the writer may well be faced with a demoralising lack of acceptance from technical personnel and management in promoting their professional credentials. In a predominantly technical environment, even with an increasing awareness of the necessity of coherent documentation, the

intangible benefits of good communication can be relegated to a lower status than technical expertise.

Clearly, there is an answer, from an employer's perspective, to overcome these difficulties. Hire only the TECHNICAL WRITER. But how, in a province where there is no formal program for technical communication, do we ensure there is an adequate supply of well-prepared and qualified persons for technical writing positions?

TECHNICAL WRITING TRAINING

As noted, there is no certified program in British Columbia for turning out the TECHNICAL WRITER. In proposing alternatives to a formal education program, I think it is worthwhile to briefly examine what is in place in the United States in their post-secondary education system, for training writers for industry.

Technical communication programs in American colleges and universities typically merge a comprehensive background in English language usage with a specific technical area, for example, engineering, data processing, or medicine. A handful of the many programs are -

- Rensselaer Polytechnic Institute in Troy, New York which offers a doctoral program in Communication and Rhetoric, and an M.S. in Technical Writing;
- Michigan Technological University which has a Bachelor of Science in Scientific and Technical Communication; and
- Oklahoma State University which grants undergraduate and graduate degrees with a major/emphasis in Technical Writing.

Not to overlook Canadian programs, the Saskatchewan Technical Institute in Moose Jaw has one and one-half to two-year diploma courses in Technical Communication. Here, communication in the technical world is stressed much more than in many other Canadian technical institutes. When the time comes to develop such a program in British Columbia, there are obviously numerous models to work with. However, what can be done locally until that time?

In-House Training

An employee displaying natural writing abilities and expressing an interest in technical writing often has the potential to be a competent technical writer. For a company unable, for

economic reasons, to hire an outside writer, this can be a reasonable path to follow. The ideal situation occurs when the company has an in-house technical publications department. If this is the case, the editor or manager of that department can provide the necessary tutoring to mold the aspiring writer. If there is no publications department, Human Resources or Manpower Planning sections can promote in-house audio-visual courses, classroom courses, or private consultants.

This can be a slow process, but there is an advantage to this method in that the fledgling writer from inside the organization has first-hand knowledge of the policies, procedures, and needs of the company. The drawback is that the trainee writer could be deficient in the formal background required for doing solid research work, a difficult task to learn on-the-job.

Formal Education in Liberal Arts or Sciences

The liberal arts graduate, rich in research and writing skills, is often an overlooked resource for the technical writing function. Many technically-oriented companies are reluctant to hire anyone with such a background, but these people have much to offer. In addition to the research and writing skills already mentioned, this person can bring to any job a much-needed discipline, and ability to see a job or assignment to completion. Companies can set up a training and upgrading process for this particular individual consisting of the necessary technical and business courses.

Similarly, a company could hire a person with a technology diploma or science degree and supplement this with a selection of communication skills and writing courses. There is always the danger though, that this person will eventually decide their true vocation lies in the technical area, and the company will be again, without a technical writer.

With no formal program provincially, it often does fall on the companies in the business and technical environment to spend time and money training their own technical writers. It seems a small price though, for clear and coherent documentation. If technical writing has consciously been chosen as a career path, and a person has attained the technical/writing background, is there a job market in British Columbia for these particular skills?

TECHNICAL WRITING JOBS

With technical writing being a new field in British Columbia, there is unfortunately not always a strong awareness of the need for the skill within an organization. Further,

if you were to browse through a local newspaper in the careers classified ads, the term 'technical writer' is not always directly used, even if that is what a prospective employer is seeking. The true nature of the job - writing - is disguised to an extent, with technically derived titles: systems analyst, computer development specialist, documentation analyst, and documentation specialist, rather than simply, technical writer. It can take some scrutinising to determine if certain jobs are primarily technical, or ones in which writing is indeed the prime activity. If the following requirements are included in the ad, more than likely you are looking at a technical writing position:

- ability to communicate, both verbally and in writing,
- ability to write, proof-read, and edit documentation, and
- ability to apply research skills.

Currently, technical writers in British Columbia are employed in the computer divisions of major educational institutions, government, and to a lesser extent, private industry. Many technical writers are finding there are increasingly more opportunities in the free-lance field. This is due to the micro-computer 'explosion'. There would appear to be no great shortage of software developers and writers, but the accompanying user's manuals and instructions, are frequently the downfall of new products when they reach the marketplace. As a result, software development firms are turning to technical writers as a welcome addition to their staff, either on a permanent or free-lance basis. The need for competent technical writers is increasing as computer technology is available to more and more people.

Why Technical Writers?

To put it succinctly, businesses can no longer afford to live with poor or inadequate documentation. The technical writer serves an invaluable staff function in being trained and enthusiastic for the job, thereby leaving the technicians free to pursue their own interests. Technical writers are the translators between the technician and the non-technician, and this is one of the most rewarding parts of the job - helping people communicate with one another.

SUMMARY

In this paper on the 'state of the art' of technical writing in British Columbia, I have tried to move from the general

and somewhat philosophical consideration of what a technical writer is, to the more specific areas of training and career opportunities. The lack of a certified technical writing program in British Columbia cannot be dismissed too lightly, because this will have a severe impact on the growth of technical writing in this province. The result of not having a steady supply of qualified technical writers for industry can only lead to an unnecessary and counterproductive "communications gap" in the information age we are all now a part of.

Diane Forsyth has been in the data processing field for twelve years, five of those as a technical writer. Diane holds a B.A. in English from the University of British Columbia, and is currently completing an Extended Studies Diploma at Simon Fraser University. Diane is an active member of the local chapter of the Society for Technical Communication (STC).

station platforms, and you will see a long series of three white lines in a row all down the platform. Those waiting to board a train queue on the two outer markers. When the train stops, and the sliding doors open, they are exactly opposite these groups of white lines, all down the platform. Commuters getting off the train do so through the centre line. Those getting on infiltrate at the sides. In that way, the train can be unloaded and loaded within the mandatory 27 seconds in order that the doors can be closed and the train moved on -- to make way for the next one just a few seconds down the line. That takes a tremendous amount of discipline, goodwill and cooperation. But it is the only way possible if the system is to work. No one would stand waiting for the train on the centre line, or they would get trampled.

Life in Japan is like that, and has been for centuries. In Japan, one has to have a high degree of discipline to coexist with one's fellow man. One learns not to buck the system, not to stand out in the crowd.

The process

The communications process in Japan relies heavily on face-to-face contact. Japanese want to see one's reaction to their proposals and mutual discussion; they want to "feel" you out, sum you up, assess your personality and reliability.

Thus, you must assume -- if you are serious about your wish to penetrate the Japanese market -- that you cannot do it at long distance by telephone, telex or letter. A permanent, physical presence is required in Japan by your company. It is not sufficient, either, that you find an office and populate it with local Japanese staff. Strong representation is required from your Canadian head office.

If you simply make the odd flight over to Japan for sales calls on an ad hoc basis, you give the unconscious feeling to the Japanese that you feel their market is not sufficiently important for you to establish a permanent office. And they will tend to treat you accordingly.

To succeed in Japan one should have a permanent base there. It may be your own office, or perhaps a joint-venture partnership with Japanese interests. The costs tend to be high, but over a period of years one builds up friendships and business relationships which will pay off in the long term. Do as the Japanese, and look towards a long-term objective, and do not expect immediate spectacular results.

In approaching business negotiations with the Japanese, one should adopt a very simple framework of ground rules. Do not lay down too many hard and fast objectives, targets, or time scales. Leave room for negotiation and adaptation. Your Japanese counterparts will have their own objectives for their market, so give them room to manoeuvre your product to their

specifications.

How does a Canadian businessman relate to a Japanese company? With whom does one do business? Generally speaking, one should try to talk to one's counterpart in a Japanese company -- someone in the same or similar levels of management. For example, the Canadian export manager might try to meet the Japanese import or domestic sales manager. If one is at managing director level, try to meet the counterpart in Japan. In this case, it is also wise to have someone lower down the scale do some ground work ahead of you, and accompany you. The main object is to find a level, common ground, and to avoid outranking or overpowering the other party.

Advance appointments should always be made, preferably with a short agenda suggested for discussion and coverage. Be punctual.

Very often, a number of the Japanese company's staff will be on hand for the meeting -- this is their committee style of management in action again. So it does no harm for you to bring some of your staff along too, to support you.

Make sure that you are aware of any other interests they may have in Canada, and the names of any senior staff they themselves have in place here. In the best analysis, one will already have contacted these people to help set up the appointments.

Ensure you stay at a good address in Japan -- in other words, a good hotel. You thus give "face" to your company.

Be open and flexible in your presentation, leave room for questions and queries. And above all, do not appear to be in a major hurry for a speedy answer. The chances are you will not get this anyway, so act accordingly.

Follow up initial meetings by keeping in contact with their Canadian office or agent. In this way you show you have a continued interest in them, and their market.

In any serious negotiations or meeting, you will often be invited out to dinner and for drinks at one of those notoriously expensive Tokyo cabarets or private bars. This is by no means a sign that your proposal is being accepted, or even that the Japanese company is interested in your product. It is, typically, a sample of Japanese courtesy and hospitality to a visitor. Even so, remember that you are under scrutiny to some degree. Did you have a bath before you came out to dinner? How are your manners? Did you let slip any business confidences while you were drinking? It is another subtle way of the Japanese testing the foreigner.

Always carry a substantial supply of your business cards with you to Japan. If at all possible, have them imprinted on the back with your name, company and title in Japanese -- Japan Air Lines will be happy to arrange this! It is a small but courteous

gesture on your part, and gives you that all-important extra "face". It also assists your Japanese counterparts with the correct pronunciation of your name, as the Japanese characters are in fact a phonetic guide for them. Again, it is an all-important matter that they pronounce your name correctly. By the same token, ensure you in turn know how to pronounce their names, otherwise you will lose some "face"!

Quite often there will be an interpreter present. This is sometimes a Japanese ploy to give the Japanese company executive more time to think and plan a suitable reply, as he may well speak some English anyway. However, it also gives him time to assess and study you while he considers his reply. As I have indicated, the Japanese have had 3,000-odd years to study the art of negotiation, and they have developed into masters.

Much has been made in recent years of the success of the Japanese in our own marketplace. So let us study for a few moments how they operate in our environment. If you look around you, you will see they have a small army of top and middle management people in Canada, learning and operating in our marketplace. Every four or five years they return to their head office in Tokyo, and are replaced by others. A relationship builds up -- an experience of the Canadian marketplace -- and they can relate immediately to what their counterparts are talking about in Toronto or Vancouver. They know the problems the Canadian market poses, because they have been through the system themselves. And they will have made some useful contacts.

Let me demonstrate how this works in Japan Air Lines. One of my former Japanese bosses in Vancouver is now managing director of the JAL Hotel System, which is building and managing hotels all over the world. We have just signed a management agreement to operate the Jin Lin Hotel in Peking, China. It just so happens that part of the financial package to build the hotel was arranged with a group of businessmen -- from Toronto. I have another colleague back in Japan who is now in charge of our international reservations department. He can relate to some of our local problems, because he shared them with us for three years, so he is that much more able to assist us when we need help for our local market. I have other key contacts in major offices in Japan who have had Canadian experience and can relate to the marketplace without lengthy explanation of local conditions.

Yet how many Canadian companies have any sort of on-the-spot management staff from Canada in Japan? Regrettably, very, very few. Certainly, we have an embassy and a trade office at the federal level, and Ontario and Alberta both have their own people in place to look after provincial affairs. But British Columbia does not have an office there, and Japan is B.C.'s prime market.

Canada is only one of a large number of potential suppliers of Japan's raw materials needs and consumer exports, yet they place major emphasis on posting considerable numbers of key individuals to Canada to find out about us. It is unfortunate that we in Canada do not as yet place as much emphasis on the Japanese market, particularly in view of its tremendous importance to our trade balance.

I also hope we are going to see over the next few years a much better coverage of day-to-day affairs in Japan in our national and regional media. Not one newspaper, magazine or TV network in Canada has any sort of permanent Canadian-staffed news bureau in Japan at the present time, and it is perhaps a sad reflection on our sense of priorities that we place so little emphasis on that part of the world which is potentially one of our largest markets.

However, Canada does have two built-in advantages to our future trade relations with the Orient countries of the Pacific Rim. Firstly, we are not regarded as a political animal, and we have no major political axes to grind on the world stage.

Secondly, Canada has since World War II provided one of the few open-door immigration policies to anyone with the gumption to come here. Compared to almost every other nation, we have little regard for the race, colour or creed of our migrants. Look around you in Vancouver, or even here in this auditorium, and see how many Pacific Rim complexions are present. This is a great investment for us in our future relations with that area.

There is potential for Canadian business in Japan and throughout Southeast Asia. But we have to invest research and development funds into the area before we can succeed.

I hope I have given you a few pointers today on how to do that.

Peter Waitt -- born and educated in Britain (Kent College, Canterbury). Journalistic background, graduate diploma, British Institute of Journalists. British Army, 1957-59 on conscription, operations staff, HQ Land Forces, Hong Kong. Staff, South China Morning Post newspaper group, Hong Kong, 1959-65. PR Director, Cathay Pacific Airways, Hong Kong, 1965-72. Migrated to Canada, 1972. Marketing Manager, Canada, Japan Air Lines, 1972 to date. Author, JAL Guide to the Orient, 1983.

COMMUNICATIONS FOR ENGINEERS - TODAY AND TOMMOROW

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ABSTRACT

The new Faculty of Engineering Science at Simon Fraser University intends to have graduates with well developed skills in engineering communications. This incorporates the written, oral and graphical forms of communication so important in the professional work of an engineer. In the curriculum, a double weighted course is devoted to this objective, although this is not a course in the conventional sense. The activity is spread throughout the program and revolves around the assessment of the student's project reports and undergraduate thesis. All of these communication endeavors are evaluated and extensive feedback provided to the student. If a satisfactory standard is not obtained the work must be repeated. Students experiencing difficulty may avail themselves of remedial assistance.

INTRODUCTION

Study after study has shown that both graduated engineers and their employers place communication skills at the very top of the list of important on-the-job skills. They also rank the development of communication skills at or near the bottom of the list in terms of an adequate undergraduate preparation. The point has been taken, more or less and from time-to-time, by most engineering schools over the past several decades. Effective remedies, however, are scarce. When the need is taken into account, the typical response is to require a freshman English course or to march the student through a special course on "technical writing". The worth of these endeavors is measured by the persistent low ranking given the development of communication skills by graduated engineers.

Simon Fraser University in Vancouver has recently opened its Faculty of Engineering Science to provide a broadly based, multidisciplinary approach to the study of engineering. This program is restricted to a small number of academically superior students and is oriented towards areas of advanced technology. In addition to engineering subjects, students devote considerable effort to the basic and applied sciences. A special feature of the program is its approach to communication skills.

Our approach is based on three critical elements. First, emphasis is given to the need for good communication skills through informal discussion with students and through the prominence of the course ENSC 100-6, Engineering Communications, in the overall curriculum. Second, the practice of communication skills is part of the on-going activity of the student in the classroom and particularly in the laboratory. This ensures that its relevance

to engineering work is apparent and that the topics for communication are part of the student's on-going work. Third, instruction in communication skills is provided if and when needed.

Engineering Communications is taken to include graphical communications as well as skills in written and oral English. The calendar description for this course follows:

ENSC 100-6 Engineering Communications

Rationale

The objective of this course is to develop the student's written, verbal and graphical communication skills to an acceptable level. The basic premise is that these skills are best learned and demonstrated in the context of the student's work in engineering. Evaluations of laboratory reports, course essays, and project reports will, as a result, be central to this course. Demonstrated competence is required and unsatisfactory work is returned to the student to be done again. Communication skills must be demonstrated at a satisfactory level before the student will receive course credit.

Calendar Description

This course is spread throughout the duration of the engineering program. It is concerned with written, verbal and graphical communications. Course credit is obtained by demonstration of a proficiency in the skills of engineering communication.

For the most part the need for communications will arise in various courses in the program such as in laboratory reports, course essays and project reports. Other activities will be specified for the particular engineering program in which the student is enrolled. The final report and interim oral report on the thesis project undertaken during the final semester of the program will be components of ENSC 100. This course will also include essays based on the guest lecturer series. Visual literacy, utilization of information resources such as libraries and computer graphics are within the scope of this course.

Particular requirements will be specified as the student progresses with his studies. A resource centre, tutorials, self-instructional materials, audio-visual materials, lectures, mini-courses and other instructional methods are utilized to aid the student in acquiring these skills which are considered important in the practice of the engineering profession. The student will formally register for the course in the semester in which all requirements are completed. Normally this will be the final semester. The course is graded on a credit/no entry basis.

Thus far in this paper, I have laid out the goals for our approach to engineering communications. We are presently engaged in the more difficult

process of achieving these goals. This is, in effect, a progress report and we solicit comments and suggestions most avidly.

GRAPHIC COMMUNICATIONS

Through the years engineering graphics has been reduced to a smaller and smaller role in engineering programs. Whereas engineering buildings were once awash with drafting rooms, such facilities are becoming rare. Nevertheless, the freshman drafting course does persist in many schools and continues to be disliked by the majority of the students. Still there are some matters, such as the capability to read engineering drawings and an appreciation of the problems of projecting three dimensional shapes into two dimensional drawings, which deserve attention. Drafting skills per se are important to only a few practicing engineers and this field is, in any event, being rapidly overtaken by the computer. Consequently, our methods are computer oriented.

CAD (computer aided drafting) and CADD (computer aided design and drafting) are rapidly rendering the conventional draftsman obsolete, but the appropriate approach by an engineering school is far from clear. Technology institutes engaged in the training of draftsmen must install full-scale commercial CAD computer facilities. However, the development of operational facility with CAD by the computer draftsman is a lengthy process which is simply not warranted within the engineering curriculum. Some lesser approach is needed and ours is through the personal computer and engineering workstation. We are presently investigating CAD systems for the IBM PC and we have an HP 9845 computer, an engineering workstation with excellent graphic facilities. Although now superseded by advancing technology, its capabilities will match our likely needs.

We are presently assessing software systems, and preparing simplified operations manuals, to give our students effective and easy access to these computer graphic facilities. Short workshops, perhaps somewhat like the old time survey schools, will be offered commencing this fall. Our aim is that all students will present all of their graphical work in laboratory and project reports using these graphic facilities.

It is worth noting that the overall program has a strong computer emphasis and it is our objective to provide students in the second, third and fourth years access to small computers and computer terminals on a one-to-one basis.

WRITTEN AND ORAL COMMUNICATIONS

Our basic objective for written and oral communications is that all students will have developed and proven their capabilities by the time of graduation. A primary mechanism for the final evaluation of these skills will be the undergraduate thesis. Worth over one half of a semester's academic credit, the thesis is by definition a written document which must be presented and defended. It will be assessed for its technical and scientific content, on

the one hand, and as a communications endeavor on the other. The work leading up to the thesis will be performed in an industrial context as part of our Industrial Internship. The objective of this Internship is to ensure that the students have a practical orientation to complement analytical skills and theoretical knowledge.

The thesis is the major exercise in communications but it is by no means the only one. Throughout the whole program every opportunity is sought to require the student to exercise his or her communication skills. Laboratory, project and work reports are a primary mechanism with the undergraduate seminar playing an auxiliary role. Just like the thesis, every report is evaluated from two perspectives. If it should fail in its communication role then the student is required to repeat, and repeat again if necessary, until the requisite standard is met. This standard is constantly escalated throughout the program. Each report and oral presentation is carefully assessed and feedback to the student ensures constant awareness of the progress of skill development.

Presently we are asking Engineering Science faculty and staff to make these double evaluations. I expect that we shall shortly engage part-time people with a professional background in technical writing to assist us.

A mastery approach is taken and any student who knows how to communicate well passes through this aspect of ENSC 100 as if it were invisible. Most students, however, have problems which range from minor to very severe. For those who need it, we are developing a learning centre approach which will provide assistance when it is needed. In many cases some reference to standard manuals and texts is all that is required while in other cases remedial tutorials will be called for.

Some overall orientation is likely to be needed and we are attempting to develop a limited number of short workshops for this purpose.

SUMMARY

The Faculty of Engineering Science at Simon Fraser University intends to graduate literate engineer-scientists who will "invent a better mousetrap" and be able to tell the world about it. Goals and a primary strategy have been identified. We are now busy attempting to implement our approach.

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COMMUNICATION IN CONTRACTUAL EXCHANGES

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ABSTRACT

A new theory of communication formality/informality developed and tested by the author goes a long way to explaining apparently anomalous features of contractual communications.

Formulated as part of a research study into the management of, and communications in, development contracts, the theory shows that specification formality reflects relations between buyer and seller organizations. It answers such questions as why informal specifications often accompany formal contractual terms in requests for proposals when the specifications are just as significant legally to the contractual relations.

Of much wider significance than to just industrial marketing, the theory has potential application to everyday communication. Research is continuing, current investigation involving the style of rules and procedures.

INTRODUCTION

This paper presents some of the findings of a 6-year investigation carried out by the author in Britain into development contracting.¹

The author's interest in development contracts derived from their great importance to organizational and national economics, and from first-hand experience of the difficulties of bringing them to a successful conclusion. Canadians over 40 need no reminding of the catastrophic results of cancellation of the Avro Arrow project; its ghost still haunts us. Americans of similar age will no doubt remember the failure of the Edsel automobile among other abortive developments. The English too have had their share of failed projects, and the author had the dubious privilege of working on the TSR-2 aircraft when it, like the Avro Arrow, was axed. When such contracts are successful, they can lead to enormous benefits, as for instance those of the NASA space programs. But when they go wrong, they can bankrupt even the most prestigious organizations, as when Rolls-Royce failed as a result of its jet-engine contract with Lockheed. The research objective was to determine the factors that contribute to success and failure, and communications were clearly among these factors.

The research method adopted was to conduct in-depth investigations of both buyer and seller sides of current British development contracts,

applying detailed questionnaires to key personnel and examining the contract files. Among those examined were contracts involving nuclear power, emergency vehicles, communication systems, mining equipment, a military helicopter, computer components, jet-engine ancillaries, and waste-disposal equipment. Other projects investigated in less depth included North Sea oil and gas, the Thames Barrier Project, civil-engineering construction, and shipbuilding — quite a wide range altogether.

The findings presented here just concern the specifications and contractual terms used by buyer organizations in their requests for proposals and, subsequently, to control the contracts. In particular the concern is with the different styles adopted by buyer organizations in their specifications. While the research was conducted in Britain, there is no reason to believe the findings would be significantly different in North America.

CONTRACTUAL EXCHANGES

The first research in the area — into contractual/non-contractual relationships between businessmen — was conducted by Stewart Macaulay in the early 1960's.² As a lawyer, he was surprised to find that many contractual exchanges were not apparently planned very well — that if disputes should arise it would not be very easy to resolve them in a court of law. There are several legal principles related to contractual communications that bear upon this, among them the need for "meeting of the minds" if a contract is to be properly established and for documents to be drafted in a legally-watertight manner.

Complete planning and hence meeting of the minds on contracts for development involves both parties — buyer and seller — agreeing to:

- (1) the definition of performance to be achieved,
- (2) the effect of contingencies,
- (3) the effect of defective performance, and
- (4) the use of legal sanctions.

The first factor corresponds largely to the technical specification and the remainder to the contractual terms. Unless both parties agree, there is not a contract.

The second principle, concerning legally-watertight documents, hinges on the concept of precedence enshrined in most Western law and beloved of lawyers since it leads to archaically-worded documents that few but lawyers can understand. The idea is that precedents can affect subsequent court judgements, and so, if a particular way of wording a document has been shown to be watertight in court cases, that wording is employed on future occasions. Hence, for instance, the use of the archaic "shall" in standard forms of wills, leases, contracts and, sometimes, in specifications. Correct legal drafting clearly affects whether a document will permit the use of legal sanctions — the fourth factor above.

Macaulay's findings were largely replicated in the smaller but much more detailed investigation carried out by the author. Even cursory examination

of contract files showed some surprising anomalies. For instance, some buyer organizations had gone to a great deal of trouble to write legally-watertight contractual terms but accompanied these with a specification through which, in one respondent seller's terms, "you could drive a coach and horses". Thus if a dispute should arise in respect to the definition of performance — usually the most significant factor on a state-of-the-art development contract — there would be no ready recourse to legal sanctions.

Other buyer organizations had defects in both contractual terms and specifications, the terms being inappropriate to the developmental nature of the contract and the specification being "loose" as well. Sometimes the documents were such that the seller organization was carrying all the risks on the contract yet was being held to a fixed price; if anything at all went wrong, the seller would almost certainly "lose his shirt". But such defects were not always the case. Among buyer organizations that had the most consistent records of success in development contracts, many had clearly "tight" contractual terms and specifications that matched each other and the needs of both buyer and seller on the contract.

These initial observations pointed to the need for a more precise scale than "tight" vs "loose", one that could be used to evaluate the specifications and to determine what factors accounted for this variation. Early on it was recognized that this might be related to the formality/informality of the relationships between the organizations and, in turn, that this could be said to lead to formality/informality in the communications. The outcome was a theory of communication formality with much wider potential applicability than just a scale to evaluate specifications.

A THEORY OF COMMUNICATION FORMALITY

The development of the theory of communication formality did not parallel Archimedes's exultant discovery of how to determine the purity of gold. It took several years, not one bathnight, but there were some "Eureka"s on the way. The first step was a painstaking review of the many literatures that refer to formality, and the theory owes much to these, including the literatures of communication, organizational behaviour, industrial relations, negotiation, and sociology.

In all, the theory involves four distinct aspects:

- (a) the perception of formality,
- (b) the expression of formality,
- (c) the general effects of formality, and
- (d) the specific effects of formality.

Here just the basics of these will be outlined; the reader will have to wait for the details until there has been time to publish them in full.

It is theorized that we perceive formality/informality in relation to our norms for a specific situation, which will vary with the situation. Thus we say that a communication is formal or informal in accordance with what we

expect — our norms. Under some circumstances we expect a lot of formality, as when dismissing a professional employee; we do not write him a memo but send a formal letter. A memo would be too informal. But a letter starting "Dear Sir" would be too formal for inviting a close friend out for a drink after work. Thus purpose is a factor.

A related dimension to purpose is importance and it is theorized that the level of formality involved in communications will generally increase with the perceived importance of the communication, all other factors being equal.

The relationship of the persons involved in the situation also matters — in part a question of how well we know a person but also a question of perceived relative status or power. The author terms this perceived psychic/social distance.

Finally it is theorized that the perceiver's norms can be expected to vary from individual to individual in accordance with a hierarchy of influences — environmental, organizational, and group — as well as with individual factors such as ethnic background, cultural background, and age.

Expression of formality of course relates to our perception of the formality associated with the choices in our communication. While some of these choices are clear, others are less so. Nor is it absolutely clear whether there is a natural decision sequence to our choices. Even if there is, there is no guarantee that it will be followed, for man does not always behave naturally or rationally. However, it is hypothesized that we express formality by choosing from a series of communication characteristics that exhibit features of a loose hierarchy:

- whom we communicate with
- what medium we use
- what instrument we use within that medium
- what style we use
- what format we use
- what symbols (words, etc.) we use.

Such hierarchical choices may sometimes be enshrined in organizational procedures, rules, and custom and practice.

The general effects of formality involve such questions as whether formality begets formality in return and what happens when a respondent apparently employs extreme formality in reply to our informality. These questions are quite complex, involving several possible answers depending on factors such as perceived power, trust, and willingness to cooperate. They have, however, been coarsely modelled.

Finally, the specific effects of formality involve questions of what is likely to occur under specific circumstances, such as the writing of specifications and contractual terms to be used on development contracts. The theory here is grounded in specific examples and generalizations cited in the investigated literatures referred to earlier. They permitted the specification-writing process to be modelled along with other factors significant to buyer-seller relations in industrial marketing, and hence enabled key features of the theory to be tested.

A TEST OF SPECIFICATION FORMALITY

The test involved five components:

- (1) A specification formality scale based on the author's experience of writing and editing specifications. It identified stylistic, format and structural characteristics, and was used to scale the formality of the specifications used on the examined contracts.
- (2) A formality-attitude questionnaire administered to the specification writers. This sought out their attitudes to factors that the formality theory identified as likely to be significant. It was also scaled.
- (3) A questionnaire relating to organizational procedures, rules, and custom and practice — to assess the norms.
- (4) A questionnaire administered to the specification writers, seeking their background and their perceptions of the specific situational/purpose characteristics.
- (5) Other questionnaires relating to contractual factors identified by the theory as being significant (contract value, risks, etc.), both specific to the contract and customary for the organization.

Statistical methods were then used to test the relationships hypothesized by the model of the specification-writing process.

The results were very encouraging. The specification formality scale was shown to provide a sufficiently wide score range to permit reasonable formality differentiation. Moreover the obtained formalities were shown to correlate with the attitudes of the writers, implying that the formality differentiation was meaningful.

In addition, the major contentions of the communication formality theory were statistically supported by the findings, the only significant omission being the loose hierarchy of communication characteristics used to express formality. This could not be tested since only lower-level characteristics were evaluated.

Given this confidence in the model and the communication formality theory, it was then possible to interpret the findings on specific contracts.

SOME FINDINGS AND THEIR SIGNIFICANCE

The findings were numerous and it is only possible here to briefly mention a few of particular interest to communication in contractual exchanges.

The reason that contractual terms are nearly always very formal whereas specifications are often informal can be largely explained by the formality norms of the respective writers and their organizational associates. Contracts officers, who prepare contractual terms, work in an environment where legal interpretation of documents is common and legal counsel are often consulted.

Specification writers, on the other hand, receive no training in writing let alone in legal drafting; they pick up their writing skills by copying existing specifications — sometimes of the wrong type! Rarely are editors employed on specifications and even more rarely are lawyers consulted. Theirs is a technical environment and their superiors and associates are technical too.

Typically there is a pronounced dichotomy between the technical and commercial staffs of organizations.³ Technical staff do not fully understand contractual terms, and commercial staff rarely understand technical specifications.⁴ Hence there is often a mismatch between the two documents.

The irony of it is that the specification legally forms part of the total contractual terms — as often as not the most important part in a development contract. So, much of the formality of the contractual terms is wasted when the specification is too informal to stand up in a court of law.

The next anomaly that required explanation was why some organizations were very careful to write formal specifications while others appeared to be intentionally employing informal ones. The answer lay in three main factors — organizational influences, the situational factor of perceived risk, and a desire to reduce the perceived psychic/social distance between buyer and seller, that is, to achieve closer buyer-seller relations.

It was found that organizations accountable to the government or other holders of public pursestrings are generally more formal than those that are not. Subject to government audit and displeasure, the former's practices apparently reflect pressures to protect the public purse by all reasonable measures including resort to legal sanctions if that should be necessary.

Correlation was also obtained between the formality of specifications and the customary risks (e.g. contract values) the organizations encounter in the event of contract failure. The higher the customary risks, the more formal the specification. There was, however, a significant exception to this trend — the specifications written by research organizations.

The research organization anomaly is clear. Despite comparable customary contract risks, both the specifications and attitudes of specification writers in such organizations align with informality. It transpires, however, that the benefits of success are generally much greater than the customary risks of failure in research organizations' development contracts, apparently offsetting the perceived risks. Moreover, interviews confirmed that there is often conscious strategy in such organizations to seek the closest possible buyer-seller relations. The justification is that their contracts tend to involve more advanced state-of-the-art development where greater inter-organizational communication is necessary along with more give and take in adjusting contractual objectives. The specification writers in research organizations also feel that fewer misunderstandings arise in informally written specifications than in formal ones.

Review of the buyer-seller relations achieved by organizations on development contracts revealed a wide spectrum with two extremes. At one end relations can be described as "dog eat dog" where buyer and seller attempt to take the other side for what they can get. At the other end the situation is well described by marketers as "the parties being in bed together" — they see the benefits of mutual association and reject resort to legal sanctions as unproductive. In general, the

formality of the specifications reflected these relations.

While these appeared to be the main factors affecting choice of specification formality/informality, there were others. For instance, some organizations noted that legal sanctions are not the only means to exert pressure on a recalcitrant seller; power in the market may be just as effective, so that formality is not necessarily needed. On the other hand, organizations such as Rolls-Royce that have previously been bitten have every reason to be twice shy and employ formal specifications. Either way though, these too are a reflection of the buyer-seller relations that can be expected in their markets.

CONCLUSION

These few, brief examples of the research findings illustrate that the communication formality theory has considerable power in interpreting contractual relations through the communications exchanged. Its potential, however, is much wider than industrial marketing, and research is now in progress to extend the application to other communication-situation sets including formality in rules and procedures.

Such work is not easy for it demands intimate, fundamental knowledge of the communications before the formality can be scaled. Much more testing and refinement of the theory and associated models are necessary before there can be complete confidence in their details. But the prospects are very motivating, for the theory bears promise of quantitative evaluation of formality in our everyday communications — a tool that would be very useful to communication teachers, psychologists and sociologists.

Here then is a vital convention of human language that has too long been overlooked.⁵ With more understanding of communication formality we will be better able to appreciate communications as a means of exchange.

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THE WRITING SUCCESS NUMBER: A READABILITY
SYSTEM FOR SCIENTIFIC COMMUNICATIONS

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ABSTRACT

To improve the writing authored by and intended for scientists requires several steps: 1) recognizing the jargon of the discipline, 2) separating the appropriate from the inappropriate terminology, 3) understanding the unique mode of expression and unique purpose of technical writing, and 4) integrating all these components into a practical readability system. This paper briefly details these steps and then describes a readability system, the Writing Success Number, developed specifically for use when evaluating these scientific communications.

THE WRITING SUCCESS NUMBER

Jargon is something all authors of technical literature are vehemently encouraged to eliminate. However, jargon remains a nebulous creature whose features have been poorly defined. To say that jargon is synonymous with unintelligible language does not define the enemy, nor does the explanation that it is, as dictionaries inform us, the technical terminology of specialists. Rather, jargon must be understood in a more defined, more tangible way so that authors can deal with it with a reasonable degree of certainty.

Initially, the idea of understanding jargon appears oxymoronic: how does one understand the unintelligible? Nevertheless, we can understand the nature of this problem as it appears in communications written by and for scientific personnel; this understanding, in turn, as with the understanding of most problems, leads to the desire for a practical solution. The solution that I find works best is the Writing Success Number, a readability system that helps writers to eliminate jargon while also encouraging other key principles of sound technical writing.

I. JARGON IN COMMUNICATION AMONG SCIENTISTS

Let us begin by stipulating a broad definition of jargon: Jargon is language or writing that interferes with the transmission of a clear, concise, and unambiguous thought. Proceeding from this definition we can see why such organizations as the Council of Biology Editors (CBE) distinguish

between precise technical language that is referred to as jargon by a lay audience and the "informal" jargon that appears in technical communications. The former has a place in formal reports; the latter, as the CBE notes, is characterized by language that is obscure and vague at best, pretentious and inept at worst.¹ This dual concept of jargon should also suggest to us why the common prescriptions (including those incorporated into the popular readability systems such as the Fog Index and Reading Ease Score²) for removing jargon in communications among scientists fail: They implicitly assume that all jargon occurs in scientific writing intended for nonscientific readers. The common prescription promotes the popular, tandem association that good is synonymous with simple, and simple with clear. However, this correspondence is only correct when writing for a lay audience--not when, as will be the focus of this paper, scientists communicate with each other.

In this context, writing among scientists, we must return to what the Council of Biology Editors (CBE) called the "informal jargon," language that appears to be precise but is not. Therefore, our focus must be on separating the precise from the seemingly precise; in other words, the scientific terminology must be separated from the pseudoscientific terminology.

In particular, there are four types of pseudoscientific terminology that constitute the jargon in communications among scientific personnel: neologisms (the creation of unnecessary new words), popularized technicalities (the inexact use of technical language), injudicious language skills (arbitrarily altering a word's form or function), and scientific shorthand (the use of unclear abbreviations).³ Each of these four types of terminology is a form of jargon because the reader's understanding of the word or phrase is not necessarily the same as that intended by the author; rather, ambiguity (or jargon as we have defined it) is introduced as a consequence of the author's selection of an inappropriate word or phrase, one that could be replaced by a more precise word or phrase that would ensure writer and reader shared a common understanding of the thought being communicated.

II. THE WRITING SUCCESS NUMBER

As noted, the popular readability formulas fail because of their undue reliance on the idea that the simpler the word, the better the writing. They also, as one might infer, do not recognize or discriminate between the pseudoscientific terminology and the acceptable "jargon" of a scientific discipline. Accordingly, I have developed (and found successful in many, various applications) a readability system based on the writing principles George Orwell provides in his well-known essay, "Politics and the English Language."⁴

In that essay, Orwell wrote that the "scrupulous writer" will ask himself six questions:

1. What am I trying to say?
2. What words will express it?
3. What image or idiom will make it clearer?
4. Is this image fresh enough to have an effect?
5. Could I put it more shortly?
6. Have I said anything that is avoidably ugly?

This checklist he then refined into a set of rules, rules that I have modified to serve as the foundation of a system that accommodates the requirements of sound technical writing: clarity, precision, and conciseness. I have named this writing system the WRITING SUCCESS NUMBER.

1. Rules of the System

- (1) Never use a general, cliché, or inexact expression if a more precise statement can be made. It is quite easy for us to be trapped by the clichés and commonplace expressions of our discipline. For instance, how often have you read a sentence like this: "A preliminary study is being made"? It sounds good, but does it tell us anything specific or substantive? The writer should state exactly what is being done. Guarding against these hollow expressions affords us the opportunity to excise these elements from our writing.
- (2) Never use a long word where a short one will do. Simply stated, this rule says to use the best word possible. If there are two words that can communicate precisely the thought you wanted to convey, then choose the shorter. The criterion for word selection is precision, not length.
- (3) If it is possible to cut a word out, always cut it out. This is a key point in developing a good technical writing style; good writing is concise writing. Use just those words necessary to effectively communicate your idea to your reader; don't clutter your prose with unnecessary words or phrases.
- (4) Use the active or passive voice based on the need to emphasize what is done or who did it. Most writing texts tell us to prefer the active voice. This note should be tempered when considering the objectives of technical writing. In technical writing we must often use the passive voice to place emphasis on what was done; e.g. "A new stripping process was developed." The active voice is preferable to place emphasis on who did the work; e.g. "The Process Support team developed a new stripping process."
- (5) Never use a foreign phrase, a scientific word or a jargon word if you can think of an everyday English equivalent. This rule stipulates a definition of jargon (and, in general, of unacceptable terminology): Jargon is the use of a complex term when an "everyday English equivalent" exists. This rule, in conjunction with Rule 2, acknowledges that some long words are appropriate while others are not. If you consider whether there is a suitable "English equivalent" for your word, you will have a sound basis for discriminating between scientific and pseudoscientific terminology.
- (6) Break any of these rules sooner than say anything outright barbarous. This rule, admittedly, is a kind of catch-all. Yet its inherent flexibility is extremely valuable; each piece of writing is unique. To encapsulate all writing efforts into five or five-hundred rules denies the fact that unique situations will arise and that each requires individualized treatment. Although this rule is

not quantified in the Writing Success Number system, it is perhaps the most important rule. The writer must always be flexible enough to ensure that he communicates clearly, even if it means violating any or all of the other five principles of this system.

2. Quantifying the System

Below is an explanation of how these rules are quantified; the quantification lends the method a greater degree of objectivity and offers the user a practical means to measure his status and progress. Yet before I explain how to quantify the rules, I would like to add one more factor to the six rules to help focus this formula specifically on the precision and conciseness required in technical writing. This factor, the "Superfluity Ratio," is equal to the number of words used divided by the number of words actually necessary to communicate the thought (as evidenced by the difference in length between the original and the revised version subsequent to evaluation by the rules of the Writing Success Number System). To determine a Superfluity Ratio:

1. Count the number of words used in the original paragraph or writing sample;
2. Rewrite the sample as precisely and concisely as possible using the six rules just discussed;
3. Divide the number of words used in the original by the number of words used in the revised version.

Now that we have all the necessary components, we are ready to use the complete formula for determining a passage's Writing Success Number (WSN). This number is determined by applying the following formula that weighs the seriousness of the five stylistic imperfections addressed by the WSN rules:

$$\begin{aligned} \text{WSN} &= \text{Superfluity Ratio} \\ &+ (1 \times \text{the number of infractions of Rule 1}) \\ &+ (2 \times \text{the number of infractions of Rule 2}) \\ &+ (3 \times \text{the number of infractions of Rule 3}) \\ &+ (1 \times \text{the number of infractions of Rule 4}) \\ &+ (1 \times \text{the number of infractions of Rule 5}). \end{aligned}$$

A well-written passage will earn an WSN of 1. (The Superfluity Ratio of a well written piece will be equal to one.) Poor writing will receive higher numbers in accordance with how different the style is from that typifying good technical writing. However, unlike the grading systems associated with the popular formulas, this system makes no allowance for degrees of good writing. This is because good technical writing demands that all passages be reworked until their WSN is equal to 1.

As an example of how this system is used, Figure 1 shows a writing sample evaluated by this system. The numbers to the right of the passage indicate what rules, if any, that have been violated on the corresponding line; the word or phrase producing the infraction is underlined. Figure 2 shows

the paragraph as it would be rewritten using the guidelines of the WSN; also, at the bottom of Figure 2 is the calculation of the WSN of the original passage.

3. Advantages of the Writing Success Number.

The WSN system provides a number of significant advantages over other readability formulas when evaluating technical writing:

1. It is designed specifically for developing a writing style that recognizes the unique mode of expression and unique purpose of technical writing. In comparison, the popular readability formulas, though valuable for evaluating materials written for the general public, do not allow for technical terminology, the conciseness and precision that technical writing requires, or for discriminating between scientific and pseudoscientific terminology.
2. It is simple to apply, yet not simplistic in its value. The gains achieved through conscientious application of the WSN represent significant strides toward improving communications among scientists. Applying the five principles of writing proposed in the WSN provides improvement in all the major facets that separate good and poor technical writing.
3. The writer is forced to recognize and eliminate weaknesses in his writing when he uses the WSN; there is no way to determine a passage's Superfluity Ratio without doing this. At first it will be difficult for most writers to determine an accurate Superfluity Ratio on their own writing since we all tend to feel that what we write cannot possibly be improved upon. However, the "scrupulous" writer will slowly but surely see where improvements can be made.

One way to get started is to concentrate on one rule at a time. With each infraction the writer identifies, he makes a substantial improvement in his writing. As the author progresses from concentrating on one infraction to another, he will see additional areas for evaluation and improvement.

4. Whereas other formulas provide wide ranges of varying values, the WSN is a single, fixed value. It allows the writer to aim at a definite goal and gives him a firmer grasp of what is and isn't good technical writing.
5. Whereas the other readability formulas will produce the same score time and time again, the WSN adapts to the evaluator's capabilities. While one author may be able to identify only a few infractions, another may find many more. Similarly, the same evaluator may use the WSN more than once on a writing sample. A supposedly corrected writing sample may receive a WSN greater than one when retested; this occurs because the evaluator can apply the criteria more stringently as his skill and facility with the WSN improve, thus further improving his writing. As a careful user will learn, the WSN is

not a system that will make all the critical judgements for the writer; rather, the writer himself makes the critical judgements using the directions provided by the system.

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Figure 1

EVALUATION OF SAMPLE PARAGRAPH

Error

Part II of the project dealing with PPMs is subdivided into 5
separate tasks. The main task is CenLoc. The design has 5,3
some definite areas of uncertainty and at the present time
review of the design for the task has not proceeded to the
point where we can obtain adequate resolution of some of
the unknown areas. The preliminary evaluation, however, 1
is somewhat encouraging. The acid test will come when the 5
centrifuge is mocked-up and its design viability determined. 5,5
It was advised by the AE that we do this as soon as possible. 4

Figure 2

REWRITE OF PARAGRAPH FOLLOWING EVALUATION BY WRITING SUCCESS NUMBER

The main subtask of Part II of the Plant Protection Modification program is centrifuge relocation. So far, 5 of 7 design areas reviewed are satisfactory. However, pilot-plant tests, which the Architect-Engineer suggests should be done as soon as possible, must be completed before the review can be completed.

$$\begin{aligned} &\text{Writing Success Number (of original, Figure 1) =} \\ &(1 \times 1) + (0 \times 2) + (1 \times 3) + (1 \times 1) + (5 \times 1) + \left(\frac{92}{50}\right) = 11.8 \end{aligned}$$

CONSULTING AND INTELLECTUAL DEVELOPMENT

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ABSTRACT

Consulting in business communication can gain not only certain economic advantages, but perhaps even more important, can gain for the consultant any number of intellectual experiences that oftentimes substantiate business communication theories preached in the classroom. This paper presents experiences of the author that underline such communication theories as the power of real-world evidence, the discrepancies between ideal managerial communication and real-world communication, participatory analysis, the power of informal networks and the rumor process, source credibility, and more.

INTRODUCTION

Consulting is not only a favorite buzz word these days, but in some circles it seems to be a requisite for acceptance in professional society. If we do not indicate consulting activity on our resumes, we may leave ourselves open to rejection, lowered esteem, and/or less opportunity for advancement in our positions. Many of us who are approaching retirement have known consulting from the days immediately following World War II, when spouses of professional people did not usually work outside the home, when academic salaries ranged from four to seven thousand dollars a year, when consulting was one of the few ways in which a person could augment the family income to afford being a college teacher. Frankly, consulting in those days was a budget-balancing activity and not much more.

Some of us, for one reason or another, pursued an academic career that entailed serious research, while others devoted most of their energies to becoming master teachers. Those of us who leaned toward research found that consulting could become a kind of intellectual game, the object of which was to solve the problem presented by the employer. For most of us, solving management and communication problems means that we must have a good grasp, and an immediate one, of the major psychological and sociological

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theories of management and communication and that we have to apply them in a fairly short time frame. This requisite for consulting presents two other problems: one, the ability and willingness, or the lack thereof, of the employer/client to define and present the problem, and two, the ability of the consultant to use good communication theory to determine and then solve the problem. That's a large order. Let me illustrate with a few examples from my own background.

LACK OF EVIDENCE

Early on, during that period when I was involved with consulting as a budget-balancing activity, I had the opportunity with one of my colleagues to work for several weeks with the young professionals in the R & D division of a medium size industrial concern. We were hired "to upgrade the writing of these young engineers and scientists." In preparation for this job, we acquired brief technical reports written by the subjects and reviewed them rigorously in our own offices. We found no great need for upgrading of the writing. So we asked some questions. That was a mistake -- or perhaps it was the beginning of my own consulting activity as an intellectual endeavor. Something guided me to ask questions like "What evidence do you have to indicate that these people need upgrading in their writing?" or "How do you know these people need . . . ?" or "Have you done any kind of survey of these people or their work . . . ?"

From these and other questions, most of them gut-feeling kinds of questions, nothing scientific at all, we did find out that the managers of these young engineers and scientists knew that management should be doing something, but didn't know what to do. And we found out something else: we as consultants could and perhaps should take the responsibility for finding out what the "real" problem is and not just accept the manager's word without any attempt to validate the apparent assignment.

REAL-WORLD MANAGERIAL COMMUNICATION

Another revealing experience came about through the efforts of a friend who headed up the report-writing department of twenty or so people in a pharmaceutical research institute. He knew that professors in those days almost had to work summers, and so he found a job for me: "trouble-shooting" his department. Because I knew this friend well, I knew immediately that he didn't have the slightest idea what "trouble-shooting" meant in the context of his department and his writers. But I did need the job that summer -- and its promise of further work in the future if that summer worked out well. So I began -- and asked questions -- and got almost no answers. The only avenue left open to me was to go to work, doing what all the others were doing, writing. My new boss and I worked out a participatory program whereby I would learn what some of the problems were that his writers were having, if any, by doing the same work they were. I later learned, from some of our academic literature, that participatory investigating or participatory analysis can be a rewarding effort, albeit a costly one, particu-

larly in terms of time expended. By working as a writer that summer I did learn some basic facts and theories about communication management; first, that a manager had better know pretty accurately what his people are doing; second, that putting a "spy" into the system is almost certain to be found out; third, that candor and honesty are the best policy; fourth, that input from staff people is invaluable, but that it costs, in that staff people expect their input to result in observable consequences; and fifth, that frank interviewing of staff people from the very outset will usually get the same results as participatory analysis but in less time and with less effort and cost.

INFORMAL NETWORKS AND SOURCE CREDIBILITY

A third experience may show a number of things that can be learned about human communication in management situations. Some years ago I had the opportunity to fill in during a summer for a safety writer who had just begun her maternity leave. My job was not really a consulting one, technically, but since I was to be on the payroll for only two months, I was treated as if I were a consultant, but paid the normal wage. My main task during the summer was to write a "local" safety manual for a federal ordnance arsenal, to parallel the national U.S. Army Ordnance Corps Safety Manual that occupied some nine hundred pages of small print. Knowing practically nothing about industrial safety or the organization of the federal arsenal where I was to work, it became clear very quickly that a good deal of research was needed. Because of my natural inclination to visit with people and ask questions, I relied on informal conversations with many people at all levels of the hierarchy and found right off that many people on the employment rolls of this highly structured federal installation knew no more than I did. In fact, one of the by-products of my asking questions was a collateral assignment from the commanding officer's office: to redo the organization and function charts of the arsenal. The major finding of this additional job was that the existing records (then on paper only, no computer yet) were inaccurate, out of date, and almost impossible to update. Another finding was that many people knew this situation existed but for various reasons were not willing to initiate any corrective activity. In this phase of my work I became an expert at promising to keep the names of my informants confidential -- and I kept those promises. Probably the most interesting example of recognized communication theory was the phenomenon of informal networks. Office after office told me that they had heard that I was coming to interview them, although no official notice of what I was doing had been distributed to anyone. And the well known "rumor mill" was also very evident: my name became different from anything I had ever seen; my assigned office in the Safety Section became changed to that of the Commanding Officer; I even became an investigator for OSHA on assignment to the arsenal. In spite of what I said each time I visited an office for the first time, I found that I was not being believed completely and that I needed a small plastic badge with my name and office on it, pinned to my shirt pocket.

CONCLUSIONS

If I had been a formal student of communication theory at that time, I

would have known to expect these seeming aberrations. And I might have known how to forestall them -- or, at least, to cope with them much more efficiently than I did. Here is where all of us who do or intend to do consulting can make our work a lot easier and more productive: pay attention to established communication theory, use it in the planning of consulting jobs, share it with your clients, show them how you can foretell some of the things that are going to happen. Let us use what we can know about small group communication, about formal and informal leaders, about the transitory nature of leadership in informal networks, about the differential effects of persuasion on open-minded and close-minded people, about the disparity between planned programs of communication and the actual communication that does take place, etc., etc. As Robbie Burns said,

The best laid schemes o' mice
and men gang aft a-gley.

It's one thing to read about all these neat theories in our typical textbooks; it's another to read about scientific studies undertaken all over the continent, mainly with college and university students as our subjects (do they well represent workers, white and blue collar, in our industrial firms?). And it's quite another to see our theories and even some of our hypotheses really at work out there in the business and industrial world. There is no academic thrill as great as seeing something you have read about or been lectured about come to life out there in the "real world."

Consulting can be -- and should be, in my opinion -- a most exciting experience, the intellectual profits much more to be cherished than the fiscal ones.

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"HELLENIZING" THE INTEROFFICE MEMO

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ABSTRACT

Most Business English texts concentrate heavily on the traditional forms of business communication: the letters that sell, make claims, say yes or no; and the reports that analyze or inform. The interoffice memo--a form of communication involving the greatest number of variables and often requiring the most delicate of judgments--usually gets a cursory treatment. Since corporate loyalty is definitely a factor in the successful running of any business, it seems reasonable to suggest that, instead of spending most of our classroom time on communications which are to be sent out, we should spend more time on those which, along with their senders and receivers, will remain within.

The interoffice memo is a form that, in my opinion, no one has taken seriously enough. It has been accorded neither the emphasis in theory nor the space in the textbooks that the sales letter has, for example. For those of us teaching Business Communications, the most help we get from a text consists of a slim few pages dealing with a handful of routine situations requiring a memo; when in fact, the good interoffice memo is anything but the easygoing matter these textbooks would lead our students to anticipate.

In the earlier days of the English-speaking culture, as most folks in our profession are aware, poets began their careers by writing light poems about shepherds. If the light poems about shepherds were pretty good, then the poet would progress through certain other poetic forms until, nearing the end of his career, and only if he felt he had accumulated the necessary education and wisdom, maybe, just maybe, he would try his hand at an epic poem, a poem about the culture of his nation and about his nation's heroes. I think it's safe to say that the good interoffice memo is the epic poem of business communications, whereas the everyday sales letter is, by comparison, a piece of doggerel.

For example, in creating sales letters, writers have already in their minds as they write, a sense of the audience, a sense that is largely made up of safe abstractions, probably provided by a computerized mailing list. Writing an effective sales letter under such circumstances is really little more than hackwork. The writer might miss a few targets, but will have already accounted for those misses, so the outcome can most often be

predicted with relative ease. The interoffice memo, by contrast, offers no such predictability. Who is the audience? The vice-presidents? The mailroom staff? Middle management? The secretarial pool? And what sorts of individuals make up each of these groups?

In my opinion, if the student is trained to take the writing of an interoffice memo seriously, he or she will never copy a form when writing one, because there is no format in existence which would cover the variety of rhetorical choices necessary to reach the varieties of audience within a given business situation. Correspondingly, if students plan to be in the position of writing interoffice memos, it behooves them to become attuned to a variety of audiences, or they will not be able to exert the leadership necessary to the smooth running of a business. The point is: if the writer can put together a fine interoffice memo--say, one to an employee who is also a social acquaintance, whose wife is dying, who has been arrested several times for drunk driving, and who has a vital corporate project that was due last week--if the writer can write a fine office memo in such a situation, then that writer can write almost anything. Viewed in this light, it is clear that artful rhetoric in the interoffice memo is an important key to corporate loyalty, since if the writer puts the memo together not at all well, he or she is likely to lose the employees' or colleagues' respect, as well as lose their willing performance.

Unfortunately, the ways of expanding one's sense of audience into a sense capable of handling deftly every interoffice situation are limited. First, one might live among all varieties of people and traverse across all sorts of socio-economic lines. Obviously, this approach is impractical, if not impossible, for most of us. A second alternative, and the only reliable one, is to acculturate oneself, in order to be given illustrations, through art and literature, of how all sorts of audiences are liable to feel and think and how all sorts of audiences are liable to respond. Television, or national television anyway, will probably not ever provide this very complex and sophisticated information. Only an immersion in the culture itself, either through experience or study, will provide the student with that knowledge of audience. Further, and most important perhaps, such an acculturation also provides the necessary sense of responsibility that must accompany the knowledge, since the ability to win an audience, even in an interoffice memo, can be used wrongfully.

The third alternative leading to the understanding of an audience (and the one that seems to me most commonly in use) is a "hit-and-miss" approach, whereby the fledgling student of rhetoric writes a memo and surveys the consequences after the fact. Since, under the circumstances, the writer would be likely to make many grievous errors before even making the same one twice, it appears obvious that guessing an audience response, without being able to "read" that audience, is foolhardy.

I'd like to leave the interoffice memo for a minute, and focus on some history. The people from history whose names the students of business have been encouraged to memorize are mostly people who have contributed to some facet of today's business. The students hear of the economists and the politicians and the great investors. But they are not as acquainted, I figure, with the people in history who, instead of focusing on facets of

business, focused instead on business itself as an idea. How was the idea of business going to affect the human race?

Two people particularly interested in the idea of business and how it was to evolve were Thomas Carlyle and Matthew Arnold, both 19th-century Englishmen. Most business students today, I'm quite sure, do not know that these men had a direct influence on them and on the world of business; do not know that Matthew Arnold was a popular and listened-to lecturer throughout America in his day, and that Carlyle's ideas were "sold" to the educated American public through packaging designed by people like Ralph Waldo Emerson. As a professor of mine once pointed out, we have named quite a few grammar schools in this country after Ralph Waldo Emerson, presumably because we like what he thought and what he wrote, and in several cases, those thoughts that we liked in Emerson came originally from Thomas Carlyle.

Because many of Thomas Carlyle's ideas appear conservative even to the conservative, he is seldom quoted, and what he says is embarrassing to some. But he coined an expression to describe what he perceived as the business executive of modern times, and he expressed an ideal of what he hoped that person was to be like. He called such a person a "Captain of Industry," a term which, in recent times, has been vulnerable to satire. The satire is unfortunate, because the term is potentially a good one, not only because of the positive leadership connotations in the word "Captain," but also because the word "industry" implies an attitude of industriousness, along with an image of a civilization busy at work, an image these days more frequently attributed to Japan than to the United States.

According to Carlyle, the degree of loyalty from crew to Captain and back again was of the utmost importance, and could only be brought about through the skill and the knowledge of the Captain. As Carlyle saw it, the future "Captain of Industry" should be able to inspire loyalty from labor to management, in return for a certain nobility of leadership. So even if one rejects Carlyle's political ideas, one shouldn't mind taking from him the title he gave, since "Captain of Industry" is a dignified title, and implies an awareness of leadership and influence that goes far beyond matters of business. Unfortunately, however, the nobility leading to such leadership and influence is a good deal harder to come by than the dignified title.

The other author I want to mention, Matthew Arnold, gives us some clues as to what is meant by such a "nobility." Arnold is best known, perhaps, for a poem called "Dover Beach," but for business students Culture and Anarchy is more important, since it contains within it an expression of the author's fear that business was really making some serious errors. As most dedicated students of literature know, Arnold felt that our industrial civilization had inherited two major cultural traditions, the Judeo-Christian tradition, and that of the Greeks. The Christian tradition emphasized "moral development and self-conquest," both of which are obviously fitting for the successful pursuit of business. It is "moral development and self-conquest," for example, that keep us from rolling over and going back to sleep on a Monday morning. Along with praising his industrial nation for having the good sense to utilize this half of its cultural heritage, however, Arnold also warned that industry had given the Greek part of its heritage short shrift. The world of business had, he

said, been slighting the Greek contribution, a contribution he called "Hellenism," and which he characterized by the phrase, "sweetness and light."

Since Arnold's time, we have taken his term "sweetness and light" and turned it into a phrase to describe sentimentality; to say something is all "sweetness and light" is to speak ironically, as though "sweetness and light" were silly and impossible. But what Arnold actually meant by keeping "sweetness and light" in our culture was something very serious, something not achieved by simply putting Doric columns on our public buildings, or by giving Greek names to our fraternities and our tennis shoes. He felt that civilization had tipped its philosophical scales too heavily away from Hellenism, from culture, from the human insights that come with a knowledge of culture, and from a sympathy with everything that culture represents. Furthermore, he worried that industrial civilization was courting decline as a direct result of our ignoring this Hellenistic part of our heritage. "Culture," said Arnold, "seeks to make the best that has been thought and known in the world current everywhere."

That the business community senses the need to reassure the public on this score of "sweetness and light," is made evident by several advertisements that are run on occasion in national magazines. One I have in mind is sponsored by an organization called "The National Corporate Fund for Dance," and shows a Captain of Industry (and surely he appears as Carlyle would have wanted him to--handsome, strong, nattily dressed), an elegant Captain of Industry, with his hands encircling the very tiny waist of an equally elegant ballerina. Now, the feminists might say this ad is sexist (which is probably is), and some people might even say this ad is elitist (which it probably is), but what the businesspeople behind the National Corporate Fund for Dance are trying to do through this ad, it seems to me, is reassure the public that business is indeed taking seriously the "sweetness and light" component of our cultural heritage. Well, the ad is reassuring in that it has business and culture set to twirl on the same page. I am reassured in the same way by oil companies sponsoring good theater on PBS.

But I am not entirely reassured. Because at the same time I am being told by the media that business is concerned with the dissemination of culture, I am watching the enrollments in literature classes at the University get smaller all the time, and I have students in my Business Communications classes who have read almost nothing outside of their textbooks and who have seen of the world little more than what they're likely to run into in their own usually pretty narrow orbits.

How are such students going to develop a sense of audience? And without such a sense, how can such students develop the ability to write an interoffice memo inspiring corporate loyalty? They's can't. Say a student takes my Business English class, and uses that class to fill an Arts and Letters requirement, which many of them do. Unless that student already has an insight into human psychology, a knowledge brought about either through experience or by at least a dabbling in the arts and letters of the culture, it's very nearly impossible for me to explain why one interoffice memo is rhetorically sound while another isn't. Understanding rhetorical choices involves a development of the imagination--a Hellenistic training, an

awareness of that neglected half of our cultural heritage.

Most Business English textbooks have a section on the "you attitude"--the matter of audience, really. But a student's customary response to this section of the textbook is simply to insert the pronoun "you" more frequently. That isn't all there is to the "you attitude," and it certainly isn't enough. And while the study of linguistics has progressed to the point where one is very nearly able to computerize good rhetoric for a sales letter, it is unlikely that the effective interoffice memo, because of its varieties of audience, will reveal its human subtleties to a computer.

In short, I am not going to be reassured by any advertisement or by any other form of corporate sponsorship of culture until it can be proven to me that the Captain of Industry, and other men and women in his position, can claim to have the knowledge of culture necessary to Hellenize something as reputedly inconsequential as the interoffice memo.

And suppose the guy in the advertisement has that culturally grounded sense of audience? Suppose, in addition to knowing how to choose his tailor, and in addition to realizing that the public wants to think of business and culture as partners, suppose he also knows how to juggle his rhetoric to reach every audience? Is he also able to use that knowledge responsibly? And if he is, how many are there like him? Fewer every year. And there will be fewer every year, until Arts and Letters requirements require more arts and letters. Until all such Captains, men and women, can read the varieties within their audiences, can feel a leader's responsibility to those audiences, until these things happen, I cannot be reassured by such advertisements.

The interoffice memo becomes a symbol, then, of one of the business students' major obligations to themselves and to those whom they may lead.

Let me provide a specific example. Suppose the Captain of Industry has to tell a subordinate on his or her office staff that a request is going to be granted that is not normally granted, but also wants to make sure that the employee recognizes the situation as an exception. The Captain could say in the memo to that person, "It must be understood that this decision sets no precedent." Now, you will notice that there is neither a main subject nor a main object in that statement--"It must be understood that this decision sets no precedent." There is no subject to insist upon that understanding, and there is no object to respond to such an insistence. In short, there's no "I" and there's no "you". In order to Hellenize this statement, the Captain of Industry needs to add the humans, the "I" and the "you". Instead of "It must be understood that...", the astute rhetorician would say, "I must tell you that....--I must tell you that this decision sets no precedent." The directive clout is still there, our Captain has "covered his corporate act," but has at the same time made the communication a human one. But still our writer has not done all that's possible. Suppose the memo reads, "I have to tell you that....". Denotatively, "I have to tell you..." is not very different from "I must tell you..." but connotatively, there's a great distance between the two. "I must..." is still pretty stuffy, bureaucratic; "I have to..." implies a human reluctance, a siding with the employee in admitting to the nuisance of

bureaucratic regulations; in short, a communication of the sort which is much more likely to inspire loyalty. Put yourselves in the shoes of the receiver of this memo, and you'll see what I mean: "It must be understood that this decision sets no precedent," vs. "I must tell you that this decision sets no precedent," vs. "I have to tell you that this decision sets no precedent." In the first, we have a statement from nobody to nobody, in the second we have a fulfilled bureaucratic obligation, and in the third, we have a human communication, one much more likely to inspire loyalty to the writer in the future.

It would be nice if I could say, as many texts do on this score, that all one has to do is put a whole bunch of "I's" and "you's" into the interoffice memo. Unfortunately, the insertion of subjects and objects into your sentences and an avoidance of the passive voice are but small fragments of what one needs to know in order to write a truly Hellenized interoffice memo. In order to know one's audience, and to adopt the appropriate rhetorical strategy for the variety of audiences who may receive the memos, one needs to know something of the nature of the person or persons to whom the memos are directed. And because there's no way to know everything about oneself, let alone everything about everyone else, one needs to rely on what amounts to an intuition, but it's an intuition resulting from an absorption of one's own widespread, deep-rooted, many-faceted culture. The nobility of leadership, the nobility Carlyle was looking for, cannot be achieved in any other way, and deserves nothing less.

In my attempt to teach what is meant by the "Hellenized" interoffice memo, I have run into some revealing situations. This last term, I told my students to imagine themselves in the position of having to recommend the firing of someone they know pretty well. In the scenario, they have tried to take care of this personnel action behind closed doors, but the boss needs a written recommendation to be passed on to upper management, a piece of writing likely to be seen sooner or later by the person getting fired. Two of my students provided memos leading to some interesting speculations:

MEMORANDUM

To: Mr. Michael Tanabe
From: XXXXXXXXXXXXXXXXXXXX
Date: March 7, 1984

Because I have been employed by this company the longest, I feel it is my responsibility to inform you of a disturbing situation which is greatly affecting the efficiency of this office.

Since Amy Koike has acquired the position of Manager, tension within the office has made it difficult to concentrate on work. My co-workers are constantly complaining to me about Miss Koike's disposition.

There are a number of gripes about our new Manager's attitude: Miss Koike uses a very demanding tone of

voice when it could be said in a more polite manner, she intimidates the people working for her by talking down to them, and she is not open to advice from the ones who have been employed longer and may sometimes know the subject at hand a little better.

The above examples may seem petty, but Miss Koike's attitude does make it difficult to run business to its fullest capacity. May I suggest that we have an office meeting to discuss this predicament? I know it would release a lot of pressure. Maybe then we could begin focusing our attention on work rather than how to avoid the Manager.

Thank you for your time.

Prior to assigning this particular memorandum exercise, I had attempted to give the students the idea of "Hellenization," and had instructed them to give an example of a "Hellenized" memo. Upon reading the above example, it occurred to me that, in spite of my explanations, this student had translated "sweetness and light" to mean, simply, a greater amount of feeling, a common misunderstanding which has probably given that phrase its bad press. But "sweetness and light," although it includes in its definition the addition of feeling, also includes the sensitivity necessary to identify and reject feelings that are inappropriate to a situation.

The above memo, it was easy for my students to see, is rampant with inappropriate feeling. The sections I have underlined point up those places which render this communication whiny and petulant, making the writer sound jealous and therefore lacking in credibility. "Hellenizing," therefore, does not mean the use of superlatives, although more than one of my students seemed to think so.

Compare that memo with the following:

MEMORANDUM

To: Donald Klum, Vice-President
From: XXXXXXXXXXXXXXXX, Employee Coordinator
Date: March 7, 1984
Subject: Robert Donovan

For the past nine months Mr. Donovan's section of the assembly line has posted a significant operating loss. I have studied the situation and find that because of severe personal problems Mr. Donovan is the cause.

In the capacity of supervisor Mr. Donovan has many responsibilities which include: motivating his personnel, filling out progress reports, performing

required quality checks, and generally keeping the assembly line moving smoothly.

At the present time Mr. Donovan is not performing any of these functions in an acceptable manner. Therefore, it is my personal recommendation that Mr. Donovan either be transferred to a position without as much responsibility or he should be released from our employment.

This memo, in contrast to the earlier one, is entirely free of Hellenization. If we remember that the writer was to recommend the firing of someone he or she was supposed to know well, we can only assume this writer either has a very cold heart, or is so afraid of being inappropriate that he doesn't take any chances at all. The result is a memorandum that might make upper management feel some concern over the writer's character, and Mr. Donovan might not be the only one out of a job or unlikely to get promoted.

In this last memo, one additional sentence would have done the trick, I think. After all that heavy-duty cold-bloodedness, which convinces the bosses we have no pollyanna doing the writing here, the "heart-of-stone" charge can be circumvented by something like, "I'm sure you're aware, Don, that this whole matter is not making me very happy." Or some such. The point is, to appear in the interoffice memo as little like a machine as possible, while at the same time making sure that the "sweetness and light" doesn't get sugary and glaring.

Finally, to fulfill Carlyle's dreams for the Captains of Industry, and to give the lie to Matthew Arnold's woeful predictions regarding the dehumanization of our culture by business, the business student needs to be more aware of audience and of his and her responsibilities to that audience not only in memos, but in other ways as well. As everyone knows, one of the important cornerstones to the economic success of Japan is corporate loyalty. And if we are not entirely comfortable with the way Japan elicits corporate loyalty, we are going to have to find another way. As I see it, cultivating a sensitivity to the rhetorical delicacy of the interoffice memo is as good a place as any to begin.

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COGNITIVE COMPLEXITY AND STYLES OF COMMUNICATING CONFLICT IN BUSINESS

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ABSTRACT

An empirical investigation was undertaken to explore possible relationships between cognitive functioning and managerial communication. In brief, this study asked the question: Is the relative complexity-simplicity with which future managers structure and interpret their social environment related to their styles of communicating conflict in business? In order to answer this question, the study attempted to discover whether cognitive complexity is related to (1) expressed preference for a style of communicating conflict in business situations and (2) demonstrated style of communicating conflict in bargaining/negotiation exercises. The study considered its results with particular attention to future research into the determinants of effective organizational communication.

MANAGEMENT AND COMMUNICATION

The successful management of human affairs, quite clearly, is dependent on effective communication. Certainly, this relationship between good communication skills and the management function is real, and demands the attention of our best educators and researchers. To be an effective manager is to be an effective communicator.

Communication is widely viewed as an essential part of good management practices because, as Myers and Myers point out, communication is at the heart of the organization. It is communication which makes it possible for individuals to coordinate their activities and thus, to achieve organizational goals (1982, p.8). As they state:

Our thesis is that communication is the central, binding force which permits coordinating among people and thus allows for organized behavior. We believe that managing is ultimately the process of influencing other people, and we contend that such influence is exerted through communication.

(Myers & Myers, 1982, xvi).

Managers depend on the communication process to extend the range of their influence by carrying out such major responsibilities as coordinating, directing, motivating, controlling and planning (Miner, 1975). These and related managerial activities depend, to a large extent, on purposeful human communication.

Although communication may occur without conscious intent, the successful enactment of managerial activities seems to require a relatively high degree of awareness on the part of the manager. Intuitively, it seems reasonable to assume that the highly aware manager is better equipped to organize, direct, and coordinate the activities of others than the manager who possesses a low degree of awareness.

This conclusion is warranted on the basis of previous research. Cegala et al., for example, characterize communication as a two-stage process involving first cognitive and then behavioral activities. The cognitive phase begins with an individual's awareness and assessment of cues in the social setting. Based on this assessment, the individual is able to determine the appropriate communicative response. The second stage of communication consists of the overt enactment of selected behaviors. Undoubtedly, competent performance skills are important to effective communication. But Cegala's findings strongly support the notion that as the quality of awareness skills needed in stage one decline, "...the second stage of the social act is highly unlikely," (1976, p.2).

The knowledge that awareness skills are fundamental to successful communication is of potential interest to managers. It seems likely that the ability to differentiate finely among cues in the organizational environment assists a manager at identifying the appropriate communication behaviors needed to carry out his or her responsibilities. It seems reasonable to ask, then, whether varying degrees of social awareness are associated with the differing styles of managerial communication. In the present investigation, the construct of cognitive complexity was used to explore this possible relationship.

THE CONSTRUCT OF COGNITIVE COMPLEXITY

Cognitive complexity is a variable that represents the relative intricateness of an individual's cognitive system. The variable has its theoretical foundation in Kelly's Personal Construct Theory (1955) which suggests that individuals organize their perceptions through a system of patterns or constructs. Bieri (1955) was the first researcher to articulate cognitive complexity as a function of differentiation and integration of an individual's construct system. Differentiation refers to the fineness of discrimination or relative dimensionality of a cognitive system, while integration refers to the complexity of relationships among the dimensions of that cognitive system. Typically, individuals are considered to be cognitively complex if they possess construct systems which differentiate highly among stimuli and cognitively simple if their construct systems fail to achieve high degrees of differentiation.

Cognitive Complexity and Communication Behavior

Numerous studies have examined the relationship between the cognitive complexity of an individual's construct system and the communication through which

that individual adapts to his or her social environment. Findings indicate, for example, that cognitive complexity is significantly related to:

1. Communication effectiveness in tasks requiring accurate encoding and decoding of information (Hale, 1980);
2. The level of information encoded into messages (Saine, 1976);
3. Regulative strategies employed in communication between peers (Applegate, Kline & Delia, 1980);
4. The ability to predict accurately the behavior of others (e.g., Bieri, 1955; Levanthal, 1957); and
5. The development of listener-adapted communication (Delia & Clark, 1977).

The available literature, quite clearly, points to a close relationship between the intricateness of a person's cognitive system and communication behaviors.

Managerial Communication

Communication in an organizational setting can be likened to Thomas Schelling's concept of the "mixed-motive game", a game in which the players experience both conflict and cooperation as they work to attain their goals. Organizational members, while tied to each other in mutual dependence and accommodation for the realization of these goals, often find themselves in conflict with one another.

Indeed, in any organization, whether one considers a business, a family, or a group of friends, it is likely that whenever needed resources are in short supply, conflict will occur. As Frost and Wilmot state, conflict is "an expressed struggle between at least two interdependent parties who perceive incompatible goals, scarce rewards, and interference from the other parties in achieving their goals," (Adler et al., 1980, p.277). Because the occurrence of conflict is inevitable in the history of any organization and because its resolution demands competent communication skills, it presents an ideal context for the study of managerial communication.

DESIGN OF THE STUDY

This study investigated possible relationships between the awareness and enactment stages of managerial communication. It was anticipated that those individuals who varied in cognitive complexity might also vary in their preferred and demonstrated styles of communication in conflict situations.

Research was conducted in two phases. The first portion of the study consisted of the evaluation of subjects' social awareness skills, which were operationally defined in terms of cognitive complexity. The next phase of the investigation was essentially heuristic in nature. An examination of the possible relatedness between cognitive functioning and human communication was conducted by studying three sets of variables: Cognitive Complexity, Preferred Conflict Communication Style and Demonstrated Conflict Communication Style.

PHASE ONE - ASSESSMENT OF COGNITIVE COMPLEXITY

The initial sample consisted of 202 freshman students at Babson College. Data were collected on the first day of classes, fall term, 1982, to control for such extraneous factors as choice of major field of study and core courses completed in the management sciences. Because previous research suggests that cognitive complexity is a sex-related variable (e.g., Cegala, 1972; Delia, Clark and Switzer, 1974), it was judged desirable to limit this investigation to one sex only. Due to the larger number of men composing the initial sample (Males, $N = 127$; Females, $N = 75$), males only were studied to avoid possible confounding.

A variation of Crockett's (1965) measurement procedure was used to operationalize cognitive complexity. Like most research in this area, cognitive complexity was defined according to relative discrimination: the number of distinct interpersonal qualities perceived by a person when observing the behavior of others.

Standardized stimulus materials, in the form of videotaped conversations between two individuals were shown to all subjects. These videotapes were used to elicit descriptive essays focusing on the interpersonal attributes of those persons observed.

Scoring of Essays

Essays were analyzed by four coders for the presence of interpersonal constructs. A set of rules was used to aid in the counting process which derived, in part, from a handbook developed to analyze the organization of written impressions (Crockett, Press, Delia & Kenny, 1973). This set of rules was re-fined and tested by Sokovitz in previous research on cognitive complexity (1977), at which time reliability of coders' scores ranged from .93 to .99.

In the present study, reliability of coders' scores was analyzed using BMDP-8V (Mixed Model Analysis of Variance, Equal Cell Sizes). Given a satisfactory level of reliability among the scores produced by the four coders ($r = .99$), cognitive complexity scores were computed by summing the total number of interpersonal constructs indicated by the four coders for each subject. This scoring procedure resulted in cognitive complexity scores ranging from 12 to 112. The mean cognitive complexity score obtained for the sample of 127 subjects was 48.62 with a standard deviation of 16.6.

The sample of subjects for subsequent parts of this investigation consisted of 36 men selected from the original pool of 127. Eighteen subjects were chosen from the extreme top and 18 subjects from the extreme bottom of cognitive complexity score distribution. Complexity scores of these individuals were at least one standard deviation from the mean. These subjects received \$3.00 for their participation and were also eligible to receive a bonus.

PHASE TWO

No hypotheses were proposed for Phase Two of the investigation due to its exploratory purpose. But it was hoped that results from this part of the study

would illuminate possible differences in the conflict styles of high and low complexity persons. This portion of the research focused on Preferred and Demonstrated Conflict Communication Style.

Preferred Conflict Communication Style

A questionnaire was designed to assess the individual's preferred styles for communicating in conflict situations. The development of this instrument flowed from the theoretical framework found in Adler et al.'s (1980) and Filley's (1975) typologies of personal conflict styles.¹ Five major modes of coping with conflict are suggested by a careful examination of their work:

1. Avoidance - ignoring a problem by removing oneself physically or psychologically from the situation, or complying to reduce tension.
2. Smoothing Over - maintaining the belief that all is "ok" in order to maintain the equilibrium of relationships with others; harmony is valued over self-satisfaction.
3. Compromise - seeking a middle position that is partially satisfying to each of the parties involved; may involve the use of voting or rules to reduce the possibility of direct confrontation.
4. Competition - viewing conflict as a battle; a win-lose game in which whoever has the most power, wins.
5. Integration - resolving differences through problem-solving; both parties work together in the belief that two sets of goals are not necessarily unattainable.

A 12-item questionnaire was developed in which each item described a hypothetical business situation involving conflict. For each of these 12 situations, the subject was presented with five possible modes of communicating a response, each alternative representing one of the five styles of conflict described above.²

A panel of judges (1) determined that the 12 items accurately represented conflict situations which occur in the business world and (2) determined that the possible reactions to each business situation accurately represented the five styles of coping with conflict.

Subjects were provided a maximum of 15 minutes to respond to the questionnaire. They were instructed to indicate their preferred Conflict Communication Style (hereafter referred to as CCS) by assigning exactly 3 points, in any combination, among the five possible responses for each item. In total, subjects were asked to distribute exactly 36 points (3 points X 12 conflict situations) among the five styles of communicating conflict. Scores for Preferred CCS were formed by summing the points that a subject assigned to each of the five CCSs across all 12 items. These data were then grouped according to cognitive complexity levels

¹ The five categories of conflict style used in this questionnaire are based on a synthesis of the two typologies, but utilize Adler's labels due to their greater descriptive value. Both Adler's and Filley's classification schemas reflect current research in this field, thus supporting the choice of the system used in this study.

² See Appendix A for questionnaire instructions and sample items. Complete copies of the questionnaire are available on request.

(high/low) and analyzed simultaneously with the measure of demonstrated CCS which is described below.

Demonstrated Conflict Communication Style

Assessment of Demonstrated CCS was based on an analysis of subjects' communication performance during a two-party negotiation exercise. The 36 subjects chosen for this phase of the study were divided into 18 dyads:

6 dyads - 2 low complexity subjects each;

6 dyads - 1 high and 1 low complexity subject each; and

6 dyads - 2 high complexity subjects each.

Subjects were assigned to one of the 18 dyads and asked to assume the role of either attorney for the plaintiff or attorney for the defendant in a mock, civil suit court case similar in format to those used by Donohue (1978). In the present investigation, subjects were given a maximum of 15 minutes to analyze the civil suit and the opportunity to reach a settlement out of court.

These exercises were designed to approximate a mixed-motive game in which the elements of conflict and cooperation were both included. Conflict was induced by establishing a reward system tied to the final settlements. Three dyads negotiated the case at the same time but in separate settings. The individual attaining the lowest settlement among the three defense attorneys and the individual attaining the highest settlement among the three plaintiff's attorneys each received a bonus of \$4, in addition to their guaranteed minimum of \$3. Members of a dyad, therefore, were encouraged to compete both with each other and with attorneys in two other dyads.

The payoff system was also designed to encourage cooperation between the attorneys for the plaintiff and defendant. Those dyads unable to reach a mutually-satisfying settlement within the fifteen minute time limit became ineligible for the \$4 bonus. In this way members of a dyad were rewarded indirectly for their cooperation.

Audiotapes and transcripts of the negotiations were examined for the presence of the five CCSs described earlier. Although all 18 dyads were audiotaped, technical difficulties necessitated the removal of 9 subjects from this phase of the study. Remaining in the sample were 27 subjects: 13 high complexity and 14 low complexity persons.

Given considerable variation in the length of the bargaining sessions (seven to fifteen minutes) and a large volume of data, only the last five minutes of each dyadic interchange were analyzed. These 14 conversations were then transcribed in a fashion which indicated change of speaker.

Four judges evaluated the Demonstrated CCS of all subjects. Before beginning the assessment they participated in a training session which helped them to recognize communication strategies associated with each of the five CCSs. Judges were first required to listen to the five minute recording of each dyadic interchange. It was assumed that by hearing the subjects' nonverbal

vocal cues (e.g., rate, pitch, volume), judges would be able to make more informed evaluations. Second, they read and analyzed the transcript of each five minute conversation for manifestations of the five CCSs. Coders were advised to indicate the extent to which they observed the various CCSs. This was accomplished by having them distribute 9 points, in any combination, among the five CCSs for each subject. The more frequently a judge observed the occurrence of a CCS, the greater the number of points it was assigned.

Reliability of coders' scores for each of the five CCSs was analyzed using BMDP-8V (Mixed Model Analysis of Variance, Equal Cell Sizes). A satisfactory level of reliability was attained for all five style categories: Avoid ($\underline{r} = .99$), Smooth ($\underline{r} = .84$), Compromise ($\underline{r} = .98$), Compete ($\underline{r} = .99$), and Integrate ($\underline{r} = .97$).

A subject's score for Demonstrated CCS was computed by summing the total number of points indicated by the four coders for each CCS. Because judges distributed exactly 9 points to each subject, this summing process produced 36 points per subject (4 judges X 9 points). This allowed for useful comparisons with preferred CCS, which was also based on a 36-point scoring system.

Data for Preferred and Demonstrated CCS were then grouped according to level of Cognitive Complexity (high or low) and analyzed using an analysis of variance and covariance with repeated measures (BMDP2V).

RESULTS AND DISCUSSION

Table One presents a comparison of mean CCS scores, grouped according to cognitive complexity levels. An examination of these data reveal that both groups of subjects preferred and demonstrated remarkably similar CCSs. The lack of a significant difference between the mean CCS scores of high and low complexity subjects is further substantiated by the results presented in Table Two. An overall comparison of means between high and low complexity subjects reveals no significant difference ($\underline{p} = .8590$). Further, cognitive complexity level does not appear to interact with (1) preferred/demonstrated CCS ($\underline{p} = .7066$), (2) individual dimensions of CCS ($\underline{p} = .6249$), or (3) a combination of the two ($\underline{p} = .8044$).

On the basis of these results, it appears reasonable to assume that high and low complexity individuals do not prefer or demonstrate differing styles of coping with conflict. Apparently, variation in the subjects' construct systems and in their ability to discriminate among phenomena in the social environment did not mediate their style of communicating in conflict situations.

Further examination of Table Two does, however, point to a number of intriguing relationships not directly connected to cognitive complexity. First, a significant difference exists between mean scores for preferred and demonstrated CCS ($\underline{p} = .0311$). Also, a comparison of means among the five dimensions of CCS indicated a significant difference ($\underline{p} < .0001$). Finally, the dimensions of CCS seem to interact with the preferred/demonstrated CCS factor ($\underline{p} < .0001$). Together, these results strongly suggest a clear distinction between how people prefer to deal with conflict under ideal circumstances and the behaviors they ultimately enact under the pressures of reality.

TABLE ONE

Comparison of Means: Preferred/Demonstrated Conflict Communication
Style (CCS)

Grouped by Cognitive Complexity Level

		High (N = 13)	Low (N = 14)
Preferred:	Avoid	0.76923	0.92857
	Smooth	4.76923	4.71429
	Compromise	5.23077	5.92857
	Compete	3.76923	6.00000
	Integrate	21.46154	18.42857
Demonstrated:	Avoid	2.76923	2.35714
	Smooth	2.76923	3.21429
	Compromise	5.38462	4.78571
	Compete	16.46154	17.50000
	Integrate	8.61538	8.14286

TABLE TWO

Cognitive Complexity and Conflict Communication Style
(Preferred and Demonstrated)

Results of Analysis of Variance and Covariance with Repeated Measures

(N = 27)

Source of Variation	SS	df	F	p
Cognitive Complexity	0.05383	1	0.03	0.8590
Preferred/Demonstrated CCS	9.90476	1	5.22	0.0311*
Preferred/Demonstrated CCS X Cognitive Complexity	0.27513	1	0.15	0.7066
Dimensions of CCS	3745.48647	3	28.25	0.0000*
Dimensions of CCS X Cognitive Complexity	77.93091	3	0.59	0.6249
Preferred/Demonstrated CCS X Dimensions of CCS	3810.67705	3	37.84	0.0000*
Preferred/Demonstrated CCS X Dimensions of CCS X Cognitive Complexity	33.12149	3	0.33	0.8044

*Statistically Significant

Data presented in Table Three indicate the source of this variation between mean scores of preferred and demonstrated CCS. A comparison of means for the first three styles of communicating conflict (avoidance, smoothing over, and compromise), though, does not differ a great deal. Evidently, subjects in the study were fairly consistent in the extent to which they both preferred and demonstrated these modes of behavior.

But a fascinating relationship begins to emerge when one looks at the last two CCSs: competition and integration. As measured by the CCS questionnaire, subjects indicated only a slight preference for competition as a style of communicating conflict ($\bar{M} = 4.92593$) but the behaviors they demonstrated in the negotiation sessions were highly indicative of competitive modes of interaction ($\bar{M} = 17.00000$). Conversely, individuals strongly preferred the integrative approach to conflict communication ($\bar{M} = 19.88889$) but only demonstrated its use to a moderate extent ($\bar{M} = 8.37037$).

It can be concluded that subjects elected to take an integrative approach to hypothetical business situations involving conflict. That is, under ideal conditions, they preferred to resolve conflict by using cooperative, problem-solving techniques. The preferred CCS scores also suggest that these same individuals held competitive CCS in low regard. At least two sets of explanations are possible: (1) perhaps they felt that competition was a negative or unproductive approach to conflict or (2) they simply did not want to be viewed by others (or by themselves) as competitive persons.

When actually negotiating with one another an interesting contrast was found: subjects exhibited a strongly competitive style of communication. They were openly confrontive and aggressive in pursuing their goals. Also, they generally failed to acknowledge each other's positions and demonstrated only moderate amounts of problem-solving behavior, despite their avowed preference for the integrative technique.

That these results reflect a genuine gap between preferred and demonstrated styles of communication conflict certainly bears further investigation. But the implications of this apparent distinction are potentially valuable for practicing managers. For example, the CCS Questionnaire could be used as a teaching tool to assist business persons at assessing differences between their preferred and demonstrated conflict styles. This information could provide important feedback to managers who are concerned with improving their effectiveness as problem-solvers - and to those who should be.

IMPLICATIONS FOR FUTURE RESEARCH

Throughout this paper, a number of suggestions were made for future research efforts. The most salient implications are described below:

1. Additional research is needed to broaden the measure of effective communication performance to include process - and product-related variables.
2. Additional research is needed to validate the highly significant findings concerning differences in Preferred and Demonstrated Conflict Communication Styles. It is particularly important to confirm these results through field work which focuses on the communication activities of practicing managers.

3. Additional research is needed to compare the Preferred and Demonstrated Conflict Communication Styles of male and female managers.
4. Additional research is needed to explore the pedagogical implications of a difference between Preferred and Demonstrated Conflict Communication Styles for management training and education.

TABLE THREE

Comparison of Means: Preferred/Demonstrated Conflict Communication Style (CCS)
 High and Low Complexity Subjects Combined
 (N = 27)

		Preferred	Demonstrated
Dimensions of CCS:	Avoid	0.85185	2.55556
	Smooth	4.74074	3.00000
	Compromise	5.59259	5.07407
	Compete	4.92593	17.00000
	Integrate	19.88889	8.37037

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Appendix A

QUESTIONNAIRE INSTRUCTIONS

You are being asked to indicate your reaction to some commonly-occurring situations in the business world. In responding to some of these items, you might say, "sometimes I do that and sometimes I don't." You should respond to each item in a way that best describes your general manner of behavior; that is, how you usually tend to act in these kinds of situations.

Read each paragraph and the 5 statements which appear below it. Decide to what extent you agree with each of the statements. You have exactly 3 points to assign among the 5 statements. The more points you give a statement the more you agree with it.

Example 1: Suppose you agree fully with Statement A and not at all with any of the other statements, then you would distribute the 3 points in this way:

A paragraph outlining the situation will appear here

<u>3</u>	A.	Statement of Alternative A
<u>0</u>	B.	Statement of Alternative B
<u>0</u>	C.	Statement of Alternative C
<u>0</u>	D.	Statement of Alternative D
<u>0</u>	E.	Statement of Alternative E

Example 2: Suppose you agree with Statement B, partly agree with Statement D, and disagree with Statements A, C, and E. Then you would distribute the points in this way:

A paragraph outlining the situation will appear here

<u>0</u>	A.	Statement of Alternative A
<u>2</u>	B.	Statement of Alternative B
<u>0</u>	C.	Statement of Alternative C
<u>1</u>	D.	Statement of Alternative D
<u>0</u>	E.	Statement of Alternative E

Appendix A (Continued)

TWO SAMPLE ITEMS

1. You and the other regional advertising directors meet monthly at company headquarters. A few weeks ago, you informally discussed some ideas for the upcoming spring promotion with Mr. X, the advertising director from another region. At this month's meeting, Mr. X introduced your ideas as his own.
 - ___ A. You decide to ignore Mr. X's action because nothing could be gained by confronting him.
 - ___ B. You don't correct Mr. X in public, but after the meeting you mention in an offhanded, casual fashion that he should have given some of the credit to you.
 - ___ C. You wait until later to talk with Mr. X and ask him to return the favor - you want to present some of his ideas at the next monthly meeting.
 - ___ D. You challenge Mr. X's misrepresentation right at the conference table and let everyone know that the ideas are really yours.
 - ___ E. After the meeting, you ask Mr. X to help you work out a solution which will correct the impression that the ideas for the spring promotion were his.
2. The Vice President of your company has just ordered you to reduce staff size within your department in order to save money. Specifically, you have been told to fire your chief assistant. But you know that you would be unable to meet your department's responsibilities without the help of this key employee.
 - ___ A. You apprise the Vice President of the extent to which your department's operations would be impaired if the chief assistant were fired. Then you ask the Vice President to work with you on solving this difficult problem.
 - ___ B. What good does it do to worry about it? You intend to comply with the order and just hope that the department can still do an adequate job.
 - ___ C. You hint to the Vice President about the problems that will occur if your chief assistant is fired. But you try not to make a big deal out of it.
 - ___ D. You meet with the Vice President and propose a course of action that would reduce expenses in your department but would still allow you to retain your chief assistant.
 - ___ E. You send the Vice President a 3-page memo which explains why it is impossible to continue operation of your department without the services of your chief assistant.

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DEVELOPING TECHNOLOGY

OFFICE TECHNOLOGY: VOICE STORE-AND-FORWARD

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ABSTRACT

VOICE STORE-AND-FORWARD (VSF) SYSTEMS are similar to telephone answering devices in that they record a voice message on a magnetic medium and use the telephone for inputting. But, VSF is also very different in concept, and, because of the application of computer technology, VSF has many more features than telephone answering devices.

CONCEPTS

The major conceptual difference between telephone answering devices and VSF is that VSF systems are "closed," that is, you must know the system's telephone number and may have to provide a password before you are allowed to access it. Instead of telephoning someone and being surprised by a telephone answering device, you know in advance with VSF that you're going to leave a voice message. You deliberately choose to leave a voice message rather than talking directly to the person on the phone.

A major distinction between telephone calls and VSF is that the recipients control when the messages are taken. Rather than being interrupted by phone calls, owners of voice mailboxes call in for messages at their convenience. Another difference is that you know your message will get through - you don't have to play "telephone tag" and you don't have to worry about someone transcribing a message incorrectly.

VSF may be as close as voice communication can get to a written communication.

OVERVIEW

VSF overcomes many of the disadvantages of both telephone and written communication. But, it can supplant neither two-way telephone conversations where interaction or an instant response is required nor written communication where legal concerns predominate, highly complex material is being presented, or the communication is very long.

VSF will likely be used to replace short pieces of written communication such as requests for information, replies to requests for information, notices of meetings, confirmation of attendance at a forthcoming meeting, or other relatively informal communications.

When interfaced with a good storage-and-retrieval system, VSF may be used to replace more formal written communications. These will likely be internal memoranda where legal concerns are not of great importance, but where some record is required.

When integrated with text and graphics systems, VSF will likely be used to add voice annotations. Such annotations should take the place of most "marginal notes" and "minute sheets" which are typically used to record comments.

VSF will likely replace most telephone calls where an immediate response is not required or where the caller knows an immediate response will not be available. (When VSF becomes common, woe to the caller who interrupts someone with a phone call when a voice message would have sufficed.)

Some short meetings might even be replaced by VSF.¹

VOICE STORE-AND-FORWARD IS ANOTHER MODE OF COMMUNICATION

Now let us return to the points made earlier about deliberately choosing to leave a voice message and the analogy of VSF being the voice equivalent of written communication.

VSF is another mode of communication; it is in addition to written, face-to-face, and classic telephone communication. Why would one choose it over the other modes?

Given people's preference for using the telephone instead of writing, VSF may be used to replace some written communications.² An examination of some of the advantages of telephone and written communications will shed some light on potential VSF usage.³

Advantages of Telephoning over Written Communication

What follows are some of the advantages of telephoning over writing and comments on how VSF compares:

1. **speed** - VSF gets the message to a voice mailbox faster than any written communication could get to an ordinary mailbox. However, since picking up the message is up to the owner of the voice mailbox, VSF may be slower than telephoning. Equally, it could be faster if compared to "telephone tag."
2. **immediate feedback** - The communication is "one way at a time" so VSF could not supplant telephone conversations where interaction is required.
3. **less time consuming** - VSF is even less time consuming than telephoning because most of the preliminary "chit chat" of real time telephone conversations is eliminated. Also, dictating voice messages is faster than dictating written communications.⁴
4. **psychological comfort** - VSF should be the same as telephoning although the capability of storing and recalling the message may lessen the comfort provided by not having to worry about punctuation, spelling, etc. It is likely, of course, that a different set of concerns will develop for VSF.
5. **quantity** - VSF should be about the same as the phone for getting more across than in writing.
6. **cost** - The cost per transaction will be the same as the phone if you ignore the capital cost of the VSF system. Since "telephone tag" is obviated, so are the associated costs in time and long distance charges. Also, VSF is "time zone insensitive" so you can send messages when the lowest rates are in effect.
7. **safety** - VSF is definitely not the same as telephoning since, unlike phone calls, voice messages are stored and can be recalled in the future.
8. **personal touch** - Many people consider a telephone call more personal than a letter. In this regard, VSF should be considered in the same light as a telephone call.

Advantages of Written Communication over Telephoning

What follows are some of the advantages of writing over telephoning and comments on how VSF compares:

1. **ready reference** - VSF messages are stored and can be recalled. When the voice messages are integrated into a document retrieval system, VSF becomes especially attractive. There are document store-and-retrieval systems available now which do not distinguish between what is stored, text or voice. These systems have a cover page for each document which is filled in by the user and contains such data as sender, receiver, date, subject, and keywords.
2. **legal advantages** - VSF does not offer much in this area. The courts have been very slow to recognize changes even in such relatively established areas as microfilm. So, it is unlikely that they will move quickly on voice messages and the admission of voice patterns to prove authenticity.
3. **enclosures** - VSF does not offer much here except in conjunction with electronic document distribution systems where you could use voice annotation of written and graphic material.
4. **reduced vulnerability** - VSF becomes the same as a letter. You don't have to give an immediate response; you can think about it and respond in your own time.
5. **technical data** - VSF is the same as the telephone for transmitting technical data; writing is better.
6. **timing** - VSF is the same as writing recipients choose to review the mail (whether voice or written) in their own time.
7. **psychic benefit** - This benefit comes from receiving mail rather than a phone call. In this case, VSF will likely be considered as the same as a telephone call.
8. **reaching desired person** - VSF becomes the same as a letter. You will always reach the person you want providing you have the correct address (or in the case of VSF, phone number).
9. **involving many people** - Since VSF messages can be broadcast, they become the same as letters; the identical message is sent to all addressees.

TECHNOLOGY EXTENDS CAPABILITIES

The application of computer technology provides VSF with capabilities not available on telephone answering devices. Some of these are:

- **Voice Prompts** - VSF systems provide users with voice instructions on how to use the system, for example, "Press 1 to listen to your

message, 2 to record a message, or 3 to perform an administrative function." If you know what to do, you can just punch in the numbers without having to listen to the prompts.

Associated with voice prompts is verification of the telephone numbers to which you direct a message. Using voice synthesis, the system speaks back the number you dialed and requests either confirmation or correction.

- **Playback and Re-record** - You can playback a message to see how it sounds and re-record it if you want. You cannot do that on a telephone answering device.
- **Broadcast** - You can send the same message to a number of people without re-recording it for each recipient. This can be done using a pre-stored list of phone numbers (which is recalled using a short code) or by dialing the numbers individually.
- **Variable Delivery Time** - You do not have to send the message immediately. You can direct the system to release it at a specified time on a given date.
- **Notice of Absence** - If the owner of a voice mailbox is going to be away, the date of return can be coded into the system. When someone dials the mailbox, the system advises them of the date of return.

The foregoing features are mostly for the sender of a message, but there are some features for the recipient, too. Some examples are:

- **Date/Time of Recording** - The system automatically adds the date and time a recording was made and plays this back before the message. (Users of telephone answering devices will know how frustrating it is to listen to a message and not know when it was left.)
- **Annotate and Forward** - The recipient of a message can add a note and then send the annotated voice message to a third party.
- **Reply without Dialing** - The recipient never has to dial the sender's number when a reply is sent because the system keeps track of the sender's number and dials it automatically.
- **Direct Delivery** - Owners of voice mailboxes can request the system to deliver messages immediately upon receipt to whatever phone number they specify, rather than their having to phone in for messages.

WHAT'S IT MEAN FOR BUSINESS?

Business is likely to adopt VSF very quickly because the payback is easily demonstrated and because it is a "standalone" technology - VSF does not immediately have to be integrated into an overall office automation system involving information processing departments.

Since VSF is "distance insensitive" people can use it from anywhere they have access to a pushbutton phone. Proper use of VSF should facilitate carrying on business normally even while employees are remote from their usual place of work.

VSF will permit better time management because there will be less frequent interruptions from phone calls and because people can plan when to get their voice messages. Further time savings will accrue from VSF supplanting some written communication and from the decrease in "telephone tag."

Direct cost savings should accrue from shorter long distance calls and from taking advantage of lowest rate times when making long distance calls. The "time insensitive" nature of VSF may add some qualitative benefits as might the "personal touch" of increase use of phone calls.

Business must be prepared to instruct their employees on the use and uses of VSF. Basically, training is needed in the preparation and presentation of short, coherent voice messages. In addition, courses in effective listening will likely be bolstered by the use of VSF. More research is necessary, however, before business can be expected to create good courses.

WHAT'S IT MEAN FOR ACADEMIA?

The major impact on academia should be in business communication research and courses - although, of course, academia may be a user of VSF as well.

At first glance, dictation skills would appear to be universally applicable to VSF. However, there is a major difference between dictation and VSF: dictation is speaking to create a message which will be read while VSF is speaking to create a message which will be heard. The mechanics of dictation (for example, speaking clearly) are applicable to both as is the notion of proper preparation. What is not clear, however, is how the message should be presented: what organization(s) work best? how long should the message be? what can we learn from research into listening? what voice inflection techniques work best? There are elements of many disciplines involved including composition, listening, dictation, and speech.

Research is necessary to verify the proper uses of VSF.⁵ Research is also required on storing voice messages: what effect does storage have on creating voice messages and on the usage of VSF? does storage bolster the need for training in keyword indexing?

Voice store-and-forward is only one of many new office automation technologies. The effective use of all the new technologies will require much training and research. Both business and academia must be prepared to commit resources to this work.

NOTES

¹ Jeffrey P. Graham and Robert C. Lerner, **Wang Digital Voice Exchange: A Pilot Project**, (Lowell, Massachusetts, Wang Laboratories, Inc., March, 1982), p. 24. The findings were that 63% of the study population replaced an average of 3.3 telephone calls each day, 46% replaced an average of 1.8 short memos per day, and 29% replaced an average of 1.7 short meetings each day.

² Jody L. Clendening, Vernell K. Munson, and Duncan B. Sutherland, Jr., **Office Communication: A Study of Networks and Impediments**, (Lowell, Massachusetts, Wang Laboratories, Inc., November, 1981), p. 8.

³ The advantages are more fully described in Charles H. Hamed, "Phone or Write?," **The ABCA Bulletin**, Vol. XLV, No. 2, (June, 1982), pp. 46-47.

⁴ John D. Gould, "How Experts Dictate," **Journal of Experimental Psychology: Human Perceptions and Performance**, Vol. 4, No. 4 (1978), p. 657.

⁵ For a good review of the neglect already shown the telephone see N.L. Reinsch, Philip V. Lewis, and Paul D. Harper, "The Invisible Phone," paper presented at the 7th International and 46th Annual National Convention of the American Business Communication Association, Phoenix, Arizona, October 16, 1981.

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COMMUNICATING WITH THE NEW 'INFORMATION UTILITIES'

DAVID PEPPER, H.A. SIMONS (INTERNATIONAL) LTD.

ABSTRACT

During the past few years, a not-so-quiet revolution has been occurring in the application of computer-based technology to information research. Immediate access to worldwide data sources has provided many users with a powerful and cost-effective tool for coping with the information explosion. The ubiquitous personal computer is extending this capacity to an even larger community. The end result is greater self-sufficiency in the way we retrieve and communicate information for personal and professional decision-making. The state-of-the-art in information retrieval technology is approaching the ultimate in effective communication: skillful interactive techniques to get the desired response as quickly as possible.

Contrary to popular opinion, computer-based technology is not new. Computers have been with us since the mid-19th century when Charles Babbage invented the "difference engine". Neither is electronic communication new. It has been a fact of life since Morse sent his famous message more than 150 years ago. There have been quantum leaps in both technologies in the past few years.

It is the application of both of these to information research, however, that is new. "The technical capabilities exist today to give anyone, anywhere, access to any desired piece of information".(1)

In the first part of my paper, I would like to describe the "one stop" approach to information that computer-based systems provide. Then I would like to discuss these systems in the context of an inherent tension posed by the information age.

Exponential Growth of Information

Information seems to have an unlimited growth potential. Let's consider published technical information:

- * technical data in the world doubled in the 15 years from 1950-1965, and has doubled again every 7 years since, and this trend is expected to continue;
- * 60,000 journals now appear in 65 languages;
- * 2 million articles are being published annually.

The "information overload" that we hear of is valid and critical. When you realize that only a small portion of this information ever crosses your desk, the problem becomes more critical.

It is estimated that the "core" journals in your subject area - the ones that you read on a regular basis - provide only one-third of the information you require. This applies particularly in interdisciplinary fields such as energy, medicine and public policy.

To illustrate this fact, I searched for information on the topic of converting municipal solid waste to energy forms. From the literature covering a 10-year period, 180 articles were obtained that had been published in 148 different sources, e.g. European Economic Community waste management conference proceedings, journal entitled, "Compost science/land utilization", a U.S. joint economic committee report. How many of these would be considered part of a scientist's "core" reading? Obviously, the problem is not the lack of information.

An Emerging Computer-Based Information Retrieval

"Uncontrolled and unorganized information is no longer a resource in an information society...."(2) However, a revolution has been occurring in the application of computer-based technology to information research, providing a growing number of people with a powerful and cost effective tool for meeting their personal and professional information needs. This revolution has come about largely as a result of the convergence of four developments:

- * An exponential increase in the amount of data being produced;
- * Computer technology which has made it possible to capture, process and store this data in "data banks";
- * Data communication networks (Tymnet, Telenet, Datapac, Euronet) enabling the international transmission of data;
- * The affordable personal computer.

It is a remarkable example of technological synergy.

Using a computer terminal and a telephone link, it is now possible to gain immediate access to a number of databanks such as:

<u>UNITED STATES</u>	<u>CANADA</u>	<u>U.K.</u>
BRS/BRS AFTER DARK	CAN/OLE	INFOLINE
COMPUSERVE	INFOGLOBE	FINSBURY
DELPHI		DATA SERVICES
DIALOG/KNOWLEDGE INDEX		
DOW JONES NEWS RETRIEVAL		
NEWSNET		
ORBIT		
THE SOURCE		

These databanks contain numerous "databases" of every type of information, illustrated in the following selection from the "Omni Online Database Directory":

advertising & marketing, aviation & aerospace, biomedicine, communications & computing, international economics, education, engineering, food & nutrition, humanities, law, metals & mining, social sciences and transportation.

"The number of databases is growing at the rate of 1 a day" (3) and the variety of services offered is keeping equal pace: electronic mail, bulletin boards, banking, mail ordering, on-line publishing to cite just a few. We will discuss some of these services in more detail later.

The "Database Approach"

Understanding how a database is constructed is important to effective information retrieval:

Step 1. Original documents - reports, market studies, periodical articles, conference papers, directory listings, etc.- are the raw materials;

Step 2. The database producer scans these documents and performs a type of dissection, identifying elements such as title, author, author's organizational affiliation, source publication, date, and language. The most important step is to describe the subject content of the document through the use of an abstract and/or subject terms (sometimes called "descriptors" or "keywords"). The sum total of these elements constitutes a "record".

MODERN TECHNOLOGY: THE QUIET EVOLUTION.
 CAHIER, J.P.
 COMPUTERWORLD VOL.17, NO. 50, DEC. 12, 1983, P. 79-80.
 COUNTRY OF PUBLICATION: U.S.A. LANGUAGE: ENGLISH
 CODEN: CMPWAB ISSN: 0010-4841
 DOCUMENT TYPE: TABLOID ARTICLE TYPE: INDUSTRY NEWS; TECHNOLOGY
 ALTHOUGH MODEMS HAVE NOT BEEN SUBJECT TO THE RAPID TECHNOLOGICAL
 DEVELOPMENT SEEN IN OTHER AREAS OF DATA PROCESSING THEY HAVE UNDERGONE MANY
 EVOLUTIONARY CHANGES. IMPROVEMENTS IN TRANSMISSION SPEED, POWER,
 INTELLIGENCE, MINIATURIZATION, ADAPTABILITY, EASE OF MAINTENANCE, AND
 COST-EFFECTIVENESS HAVE ALL TAKEN PLACE IN RECENT YEARS. THE ARRIVAL OF
 SINGLE-CHIP MODEMS, EXPECTED AROUND 1985, SHOULD HELP PUSH THIS INDUSTRY
 OVER THE BORDER LINE BETWEEN INFORMATION PROCESSING AND COMMUNICATIONS.
 DESCRIPTORS: MODEMS; TECHNOLOGY; COMMUNICATIONS EQUIPMENT;
 COMMUNICATIONS TECHNOLOGY; FUTURE TECHNOLOGIES; FUTURE OF COMPUTING; SMART
 MODEMS

FIGURE 1: SAMPLE RECORD

(used with permission from Management Contents)

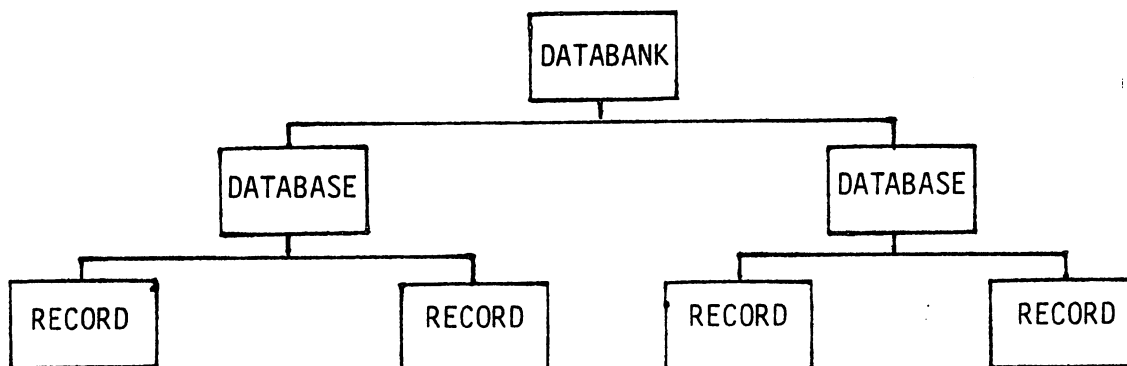


FIGURE 2: DATABANK HIERARCHY

If we define communication as "skillful interactive techniques to get a desired response as quickly as possible", then the database "record" offers the user numerous access points which are rarely available in manual methods of retrieval through printed indexes. The record concept enables a user to fine-tune a search so that as little time as possible is taken to retrieve relevant data. Let us take a specific example.

You require information on the use of a chip-handling process by a particular mill in the U.S. You remember reading an article within the last 3 years (give or take 5 years!).

A typical approach might be to look at annual indexes in certain periodicals. You are frustrated by the fact that these indexes are not detailed enough. For example, there is no geographic listing. Alternatively, you might check a periodical index in the library. But you find that the subject headings are too broad. As your frustration mounts, you consider your options: Talk to a colleague? Look in your personal files once again? You have spent a morning and still have not found the information you require. Let us consider an alternative strategy.

1. The problem contains essentially 3 components: process, mill site, and approximate date range;
2. From the 1000+ databases that currently exist, we choose 2 of the most appropriate ones: "Paperchem" and "Predicasts" (a marketing database strong in company data). Date coverage is from 1967 to the present so you are searching 17 years of data simultaneously;
3. Log-on to the Dialog system with a valid user-ID and password and request to be connected to the "Paperchem" database;
4. Input terms such as "reclamation" & "chips" & "Valliant" (the mill site);
5. Tell the system that you only want articles that contain all three terms. Note that we have left out the date. It can be added later if the retrieval is large;
6. 5 records are retrieved. You print them right at your terminal.

The entire process has taken approximately 15 minutes to yield the required information.

Apart from the actual time saved in retrieving the references is the time saved by not having to look up the articles. In most cases, the abstract provides sufficient detail. Present trends in the information industry point to a greater use of full-text databases. There are already many examples. Infoglobe gives you the entire text of the Globe & Mail every morning. Dow Jones News Retrieval Service provides the entire text of the Wall Street Journal, with news being updated hourly. NewsNet provides the full text of hundreds of newsletters across a broad spectrum of disciplines. Dialog

Information Retrieval Services will soon introduce "Magazine ASAP" and "Trade & Industry ASAP" which will enable the user to retrieve the entire text of periodical articles.

Searching Across Databases

To reduce input time and to expand the information available, we could have saved our original search in the computer's memory and executed that search in the "Predicasts" database. However, the original input would have to have been structured so as to be intelligible to both databases. Progress has been made in the standardization of terminology (commonly called "controlled vocabulary") and database structure (e.g. the citing of author's names and periodical titles). Developments are also underway to overcome non-standardization.

Current Awareness

To extend the usefulness of computer-based information retrieval systems even further, you can instruct the system to save a search indefinitely. Each time the database is updated with newly published information, your saved search is automatically run against the updated portion of the file. If relevant references are retrieved, they will either be printed and sent to you through the mail or you can check an electronic message for new stories.

This electronic "clipping service" has the following advantages:

1. It is active. Stored searches can be revised or cancelled at any time;
2. It is labor non-intensive. How many organizations have staff clipping and filing newspaper articles and infinitum on the premise that "someone might ask"?;
3. It offers multiple access points to the information when it is required.

Electronic Ordering

Let us return to the print-out of references retrieved on the chip-handling process. You have now had time to review the abstracts and read some of the articles. However, one of the critical articles is not available locally. Computer-based systems also offer an electronic ordering option. By reconnecting with the original databank, you can request that a copy of the article be ordered from a number of possible suppliers and mailed to you. Some computer-based information systems also enable you to identify libraries that contain a particular item. Technology has advanced to the point where a large portion of published information is within easy reach.

Electronic location and ordering speeds up the process of identifying and requesting the document. Unfortunately, you still have to depend on the mail system to get the item to you. However, the trend toward full-text availability that we discussed earlier will gradually shrink this time frame even further.

Robert Bezilla, Vice President, The Gallup Organization, suggests the ultimate access. "As the costs of computer memory continue their precipitous downward spiral, it soon may become less expensive to obtain complete electronic files for every user location than to continue to pay the considerable value-added connect charges that many services now view as a major source of revenue". (4)

Strengths and Weaknesses of Computer-Based Information Systems

What are the strengths and weaknesses of the information retrieval systems just described?

The strengths offer a resolution to the much-debated "value of information". If productivity is defined as "output per unit of effort", there is ample evidence that computer-based information retrieval is a highly productive endeavor. Independent studies carried out at the U.S. Dept. of Energy by King Research, Inc. and at NASA Industrial Application Centre reported benefit to cost ratios of 2.2:1 and 2.9:1 respectively. (5, 6)

1. **Selective.** Search strategies can be fine-tuned to meet specific information requirements;
2. **Timely.** Many databases are being updated daily, some hourly;
3. **Comprehensive.** International information sources, more than are contained in major research libraries, can be searched simultaneously;
4. **Cost-Effective.** Time spent searching manually far exceeds the cost of doing a computer search. In addition to the DOE and NASA studies cited above, an ICI Group study showed that between 5 and 10 computer searches could be completed in the time required to carry out 1 manual one. (7) For similar searches on the "after dark" systems, the benefit:cost ratio would likely be even more dramatic because the on-line connect charges are substantially lower;
5. **Immediately Informative.** Many databases provide an abstract of the publication and an increasing number are providing the full text of original documents;
6. **Unique source.** For some databases, there is no published equivalent;
7. **No Spatial Limitations.** Systems are available irrespective of the user's geographic location;
8. **Increasing Self-Sufficiency.** A "one-stop" approach where the user can perform a number of integrated tasks while sitting at a computer terminal:

- * Search for relevant data from a wide variety of international data banks;

- * Retrieve asbtracts or full text of articles immediately;
- * Order copies of documents from international suppliers via an electronic ordering facility.

9. **Communication with Other Users** via "electronic mail" (EM). The online ordering facility is a rudimentary form of EM in that it allows the requestor to send a message but not to receive one. True EM, however, allows messages to be sent and received. EM systems proliferate. Research by the Yankee Group shows that "76,000 mailboxes exist on systems provided by EM services...[and] more than 1.5 million will come into use by 1986. (8)

In the context of computer-based information retrieval systems, two examples of Canadian EM services will suffice:

CAN/OLE (CANadian On Line Enquiry)

The database system is developed and operated by the National Research Council of Canada. To complement its database access, CAN/OLE offers an EM facility for sending and receiving messages to and from NRC with respect to reference questions, interlibrary loans and client services.

Envoy 100

A public EM system offered by Telecom Canada, allowing users to compose, edit, send, receive and store messages. Many of Canada's libraries are using Envoy 100 to send and receive interlibrary loan requests across North America.

Unfortunately, there are at least two identifiable weaknesses in computer-based information retrieval systems today:

1. **Data Coverage is Limited.** Many databases do not cover publications prior to 1970. A more significant drawback is that some current sources of information have not been computerized. For example, there is no comprehensive database of forthcoming conferences;
2. **The Systems are Telecommunications and Hardware Dependent.** Sometimes it is impossible to connect with a system because of network "congestion" or computer malfunction. Fortunately, "downtime" is minimal.

Information Illiteracy and Information Overload

At the beginning of this paper, I quoted Zurkowski, "the technical capabilities exist today to give anyone, anywhere, access to any desired piece of information." However, he goes on to say that "several specific barriers must be overcome before the full potential of today's information technology can be realized...The most crucial is 'information illiteracy'". (1)

There are varying degrees of information illiteracy:

1. A large portion of the population, surrounded by the most sophisticated information retrieval systems ever available, remain totally unaware of their existence;
2. Others who might require information live in areas removed from any information or library services;
3. Researchers miss significant information because it is not included in their "core" reading or because they limit themselves to traditional manual methods of retrieval;

The opposite of information illiteracy is information overload, best described as an uncontrolled flow of data, lacking any relevancy to individual information needs. Bezilla identifies the cause of the overload. "Every sentient being on this planet is...a generator of data and information." (4)
The result is chaos!

The Personal Computer

As we have seen, computer-based technology has the capacity to resolve the tension between no information and a barrage of irrelevant data. Nowhere is this capacity more evident than in the potential of the personal computer. Infocorp. predicts that "a computer will be found in nearly 1 of 3 American households by the end of 1985 and in 8 out of 10 by the end of the century". (9)

This phenomenal growth is also creating a huge market for information research capabilities in homes and offices. During the past year, sophisticated online information systems such as those described in the first part of this paper, have begun to offer their services to the personal computer market. Periodicals like the following have appeared within the last year:

"Link-Up: Communications and the Small Computer"

"Modem Notes: For Everything You Can Access by Computer and Telephone"

"Information Today: the Newspaper for Users and Producers of Electronic Information Services"

The end result will be greater self-sufficiency in the way that we meet our personal and professional information needs. This self-sufficiency is totally consistent with a "megatrend" identified by Naisbitt. "Fifteen million Americans now belong to some 500,000 self-help groups...a telling illustration of the shift from institutional to self-help". (2)

The personal computer version of the self-help group has already emerged in the form of the "Special Interest Group" (SIG) bulletin boards. Compuserve, a leading consumer information service, offers an "Aviation" SIG in which pilots share advice on questions such as, Where is the best airport to land for gas? What airfields should you avoid? Another service provides users with answers to questions commonly-asked of the Internal Revenue Service and a list of tax publications available from the IRS which can either be ordered online or read online.

"The proliferation of information of all kinds in various formats and the technology to work with it vastly expands people's options and capabilities". (1)

The tension between information overload and information illiteracy may soon become a mere illusion.

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USING THE MICROCOMPUTER FOR IN-HOUSE PUBLICATIONS

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ABSTRACT

Microcomputers and inexpensive word-processing software allow even small firms to maintain a nearly complete in-house publications department. In the small company where I work, the publications group set out to take advantage of new inexpensive products to write and to produce technical documentation. We were committed to word processing on personal computers, doing our own editing and layout, and printing our copy inexpensively. The combination turned out to be even more successful than expected. We have produced well-written manuals that are aesthetically pleasing, and each writer has enjoyed the challenge of doing almost all of the work for an assigned project.

NEW CHOICES FOR SMALL COMPANIES

When a small new technical company comes to consider documenting its products, it is faced with choices that always seem difficult and, worse yet, expensive. Basic questions include: how much documentation does a product need? what sort of documentation is required? what should it look like? who is going to do it? what will it cost? Until recently, the answer to one question at least was fairly clear: it would be expensive. If it was to be done in house, one or more people were going to be involved. Maybe staff would have to be added. And certainly there would be a need for some expensive equipment. The alternative of having it done outside by, for instance, a writer on contract also would look alarmingly expensive.

For a small software company, the problems of documentation have been even more disturbing, since the documentation of small systems software is still a relatively new task. A number of start-up companies, by the looks of their publications, gave little thought to what should accompany the product and what it should look like or say. I can suggest a scenario that is not much of an exaggeration. "Joe," says the president to a programmer, "we need some documentation to go along with these programs. You can write can't you? Write up a few pages, will you? It doesn't have to be much." Joe, while doing several other tasks that every one considers more important, writes up some notes. The notes are passed along to the secretary, who turns out what looks the beginning of a manual. From here it goes to the photocopy machine or maybe out to a printer. By default, it turns out, the company has created in-house publications.

Several changes in the world of such small companies are making this method of operation obsolete. One is that the value of technical publications as a marketing tool has become noticeable. Another is that the value of good documentation for creating happy customers has become clear. And, to come to the point of particular interest, the rise of the inexpensive business microcomputer has made it possible for even a small company to pursue seriously in-house publications that are sophisticated enough to meet both marketing and technical needs. A company can equip the one or more writers it needs with low-cost equipment and produce high-quality documentation.

IN-HOUSE PUBLICATIONS

When the cost of setting up an in-house group is within reach, then a company can consider whether or not to have its group. The benefits are so obvious that ordinarily any company with more than five people and with plans to make more than one product will choose the in-house group. First, the writer becomes part of the product team, learning the product well and, in turn, writing about it with knowledge and detail that is difficult to attain from a contracted writer. Second, the publications can become nearly as flexible as the product itself. Changes can be made quickly, and revisions of publications can be handled easily and accurately. Third, in some cases, there is the added advantage that the writer can share the equipment that is used for product development. A company that makes software products to run on small computers, for instance, can make not only the product available to the writer but it can use word-processing software that runs on the same system as the company product. The writer's knowledge of the computer hardware and the software environment can thus deepen and contribute to documents that the writer produces.

ESTABLISHING AN IN-HOUSE PUBLICATIONS GROUP

To illustrate these general points, I want to narrate and comment on my recent adventures in establishing such a publications group for a software company that was new and small. The company I was invited to join in early 1983 had begun as a partnership and, when it incorporated, had raised capital for developing and marketing its software. It had 12 full-time employees when I came to it as its first professional writer. Within a year, however, it would grow to 24. What there was of documentation before I came had been done by whomever had time. In some cases, it was a programmer like the one I mentioned above. At other times, it was done by one of the part-time handypersons who had come and gone. In effect, then, there were no presuppositions, no house style, no traditions, and not many expectations.

Some decisions had been made, however, before I came. Most were good; a few had to be reconsidered. The good decisions included this one: that since the product being developed was for the IBM PC and PC-compatible computers, I--and the writers that we would add later--were to use IBM personal computers for writing text. This eliminated any debate about

whether we should invest early in a large, dedicated system that we would grow into or face buying a personal computer for each writer who was added. Another good decision was that I would have available a good letter-quality printer, a Diablo work-alike. Not so fortunate decisions included the selection of an expensive but ultimately inadequate photocopy machine.

Defining Goals

I had the usual task of working with management and the development group to define the extent of the documentation: how many manuals would the product need and what would they cover. The other task, however, was the challenge of designing a publication style to make the most of the equipment I had. Wordstar had been selected, before I arrived, principally, it seemed because it was the only word-processing system with which anyone there was familiar. Its capabilities provided those pleasant editing tools of deletion and moving text around on the screen. But more important it made available the ability to move around large blocks of text, to combine separate files, and to do some automatic formatting. I had used a far more powerful word-processing system before, so I had fairly firm ideas about what a system could conceivably do. The task was to find out what this one did and make use of it. The final design of our page and overall format was a result of thoroughly testing Wordstar and selecting the features we liked and could use easily.

It became clear soon that we would be printing small batches of each manual, and that the text of each was likely to change drastically, since the product was in an early stage and undergoing continuous development, testing, and modification. This need to remain easily alterable and the associated costs made us decide in favor of printing pages from ones we produced with our printer rather than from typeset versions done outside the company. The only additions to pages we produced were, in our first manuals, typeset title and copyright pages and preprinted sheets. We had seen several samples from other companies where the sheet was preprinted with names, logos, or other minimal decoration and those sheets were then passed through the press or copy machine once more for the final printing. Our sheets displayed a two-color logo that matched its usual use. In one case we added the enhancements of colored paper and slightly heavier stock than usual. These simple additions made a handsome package that was easy for our publications group to create and to maintain.

Building a Publications Group

When I began at this company, the low-cost equipment allowed me in effect to be a modern Ben Franklin, writer, printer, and publisher all in one. When it came time to increase the group, I moved away from designing a group of specialists--for instance, making a group that included a writer, an editor, an illustrator, and a typist. Instead, I looked for talented writers.

Preferring to compose a group of highly-talented writers was based on my belief that well-written text is the substance of the publication. Thus, we needed strong skills in writing first. If we could find experience in writing about similar products, that would be a plus. Since word

processing minimized the tasks of layout and final typing for preparation of the camera-ready copy, it seemed possible to find writers interested in taking on these additional jobs. Each, I thought, should have the talent and interest to take on an entire project and see it through to publication.

Basically, when we hired two more writers we followed the plan. Each in turn became another in-house Franklin. Each enjoyed the challenge of writing, layout, and seeing the copy through completion. So far, the only areas in which we have gone outside for help are the minimal typesetting we use in a manual, the black-line art work we sometimes need, and the final printing.

Preparing a Manual

Our current procedure for preparing a manual goes something like this. The writer works with the project team to determine the scope and audience for the manual. The writer then begins, on the one hand, to develop a outline for the text, and on the other hand to start designing the shape of manual--how it will be bound? what sort of illustrations will it need? will it fit our usual format or will it need to take a special form? By considering both text and general format and having the responsibility for both, the writer can begin entering the text in a way that will take little change to bring it around to its finished form on the pages we send to the printer.

The writer, like all technical writers, is of course gathering information about the product and trying out ideas about the manual on all people involved with the product. In so small a company, this has been easily accomplished, since the person with the information may be only a desk away and the writer is included in nearly every phase of operations from planning and developing to marketing of the software. When the text is as complete and polished as the writer can make it at that stage, it is printed out in the format it will have when printed. Either preliminary or finished art work is shown in place. A copy is sent to delegated reviewers who represent various parts of the copy--including programming, marketing, and writing. Even though the company is small and fairly informal, we make this review process fairly formal to ensure the manual is as good as we can make it.

With word processing available to the writer who prepares the final draft, the writer can combine the tasks necessary to finish up. He can rewrite, edit, clean up typos, and format all in one pass through the text. The writer has privilege of knowing the text and copy he prepares is the one that is going to be printed and released. His pride in creating high-quality work is broadened.

IMPROVEMENTS

With the low-cost investment in setting up a publications group that the new microcomputers and software make possible, we can also look forward to upgrading our operations at similarly low investments. New products and low prices are combining to let even the smallest of groups do more. Here are a few items we are considering and watching.

The easiest upgrade would be to use a modem link with a printer. We could send our text by telephone line to a print shop where a typesetting operator would strip out our word-processing codes and introduce the codes needed to prepare typeset copy. This kind of service has been available for some time. It offers the advantages of cost savings, since the typesetting is taken from key entries we make, and of producing high-quality pages. The disadvantage is that control becomes harder. Proof has to be passed from shop to company and back, and changes become no longer a matter of minutes but a matter of hours or maybe days. Two new developments, however, seem destined to give the small group the best of both worlds.

Compugraphic has introduced software that lets the Apple Lisa computer work as the front end for a typesetter. Any text a writer can enter and format on a Lisa and any graphic design the writer can draw can be reproduced in typeset copy. In its current release, the system is arranged so that the Lisa thinks it is communicating with an Apple dot matrix printer, and the Compugraphic typesetter thinks it is communicating with a Compugraphic terminal. While the first release is fairly limited in its selection of fonts and point sizes, Compugraphic plans to make much more available in the near future. Any writer can quickly learn to use the system, since it requires none of the complicated coding that has made most of us leave that part to a professional operator. Furthermore, the graphics are easy enough to master that a writer would soon want to be the illustrator of a manual as well. This arrangement shows true promise of allowing a small publications group to become its own typeshop. Currently, the system is priced in the mid forties, ruling it out of most small company budgets, but prices may descend. There is also the likely possibility that some type shops will offer the Compugraphic end so that a publications group would need only a Lisa to do its own typesetting entry.

I have mentioned the Apple Lisa and Compugraphic by name because their combination is the only one of its kind currently available. But with the quick growth of products for the IBM-PC and PC-compatible computers, it should not be more than a year before software is available to make these computers work in similar ways and software to let other typesetters take commands from PCs. When a few more products arrive, prices should drop enough to let even those of us with slim budgets expand our capabilities beyond what would have been available only to the best of large-company publication groups only 10 or 15 years ago.

Meanwhile, we plan at least an annual review to look at new developments that we can use and at equipment that will help us meet new requirements from product development and growth. For instance, this month we move

forward to a new, more sophisticated word-processing software system that, while it still limits us to our letter-quality printer, will allow us to edit more easily and to make improvements in our format.

CONCLUSION

A few years ago I worked in a publications group where I did my work on an electric typewriter and passed typed pages over to the word-processing clerk who reentered the whole works onto the firm's WANG system. That situation lasted until, by one of those unplanned events that bring major changes, the day the clerk was ill and we had to get out a weekly newsletter. After an hour or two I wondered why I had not been using the WANG before. After a day or two the other writers were entering their own text on the WANG. Had I come to my present company at that time, however, and suggested we buy a medium-to-large sized word-processing system, the proposal would have been rejected: too big, too expensive.

By last year, however, small systems were available and mature enough to be trusted. For our publications group, the availability of the low-priced, high-powered small computer and good word-processing packages like Wordstar have allowed us to produce well-written manuals that are aesthetically pleasing. In each case, the writer has enjoyed the challenges of taking charge of the whole publication project.

A former ABCA member and a present STC member, Kenneth A. Requa is in charge of publications at InteGram, Inc., Bellevue, Washington. Before coming to InteGram, he held the position of technical writer at ATEX, Inc., Redmond, Washington; Pacific Western Engineering, Bellevue; and the Battelle Seattle Research Center. From 1970 to 1980 he was Assistant Professor of English at the University of Washington. His essays on American literature have appeared in more than ten journals and books. The Puget Sound area STC presented him with Achievement awards for his manuals in 1983 and 1984. His degrees are from the University of Notre Dame (A.B., M.A.) and Indiana University (Ph.D., English).

CARS ARE HERE!

ARE YOU READY?

TONY RHODES-MARRIOTT-VERSATILE EQUIPMENT

ABSTRACT

Integrating any micrographic or magnetic based storage system requires a considerable amount of research especially if the system is potentially a panacea for future considerations. Unfortunately like so many other systems, a mix of formats has developed through specialized requirements, technological advances, and so on. How can this be overcome? Implement CAR technology! CAR systems should be acquired or created soon to ensure ongoing current information is easily accessible. In the interests of saving both time and money COM technology should be explored now and a CAR system should be implemented soon. CAR technology speeds up search and retrieval processes.

C.A.R.

Today means are available to integrate all information storage and micrographic formats into one system package. This is a Computer Aided Retrieval (C.A.R.) system. All current formats should be considered for C.A.R. All new systems must become integrated and networked through a CAR package, to ensure continuity and reduce costs.

C.A.R. systems are relatively simple. They are used essentially to create a computerized library index with cross reference and search capabilities. Therefore they can be applied to existing files, formats, or systems with ease, and must be used for all future developments.

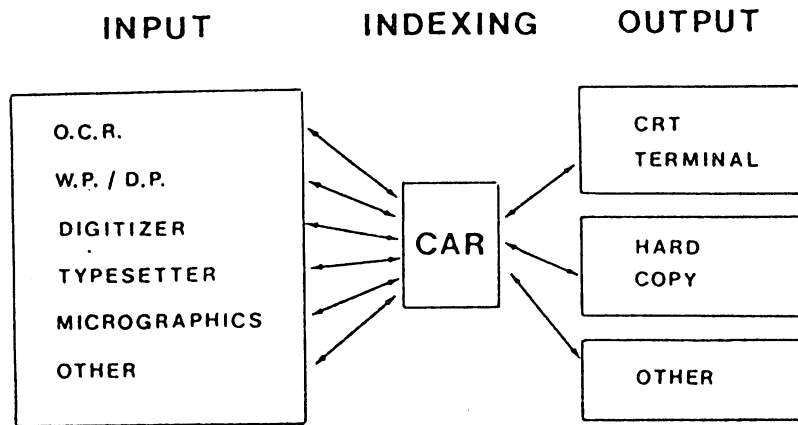


Figure 1 PRINCIPLE OF CAR SYSTEM

C.A.R. systems are designed to reduce costs incurred when searching for information. They enable information to be located very rapidly. The more sophisticated systems are capable of locating and retrieving information almost instantaneously.

Information input takes on many forms, output also takes many forms, the heart of any fully integrated information system is a C.A.R. system - effectively programmed and current.

Micrographic Considerations

If we consider we are just realizing our need for further micrographic involvement there are many questions to be asked, and hopefully answered. Questions like: What format should we choose? Why should we become more involved with micrographics? Why extend involvement with what may be a disappearing technology? Why not wait for some of the emerging technologies to flourish? What have we today? Can we standardize to one format? How cost effective is micrographics?

Some of the answers are simple, others complex, but all are necessary when considering a more fully integrated and more fully utilized micrographic system. Addressing format, in most cases the format is (and indeed should be)

dictated by the requirements. For much information in a small organized package 105 mm microfiche is ideal as reference material. For quality reproducible documentation 35 mm aperture card or roll film is best. For archival or reference material 16 mm roll film or jacket systems are well suited. Consideration for both storage and access to systems as well as numbers of duplicates to be made should also be given prior to selecting any system.

Often, out of necessity, all these systems are used within many organizations. Versatile Farm Equipment Company is one such organization. The following systems are in use here:

105 mm microfiche is used for parts manuals and parts pricing - this information is disseminated, relatively inexpensively to over 800 locations worldwide.

35 mm aperture cards are used exclusively for engineering and plant operations for all engineering drawings. Ten stations are kept current plus a master file and a security duplicate file.

16 mm roll film is currently used for archival purposes in both open reel and cartridge format.

Jacket Systems are used where reference is frequent and 2 or 3 copies are required.

The systems in use have evolved to save time and space and to retain archival records. They are very cost effective in their respective areas.

Micrographic Technology Today

Micrographic technology is evolving rather than disappearing. There are new developments which will add considerably to storage and retrieval methods. Video disc and Holographic developments, though not micrographic in nature have many similarities and are most encouraging. These developments will gradually make inroads into the micrographic market place, though due to the pre-

ponderance of current systems and the inherent costs of newer technology, are not likely to displace current systems for some considerable time yet.

Significant advances in storage/retrieval and reproduction devices for microfiche and other film based information forms are making micrographics more cost effective and consequently more attractive to end users.

For future flexibility, equipment must be adaptable to various reduction ratios and formats. Conceivably information will be received in different microfilm formats from suppliers, other divisions or departments and the ability to review or retrieve information must be available in-house.

Companies considering microforms must thoroughly analyze their needs and should build in flexibility to allow for all current formats and future expansion. The majority of major equipment manufacturers offer combinations of lenses and interchangeable carriers to allow viewing or copying of most microforms. The ease of changing from one format to another should be considered relative to cost and probable frequency of change.

There are many file cabinets throughout most companies that can, through the use of micrographics, be replaced with small desktop boxes saving considerable floor and storage space.

At this point we at Versatile are considering expanding our micrographic services to significantly reduce future costs: for storage, for materials, and in time spent searching for information. Currently we are using some COM fiche done by outside suppliers but considering in-house capability for the future.

C.O.M.

With the advent of Computer Originated Microforms (COM) the need to have rapid retrieval or at least viewable output is increasing. Very significant material cost savings (75 - 95%) can be realized, using COM rather than paper. The same holds true for mailing costs. Labour costs can also be significantly

reduced - in areas of information distribution, retrieval, and storage, by using more microforms.

A study recently showed that 75,000 pages of computer print-out weigh 500 lbs, use 10 cubic ft. storage and cost \$420.00. The same material on microfilm weighs 9 lbs., uses 0.18 cu. ft. storage and costs \$90.00.

Production time savings are also apparent in COM systems. Up to 30,000 pages per hour can be microfilmed using COM techniques. Only about 2000 pages per hour can be produced using line printers. Since much time is spent waiting for machines to produce expensive paper copies, it is becoming more apparent that COM capabilities must be considered now, both to reduce material costs and to save time. Both CAR and COM systems will become more necessary as CAD devices and systems become more plentiful in the workplace.

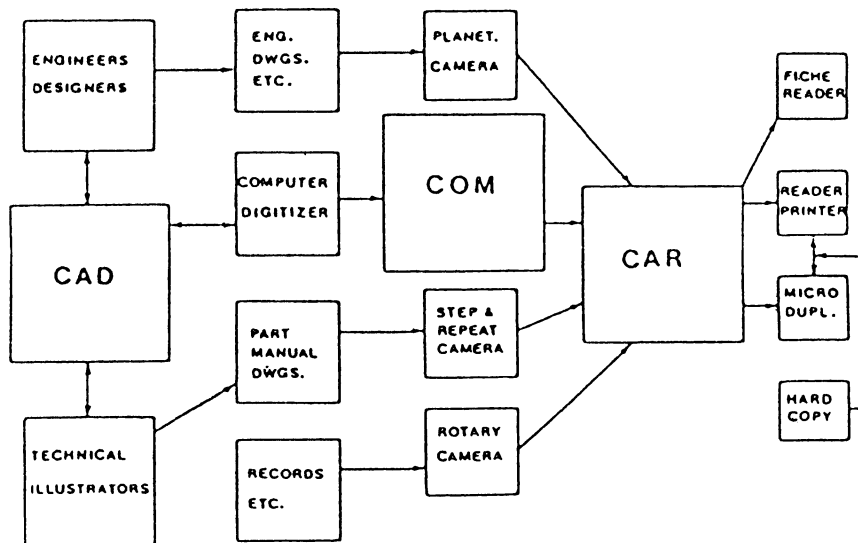
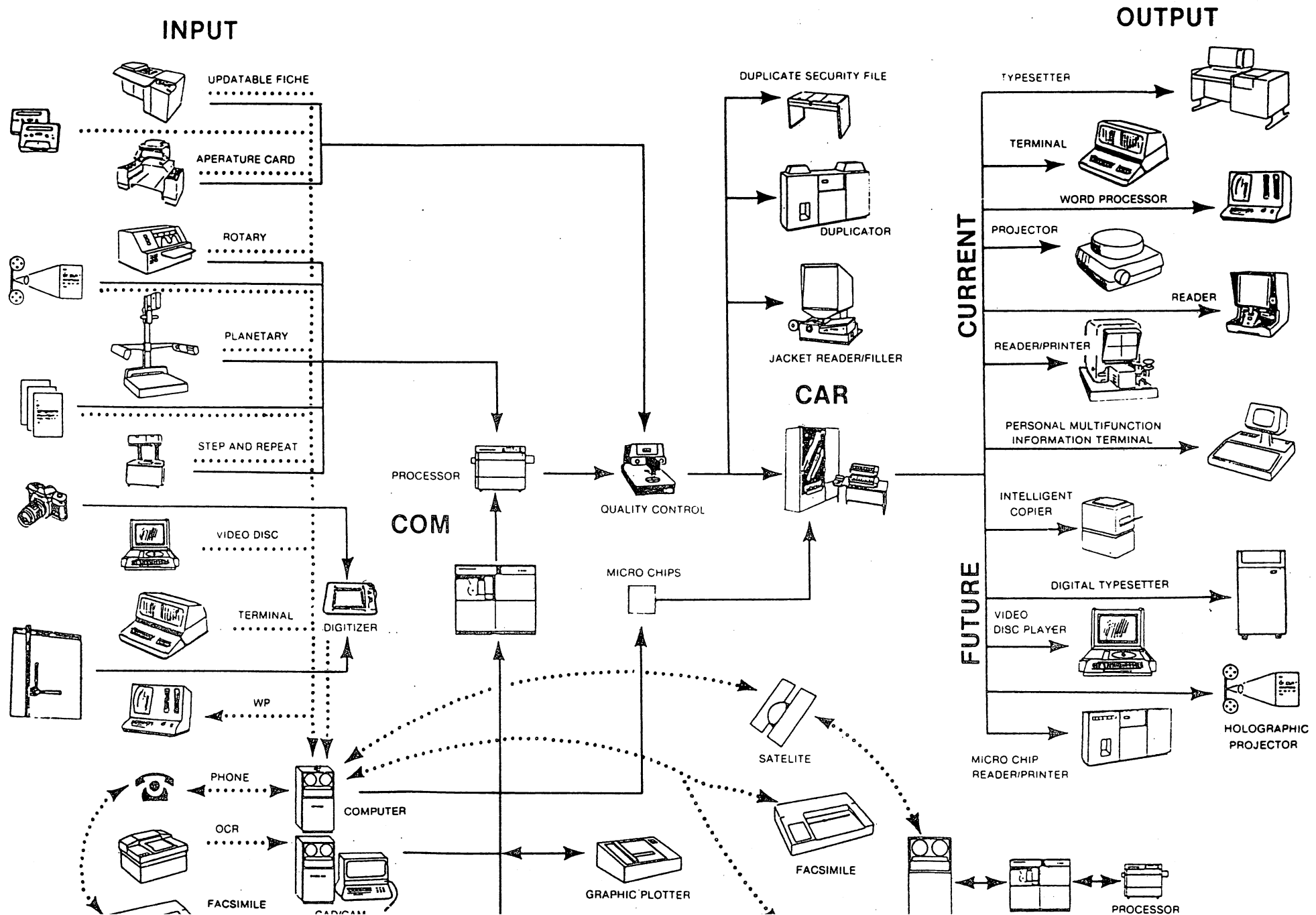


Figure 2 COMPUTER ORIENTED IN-HOUSE SYSTEM

FIGURE 3

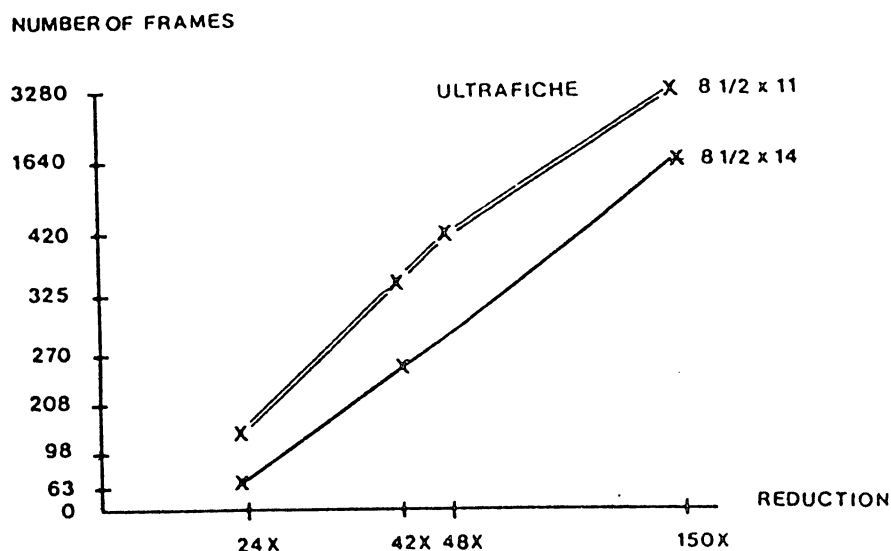
POTENTIAL INTEGRATED INFORMATION SYSTEM



In-house systems are becoming more computer oriented and as Computer Aided Design (CAD) becomes a reality the requirements of Computer based indexing for retrieval purposes will become even more apparent. Overall networking of systems within a company must incorporate all input and output devices. The most cost efficient way to assimilate microforms is through a CAR system. This will of necessity become the heart of any fully integrated information system (See Figure 3).

Ideally information on a specific topic will be requested through a terminal and the location(s) of relevant information will be supplied. The locations may show up as; specific discs on word processors, (CAR Systems can be applied to all information sources) certain reels of film in a micrographic library, aperture cards in an engineering master file, or other similar source. The search procedure will be handled through the computer in such a manner that all pertinent information is identified cross referenced and located. Some information will be instantly retrievable on a Cathode Ray Tube (CRT) information terminal. Other information will have to be physically retrieved from the designated location, then reproduced either micrographically or electronically.

As systems advance and more automated retrieval devices become less expensive, more companies will acquire them and considerable savings will be realized. Retrieving 1 piece of information out of one million records by a seated operator is possible in a matter of seconds. Space requirements will be reduced by as much as 98% by going to a microform system. Labour overhead will be reduced due to man hours freed up from the labour intensive acts of filing, etc. The following chart shows the number of frames it is possible to store on a 105 mm microfiche.



The ultrafiche showing 3280 frames of 8 1/2 x 11 sheets gives some idea of the potential space saving and convenience nature of micrographic formats.

The more conventional range of 300 - 400 images stored on a microfiche is both suitable and adequate for many applications and a high degree of quality can be achieved. Currently all Versatile parts manuals are released in this format and our internal search and retrieval methods are completely manual. Today, because our microfiche quantities are relatively low, this does not take very long. However as our models change and new equipment is introduced the quantities subsequently become greater and the search will become more complex. When all the existing microforms within Versatile are combined into a common location the search will be still more complex.

If the files that are currently stored in filing cabinets throughout any company today are converted to microfilm they will occupy only about 2% of the area they currently occupy. Ideally an off-site vault with a duplicate set of records will be maintained for security.

However, before considerably more information is microfilmed, the questions of CAR and COM capabilities need to be addressed more completely.

We are currently increasing our reliance on electronic media storage devices. We should also be considering further micrographic capabilities for storage.

Information is only useful if effective communication systems are in place. As system networking integrates all technologies current information storage and retrieval devices will become more sophisticated, and essential to the progressive company. When considering any new technological breakthroughs communications capability must be specified as a requirement. The ability to retrieve any information, stored in whatever form, wherever it is located throughout the company, and indeed the Corporation, from some on-line device is of the utmost importance. The accessibility of this information would of course be subject to suitable security clearances on the part of the operator.

The need to implement CAR and COM system capabilities is becoming more and more urgent as our information volume increases. Information, especially of a technical nature is only useful if it is up-to-date and accessible. If for instance an engineer spends one hour looking for a specific component with certain characteristics and does not find it. How much has it cost the company? Perhaps that alone is not so bad, but multiply it by 200 engineers, one hour a day, 20 days a month, 12 months a year. The net result is 48,000 man hours a year lost. How much does that cost the company? If the information is not found in that time and has to be requested from an outside source, first the source has to be located more man hours lost!

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For more than 20 years Tony has been in communication as writer, editor, consultant, teacher and manager. His current responsibilities include: Technical Publications, Micrographics, Engineering Drawing Control, and Bills of Material Data Group. In addition to STC and ABCA his affiliations include AIIM, AISP, NCGA & CIM. He has published several articles and chaired Communication related Conferences. He is a Fellow of the Royal Society of Arts.

ABBREVIATIONS AND ACRONYMS

This list contains abbreviations and acronyms used.

CAD	Computer Aided Design
CAM	Computer Aided Manufacturing
CAR	Computer Aided Retrieval
COM	Computer Originated Microform
CRT	Cathode-Ray Tube
DP	Data Processing
DWGS.	Drawings
ENG.	Engineering
OCR	Optical Character Recognition
VDT	Video Display Terminal
WP	Word Processing
AIM	Association for Information and Image Management
AISP	Association of Information Systems Professionals
NCGA	National Computer Graphics Association
CIM	Canadian Institute of Management
STC	Society for Technical Communication
ABCA	American Business Communication Association

CREATING AND EVALUATING COMPUTER PROGRAMS FOR MICROCOMPUTERS

Peter M. Saunders, Ph.D., Centennial College,
and Software Author for Bell and Howell

ABSTRACT

This author begins by establishing three criteria for evaluating educational computer software: I. Learner and Instructor Orientation; II. Instructional Strategies; and III. Visual Techniques.

Learners and instructors should find all printed material clearly written and all disks accurately labelled. Useful overviews, lesson objectives, and menus should be incorporated into the lessons.

Instructional strategies tell us a great deal about how concerned the authors are with learners' individual needs. A variety of drill and practice, tutorials, games, simulations and tests help keep the learner motivated. Branching creates the important illusion that the user is controlling the lesson and allows the user to advance at his/her own rate.

With visual techniques, we are concerned with the conceptional organization of screen displays. We should expect a minimum of visual distractions..

In the "Foreword" to his book "Future Mind" (Little, Brown and Company, 1982), Edward J. Lias prints a spacegram - a kind of futuristic telegram sent to us by three lonely spacevoyagers from the far reaches of our galaxy. The spacegram is dated June 28, 2021. It begins this way:

"Three of us amused ourselves today by reading a quaint book shelved in our sterilized memories room. Titled "Future Mind" it attempted to forecast the future of computer assisted media and communications between A.D. 1982 and 2020. The book is now 40 years old and seemed rather unimaginative. It carried details about early computer gadgets and other services that are now obsolete."

Anyone who speaks on computers today risks the kind of censure expressed in Edward Lias' spacegram. At any moment your credibility may be wiped away - literally zapped!! - as quickly as a disk can be erased clean at the press of a button. Tomorrow's new breakthrough in software design will surely make today's comments obsolete and irrelevant! On the other hand, this fact may encourage a healthy sense of humility. A rare commodity.

Having prefaced my remarks with this sobering fact, I have chosen to take that risk! Because my presentation is intended for present and future users of educational software, my remarks will centre primarily on the process of evaluating commercially produced educational software, and secondarily on the criteria to be used in creating it. * My presentation will conclude with a brief demonstration of Bell and Howell's authoring system known as the Pass system. (special thanks to Barbara Boyer of Bell and Howell, Chicago for granting permission for this presentation.)

Consider the problems which beset the modern educator who discovers in his/her mailbox one morning two packages: one containing a recently published textbook on Business Communication; the other containing several disks on the same topic. After reading both covering letters, it's

clear that both contain the same promises - both suggest that all our educational problems are over! Well, we've heard that before! Chances are the educator will first reach for the textbook. A quick glance at the author's name, the table of contents, a sample chapter and its accompanying student exercises, and bibliography is probably all we need to see in order to assess whether this text is truly unique or merely a rehash of all that has been said before. But how are we to evaluate the computer software?

Criteria for Judging Software

We can't flip through the program as we can the pages of a book. There will be a table of contents now renamed "Main Menu", but we may first have to take a diagnostic exam or carry on a dialogue with the computer or even wade through four or five screens of explanatory text before we find it. And even when we do find it, it won't take us long before we realize that many of our standards for judging text material simply do not apply to the experience of computer assisted learning. With the textbook, the book is passive and the learner (we hope) is actively engaged in sifting, predicting, questioning, and absorbing its contents. With the computer program, the program -if it is a good one- is as active as the learner and is busy stimulating, encouraging, reinforcing, testing, and, yes, even entertaining the user.

Well, what criteria can we use? I would suggest that we concentrate on three areas: Learner and Instructor Orientation; Instructional Strategies; and Visual Techniques.

I. Learner and Instructor Orientation

Let's open our imaginary software package and examine it together. There are three disks, each clearly labelled: the first is entitled "Lesson Material," the second is called "Introduction to the Course," and the third bears the title "Class enrolment and Grades." So far, so good! There are also three booklets in the package. Two are for the instructor and the third is for the student. The booklets are written in clear English and are free of jargon. They do not presume that the users already have master's degrees in advance programming!

What hardware do we need? What instructional prerequisites are required of the instructor and the student? What instructional objectives are covered? What will be the teacher's function, and how can the courseware be integrated into the curriculum? The answers to these questions are easily found, as well as an abstract of the course content.

Let's put the Lesson disk into our micro and see what kind of learner orientation is provided there. The "Main Menu" will be a good place to start. Each section is clearly numbered and labelled, and each contains a helpful overview and lists the specific objectives taught. There is a useful section on how to use the computer and how to get out of a lesson if we have to. There is a clever graphic symbol which changes as we move through the program so that no matter where we are, we have a clear idea of how far we have travelled and how far we have to go before we finish. Obviously the authors want to prevent that free floating feeling that students complain of - a feeling worthy of description by Sam Beckett! Where am I? Will this program never end? Learners are also told how they will be evaluated and how many tries they will have to answer the questions and whether or not additional material (both advanced

and remedial) is available. And who will have access to their grades.

II. Instructional Strategies

In terms of learner and instructor orientation, our program easily scores an A grade. But what kinds of instructional strategies are at work behind the glossy surface features of the presentation? In a sense the instructional strategies constitute the skeletal system of the program and tell us a great deal about the authors' concerns for their learners' needs.

I suppose the first question to be asked is simply this - does this program actually teach or does it merely test. Many software programs pretend to teach, but merely test. Simply providing a few examples of persuasion is not the same as teaching persuasion. Besides drill and practice, do the authors make use of tutorial instruction which tailors instruction to a student's specific needs. And do we find games being used to motivate and teach. I wish I had an American dollar for every corporate executive who has been trained on such games as Financial .500! Are there simulations and finally tests which assess the level of success and diagnose the strengths and weaknesses of students. In short have the authors utilized the enormous range of educational strategies made possible by the computer, or have they turned out yet another program which "keeps the student busy and out of the teacher's hair!"

Before leaving our discussion of instructional strategies we must say a word or two about branching. Branching controls the movement of users through the program. The more branches inserted into the program, the more choices and the greater freedom of movement the user has. The psychological impact of branching should not be underestimated, for good programing creates the feeling that the user is controlling the program and not the other way around. Are there separate branching paths for

different learner's abilities as determined by tutorial instruction? Can learners bypass introductory material they have already seen, or are they bound in by the rigid confines of a narrow mind.

III. Visual Techniques

So far our imaginary software package has held up rather well under our scrutiny. But we have one final criteria upon which our judgment will rest - the impact of the visual medium on the learner. I confess that I feel slightly uneasy venturing into this area, for we are still in the dark ages in terms of the amount of research available on computer screens and their impact on the user. One useful text is by Francis M. Dwyer and is entitled " Strategies for Improving Visual Learning."

Some questions come to mind immediately. Are the screens crowded with too much print? Are the colors pleasing to the eye? Are they used to highlight, to organize, to differentiate portions of the material or do they scream out for attention like a young four year old who resents the parent's enjoyment of gardening or the evening paper.

Generally the screens should be free of visual distractions. Let's look at a few screens. Do we get the feeling our authors secretly spend their spare time in video parlours. Are our students being victimized by video overkill! Inverse letters, underlining, varying letter size and styles, flashing cursors and dancing boxes, receding margins that are more sinister than receding hairlines, multiple colours that remind one of the test patterns on early morning television -- Stop!!

We should also consider the placement of instructions and titles. Are they in the same place on each screen or have the authors been inconsistent in placing them. And what of letter size/scale/colour? Do we suspect the author of supporting his wife the optician. If the author

created the program for colour monitors, how do the colours look on a green screen. And what about different monitors?

After all this, we may be tempted to flee to our traditional, uninspired textbook. For now, we still have that choice. But what of the future? Until 1975 Governments (federal, provincial, and state) were the big spenders on computers. Now business and industry are in first place and universities and schools have claimed second place. In 1964 a survey of 2219 educational institutions revealed that only 707 or 32% of them had computers. In 1985 the survey was broadened to include 3250 institutions. Of those surveyed, 2650 now boasted of possessing computers - that equals 82% responding in the affirmative. With the cost of paying teachers increasing and the cost of desk top computers dropping, one can only wonder how long we will enjoy the luxury of ignoring those small insignificant disks that keep appearing in our mailboxes.

Dr. Saunders received his undergraduate degree from Pace University, New York City. In 1967 he moved to Toronto to continue his education and attended the University of Toronto where he received his M.A. and Ph.D. degrees. Peter teaches full time at Centennial College and part-time at the University of Toronto. He also serves as a writing consultant for business, industry and governments. He is presently a computer software author for Bell and Howell, Chicago, and serves as curriculum design consultant for Bell and Howell Canada. Peter has been an active member of ABCA for five years and has given a major presentation on Canada's Telidon system at the 1982 ABCA international convention in New Orleans.

EDUCATION

SURVIVING THE PAPER BLIZZARD: STUDENTS AS COLLABORATIVE WRITERS

Helen Lowe, Lois Barry: Eastern Oregon State College

ABSTRACT

When collaborative learning techniques are applied to the business report writing course, students' papers improve as demands on the instructor are reduced. Modifying the course by organizing students as consulting firms provides an alternative audience for their writing and encourages meaningful cooperation in the writing process, an approach more appropriate for managerial writing than the traditional teaching methodology. Strategies--ungraded writing, peer responses, personnel appraisals, student collaboration--reinforce business writing concepts. By working together, students share skills, develop team attitudes, coordinate writing systems, and build enthusiasm for their writing projects. Students' participation in the evaluation process is another important factor in enhancing the quality of their submitted reports.

Most professors work too hard when they correct students' writing. Not only are their efforts grueling and often demoralizing, but they unfortunately produce an equally negative effect on their students, whose papers appear to have been the object of a systematic attack.

During the past ten years, as attention has been focused on the declining level of students' literacy, equal attention has centered on the need for literate, clear communicators in virtually every field--especially business. A number of studies and classroom experiments in writing-across-the-curriculum have indicated that significant changes in the traditional approach to assigning and "correcting" papers are in order. These new techniques, which reduce demands on professors' time and energies, are yielding significantly improved writing products from students.

Until recently, our profession--that of teaching students to communicate clearly in writing--has been bedeviled by myths. It's difficult to explain why these cherished beliefs have persisted for so long, perhaps because most teachers of writing may have a higher than usual masochism index. Is it possible that writing professors derive some perverted satisfaction from working harder, correcting papers more diligently, and--tragically--recognizing that their efforts may often be relatively unproductive?

The Paper-as-Test

The first myth is that a paper is a test, an isolated task that no one should participate in but the student who writes it and the professor who grades it. To counter this myth of the paper-as-test, it's important to decide whether students in Business Communication are writing assignments in order to demonstrate what they already know so that they can be graded on it, or in order to improve their skills in writing clear, intelligent prose. The grading process, unfortunately, is likely to interfere mightily with the learning process. In fact, students' responses to learning center questionnaires reveal that, in almost every case, students see professors' comments on papers simply as justification for the grade, rather than instructional suggestions for improvement.

The term report, handed in and graded at the end of the quarter or semester, offers little opportunity for learning from mistakes. Students are simply graded on their successes or failures; the professor's carefully recorded comments come too late to improve the written product.

Because we tend to treat students' papers as opportunities for grading, as tests, rather than the opportunities for learning that they should be, we have created a peculiar closed system that absolutely works against the reality of communication. When students write for their professors, they are writing for an omniscient authority who "knows everything," rather than for an audience that needs to be informed. It's not surprising, then, that students often fail to provide supporting information for generalizations, or that they omit the necessary transitions needed to clarify relationships. Students expect that professors, from their vast store of knowledge, will easily provide the necessary connections. In effect, students subconsciously expect professors to provide a kind of simultaneous translation as they read their work.

The Compulsion to Edit

The second myth is that every error on students' papers should be corrected. That belief has resulted in students expecting us to provide a free proofreading service for them. Too often our willingness to edit students' work meticulously results in one of the most tragic statements in higher education: "I know I spent more time correcting this paper than the student did writing it." To make students active participants in improving their writing, it is much more effective to put one or more light pencil checks in the margin of their papers, indicating that the line has one or more errors. When students scrutinize those lines, searching for specific errors they are actively examining their writing, not passively responding to a snowstorm of symbols. When professors act as editors, they are needlessly practicing skills they already have, while students are deprived of important opportunities to learn to edit their own work. When a student's paper is obviously the result of a minimal effort, it should simply be returned with a note indicating the date a substantially revised version is expected.

Creating a Meaningful Audience for Students' Writing

All of this assumes, however, that the professor is still the primary audience for students' writing. A dramatic change in classroom methodology

and improvement in students' writing has come about as a result of Ken Bruffee's work on collaborative learning. What Bruffee and others have discovered is that students provide a meaningful audience for each other's writing. That does not suggest that students should grade each other's writing. That, unfortunately, is what professors get paid to do. What it does mean is that students, because they obviously do not "know everything," can ask intelligent questions of their peers. A group of students, although they certainly do not know as much as the professor, collectively can ask all the important questions about a business report. And since they are not in the business of grading, students are free to collaborate in improving each other's writing by identifying what they like about a paper and making valuable suggestions for improving it. Students thus intervene during the composing process, when comments and suggestions really matter.

Furthermore, since approximately 80 percent of the work of the world of business and government is done in committees, asking students to work in groups, as consulting firms which have been given the task of gathering information for and writing a business report, approximates the realistic world of business communication for which they are being educated. If we insist upon remaining the sole arbiter of students' writing success, the shift to the realities of the marketplace may be traumatic for our students. They need to develop confidence in their own editorial judgment. They also need practice in tactfully suggesting editorial changes to colleagues whose writing may need to be improved.

If you remember students asking "When (or how) should I turn in your paper?" instead of my paper, or our paper, you should be alert to teaching techniques that will result in students taking a proprietary interest in their work, papers in which they have a vested interest because the writing process in a collaborative classroom has been educational and supportive. At EOSC, Business Report Writing courses with enrollments of fifty students or more have been organized as consulting firms which cooperate in the production of business reports for their clients, the other consulting firms in the class. The personal account of Helen's two years of classroom experimentation with writing-across-the-curriculum teaching strategies follows.

Modification of the Business Report Writing Class

After completing Lois's interdisciplinary writing faculty workshop and hearing all these myths about teaching writing, I immediately felt that I had discovered the answer to the backlog of business/economic students waiting to take the required Report Writing class: After all, if I could grade 10 papers instead of 25, work with 10 groups instead of 50 students, then why not open up the enrollment and clear out the bottleneck!

Experience very quickly taught me that the students were not as ready as I to accept student collaboration, peer responses and appraisals, ungraded assignments, and writing for a non-teacher audience.

I allow the class to group themselves according to their academic specializations or other interests, retaining the privilege of making some "adjustments in personnel" within the first week to insure

- a "typist" in each group
- no more than 2 international, or special-needs students per group
- no more than 10 groups
- groups, as near as possible, ranging in size from 5-6

Any students feeling "uncomfortable" with their group are instructed to talk to me in the office before the next class period. Personal-request adjustments are made at the same time as my teacher-privilege adjustments to protect the identity of students making special requests.

The size of the groups has varied from 4 to 7 with no observable difference in writing performance. Naturally, the class enrollment controls the number and size of groups; however, I have found that

- groups of 8 or more reduces the conceptual learning of students and the writing quality of the papers submitted
- 7 to 8 groups provides the most effective teaching environment

Student Collaboration

As soon as the groups have been identified, student collaboration begins. The class is given the project description (Exhibit 1 is an example, which also serves as the class syllabus) and directed to

- become "comfortably familiar" with members of their group
- name their consulting firm
- decide on a general area for investigation

During this 30-minute period, I move from group to group providing direction as needed and diagnosing any problem areas or personal conflicts which may deter productive work by the groups. Even though most groups select a business-related topic, I do not restrict their choice in any way. (If it serves no other purpose, this technique reduces my boredom in reading!)

The first time I used student collaboration I did not take the time to instruct in group dynamics. I expected, "What if a member of my group causes my grade to be lower?" But, I was caught by surprise when one student commented to me, "I feel like I am cheating when you let me get help from another student for an assignment." The time spent orienting the class to group work and to peer appraisal is essential to the success of student collaboration as a teaching strategy in the report writing class.

Peer Responses and Appraisals

Personnel performance appraisals create the greatest anxiety in the students, so I teach this section first--and grade it last. By knowing from the beginning that--and how--their contributions to the class will be

evaluated, the students are encouraged to vent their anxieties openly, with no judgmental comments from me. I do find, though, that I must constantly reassure them: "You will have to accept, if not do, personnel performance appraisals when you begin working. In this class, it is just another type of report."

The personnel performance appraisal is included in the ungraded points to help alleviate this anxiety. The students are then given a "recommended" appraisal form for class discussion. They are permitted to make any changes which the class agrees to make; thus, at the beginning of the term, we establish as a class the criteria for the personnel performance appraisal. Also included on the personnel appraisal form (which they get to keep for reference during the term) is a list of the steps in the report writing process. As part of the appraisal at the end of the term, the students must assess each members' participation in carrying out these steps. (Exhibit 2 is a partial sample of the appraisal form which includes a list of responsibilities).

Peer responses as a teaching strategy are effective as soon as the students

- are "comfortably familiar" with each other
- learn that they are not "editors"

Holcombe and Stein's chapter on "Helping Others Write Effectively" has been invaluable to me for teaching the use of peer responses. (1, pp. 163-172) At the end of my lecture and the class discussion on appraising writing, I ask the students to bring to the next class a letter, memo, or report (no more than two pages) that they have written. (It is advisable to bring some extra letters to class for those who "forget" to bring one.) This writing sample serves four purposes:

- to familiarize me with the students' writing abilities
- to make the students aware of their writing strengths and weaknesses
- to introduce criteria for correct, effective writing
- to provide student experience (ungraded) in appraising peer writing

The students first use the teacher-developed checklist of criteria to appraise their own writing (2). The students are then instructed to:

- exchange papers with another member of their group
- appraise their peer's writing; NO EDITING allowed
- verbally compare the two appraisals within their group

The letters and two appraisal checklists are collected for recording of ungraded points. By quickly glancing at the checklists and referring to the letter, if necessary, I make a few notes that provide feedback and reassurance to the students. Most often the notes are of the nature:

- You're too easy on our friend
- You're too hard on yourself
- I agree
- I don't agree
- reread the 1st paragraph

Ungraded Writing

For ungraded writing to be a learning experience, the students must feel they get something for doing it--besides learning! After trying several methods of recognizing efforts for ungraded writing, I have adopted a 5-point credit for "doing the assignment on time" and a 0-point credit for "not doing it on time." I defend the "5 or 0" points by explaining that an assignment completed "late" reduces the productivity of the group and requires other members to assume unexpected responsibility in order for the firm to meet contract deadlines. The total of ungraded-writing points is equal to 60 percent of the total grade. The students quickly figure out that they can "pass" just by doing the assignments on time! Just think, how nice--and fast--it is to record a "5" for each assignment completed and not have to read, "edit," and grade each one!

Yes, this assignment does take nearly as much time as the traditional grading; but the time spent for it is the key to the students' acceptance of collaborative writing and constructive peer responses. It also allows me to shift the responsibility of responses away from the instructor, reducing future grading time. With this acceptance, the ungraded writing improved class discussions and prepared the students for writing the longer report.

Now that I have "taught" the strategies to be used, I am ready to begin teaching the concepts and process of report writing for business. Class time is allowed not only for collaboration before but also for peer responses to the writing for each step in the process. I have found that the more experiences the students have to collaborate with and respond to their peers the higher the quality of the group report.

Non-teacher Audience

As Lois mentioned earlier, the non-teacher audience for the writing assignment is achieved primarily by having the student groups serve as consulting firms while writing the report and serve as contracting firms while appraising other consulting firms' reports. I have found, too, that the students do not think of me as the audience quicker when I have

- peer responses prior to teacher responses
- working papers and reports kept on file in the school library
- completed reports left on file in the library the following term for "potential" clients to review
- reports are not accepted directly from a student

A separate folder is set up for each group under the name of the firm at the reference desk. (Files may not be removed from the library.) At the end of the term, I get one copy of the report from the library for grading.

Of the 200+ students enrolled in report writing the past two years, only one has said, "I still wrote for a grade from you." Several dozen have said, "All the time I was writing, I kept thinking 'Anyone can read this paper and

my name is on it'." Lois and I knew we had achieved our goal of the students writing for a non-teacher audience, however, when a student called me at 6 p.m. and said, "Ms. Lowe, I wanted you to know that our report won't be on file for the contracting firm by 9 p.m. tonight. I went by the library to be sure it was in the file. I was ashamed of the typing, so I am paying a student to retype it tonight. It'll be on file by 9 a.m. in the morning."

Essential to the successful use of these teaching strategies is student understanding--and acceptance--of what is expected of them, how they will be evaluated, and why the strategies are being used. Students are so conditioned to "teacher-lectures-we-write-teacher-grades" instruction that class time spent modifying their attitudes toward collaboration will be rewarded through reduced grading and increased learning. By taking class time to discuss the differences between "academic" writing and "managerial" writing--employee collaboration vs student isolation, ungraded vs graded writing, peer responses vs teacher grades, and personnel vs product appraisal--you, too, can survive the report writing paper blizzard.

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1. Marya W. Holcombe and Judith K. Stein, Writing For Decision Makers, Lifetime Learning Publications, A division of Wadsworth, Inc., Belmont, CA, 1981.
 2. Samples of checklists developed for the course may be obtained by writing Lois Barry and Helen Lowe, Eastern Oregon State College, La Grande, OR 97850.

Helen Lowe, Assistant Professor of Business at Eastern Oregon State College; member of ABCA and Association of Professional Writing Consultants; speaker, editor and consultant for educational and business written communications.

Lois Barry, Associate Professor of English, Eastern Oregon State College; Director of Northwest Area Foundation Writing/Learning Project at EOSC, speaker and consultant on writing-across-the-curriculum.

Exhibit 1

PROJECT DESCRIPTION

The members of your group have formed a consulting firm for the purpose of contracting business reports for various corporations. You have just received your first contract.

In reading the contract, you find that it stipulates:

1. No later than March 8, you will have prepared 2 copies of the report to be placed on file in the company's library (1 copy will be reviewed by the corporation's report liaison officer, Helen Lowe, and 1 copy will remain on file for other contracting firms to review.
2. By February 22 all data for the report will have been collected.
3. No later than March 15, you will have reviewed two other consulting firms' reports and comment on the reports' effectiveness based on the criteria established.

After gathering information independently, your group will meet on February 15 to revise the working outline (developed January 25) for the report and to assume individual responsibility for portions of the report-writing task.

Naturally, the goal of your consulting firm is to make a profit and to continue soliciting contracts to write business reports for various corporations. With these goals in mind, your group agreed to assess the contribution of each group member (including yourself) upon the completion of the report.

Exhibit 2

PARTIAL PERSONNEL APPRAISAL FORM
(Page 2 omitted)

Consulting Firm: _____

Report Title: _____

Group Member Being Appraised: _____

INSTRUCTIONS

Personnel performance appraisals can be reasonably accurate and uniform if the rating form is used properly and the worker rated on actual performance. The rater must be thoroughly familiar with the use of the form and definitions of terminology. The rating must be done on the basis of careful analysis instead of snap judgments. Please follow instructions carefully.

1. USE YOUR OWN INDEPENDENT JUDGMENT: do not discuss with other members of the group.
2. Study definition of the rating factors to be considered before making appraisal.
3. MAKE YOUR RATING FAIR AND SQUARE. TRY TO AVOID ANY PERSONAL FEELINGS.
4. Indicate your judgment on each factor by placing a mark (X) over the rating number which most nearly expresses your judgment.
5. If a mark (X) is placed by 2 or 4 ratings, give a brief statement describing the basis of the rating.
6. Add any other details which you feel are needed for the PERFORMANCE APPRAISAL REVIEW with the member of the group.

PUNCTUALITY--Consider attendance in class and at called group meetings.

- 5 Was always punctual with assignments and in attending group meetings; attended class regularly.
- 4
- 3 Attended most meetings; better than group average.
- 2
- 1 Could not be depended on to attend meetings; others had to spend valuable time trying to locate individual; never knew what was going on in meetings.

TASK ORIENTED--Consider all phases of job knowledge.

- 5 Focused on the task; clarified reporting techniques of others; assisted others in completion of task; exceptional knowledge of all phases; frequently referred to handbook.
- 4
- 3 Generally attentive to work; did assigned tasks, but made no "extra" contributions to the team or group assignments; demonstrated adequate knowledge of task and reporting techniques.
- 2
- 1 Did not complete tasks effectively; work had to be re-done or revised

PERSONNEL PERFORMANCE APPRAISAL

page 3

OVERALL RECOMMENDATION--Consider overall contributions toward maximizing profits and productivity of group and minimizing time, effort, and dollars spent.

- 5 Recommend promotion with additional merit pay raise.
- 4 Recommend _____
- 3 Recommend retention in current position with minimum labor-contract, cost-of-living raise.
- 2 Recommend provisional retention dependent upon _____
- 1 Recommend immediate dismissal.

REMARKS _____

PARTICIPATION ASSESSMENT

Please make a mark (X) over the appropriate letter to indicate whether this group member had primary (P), secondary or shared (S), or no (N) responsibility for the following aspects of the reporting project:

- | | | | | |
|---|---|---|-----|---|
| P | S | N | 1. | Helped to determine initial outline |
| P | S | N | 2. | Helped to revise outline for note-taking work |
| P | S | N | 3. | Helped to finalize outline for writing |
| P | S | N | 4. | Helped to research information needed |
| P | S | N | 5. | Raised important questions about report (style, data, approach) |
| P | S | N | 6. | Prepared rough draft |
| P | S | N | 7. | Edited rough draft (to increase clarity of presentation, to introduce quotes) |
| P | S | N | 8. | Interpreted or analyzed data (quantitative analysis, meaningful statistics, technical information expressed in reader's language) |
| P | S | N | 9. | Prepared graphics for report |
| P | S | N | 10. | Proofread rough draft |
| P | S | N | 11. | Checked citations for accuracy |
| P | S | N | 12. | Provided continuity for report (transitions, subheadings) |
| P | S | N | 13. | Typed final copy |
| P | S | N | 14. | Proofread final copy and made neat corrections in ink |
| P | S | N | 15. | Xeroxed and collated copies of report for distribution |

Rated by _____ Date _____

COMPUTER INVENTION PROGRAMS:
INTERACTIVE PROGRAMMING TO IMPROVE COMMUNICATIONS
IN THE 1980'S

Herb Smith, Clarkson University, Potsdam, NY

ABSTRACT

Through the use of computers, teachers can develop interactive programs to help students better understand the principles of business and technical communications. Such programs can help students polish grammatical skills, organize their ideas for papers, and develop outlines for reports. This paper discusses two such interactive programs: QUESTION and PREWRITE. QUESTION is a program designed to help teachers create a series of multiple choice questions on textbook concepts. PREWRITE is an invention program designed to help students write an essay or identify an audience level.

INTRODUCTION

For the past 18 months, Clarkson University has been very active in making computer-aided instruction a very integral part of teaching and learning in the college classroom. Starting in the fall of 1983 when all Clarkson freshmen received their own personal computers, the learning environment changed quickly at Clarkson as students and faculty members alike tried to integrate the computer into their academic lives. Many instructors (myself included) began to develop invention programs for use in the classroom. As a business and technical communications professor, my emphasis has been on designing invention programs for communication courses.

The computer, of course, has a wide range of business applications and many of these are well known. In addition to the obvious advantages that word processing has for business communications, the computer has been instrumental in bringing us electronic mail, CAD/CAM manufacturing systems, and other state-of-the-art innovations. The computer, however, is not as well known for its role in designing invention programs. Invention programs are programs that the instructor creates in order to help students master a particular skill, strategy, or concept. Often students and employers have a great deal of difficulty generating the necessary ideas to formulate an outline for whatever type of communication they are writing. Invention programs can help students and employers alike organize their thoughts, especially during the difficult prewriting stages of business or technical communications (although such programs have a range of applications that

go beyond this one use.)

This paper discusses two invention programs: one is a closed program and the other is an open program. The closed program (QUESTION) helps the instructor create a multiple choice, true/false, or yes/no test or quiz that can be run in a number of different computer languages. Most importantly, the instructor and the student remain the two key elements in the system for the instructor creates the questions and the student generates the responses. Likewise, the instructor needn't be a computer professional; a working knowledge of BASIC, ATARI PILOT, or Zenith's ZPILOT is sufficient. ZPILOT (and most other PILOT programs) can be written with a few simple statements. These statements usually take the form of one or two letters followed by a colon. Statements are always placed at the beginning of a line as the computer executes statements from top to bottom, first to last. The following six statements will help you do some simple programming in ZPILOT:

- * -- the "label" statement which is used to indicate a question.
- T: -- the "text" statement which is placed before any line that you wish to appear on the screen.
- R: -- the "remark" statement which is ignored when the program is run but appears in the edit mode.
- A: -- the "answer" or "accept" statement which allows the student to enter his or her response.
- M: -- the "match" statement which enables the programmer to enter a valid response against which the student's remark will be checked.
- U:multiline -- an "answer" statement that permits the student the opportunity to enter a response which is longer than one line.
- E: -- the "end" statement which closes the program.

Although there are a number of conditional statements in ZPILOT that expand the capabilities of the program, the conditional "yes" and "no" statements , and the jump statement are probably the most useful. The conditional "yes" statement (usually indicated as TY:) precedes a comment that the instructor has written into the program to appear on the screen when a "match" is made. The conditional "no" statement (usually indicated as JY: or JN:) permits the instructor the freedom to move the student either forward or backward in the program depending on the student's response. The jump statement moves the student to the appropriate "label" statement.

QUESTION -- A CLOSED PROGRAM

If an instructor lacks computer training, a student with some computer programming background can easily write the program. The one discussed in this paper is in ZPILOT, and it is a closed program because the student's response is matched against the instructor's response which is embedded in the program but hidden from the student. This type of program

helps the instructor check for matters of content and also can be used as a diagnostic tool for grammar and mechanics. What follows are two sample questions which can be written with such a program. Question 1 is a review question based on Chapter 1 of Leland Brown's popular Communicating Facts & Ideas in Business:

Question 1: Which of the following statements is an accurate definition of the word "communication"?

- A) Communication is interaction.
- B) Communication is the successful exchange of information between sender and receiver where the intended message is conveyed to the receiver without distortion.
- C) Communication is the transmission and interchange of facts, ideas, feelings, or courses of action. It is an event or happening that takes place.
- D) All of the above.
- E) None of the above.

The student makes his or her choice by typing in the letter of the desired entry; that letter is matched with a hidden matching statement that the instructor has previously inserted. If the student's selection is correct, the student sees a message on the screen, written previously by the instructor, noting that this is indeed the case. If a match is not made, the instructor can have the student retake the question or move on to the next question.

Question 1 was selected to illustrate several of the options open to the instructor who wishes to invent a program of this type. For this question there is more than one correct response; in fact, all choices but "E" are correct. "D" is the preferred answer for it includes "A," "B," and "C." If the student selects "A," "B," or "C," the instructor may wish to insert a comment in order to prod the student into looking for a more correct, or better, response. This comment could look something like the following: "Your answer is correct; however, there is a better response." When QUESTION is used in this fashion, the program includes an element of discovery as well as serving as a test for a prior or preconceived response. If the student should master the concept or skill early in the program, the instructor may wish to use jump statements, or subroutines, to move the student ahead in the program. On the other hand, if the student needs more practice acquiring a particular skill or concept, the instructor may have the student advance slowly and methodically through each question in the program in a predetermined sequence. Programs like QUESTION can also be modified to include backup questions so that the same questions do not appear each time the program is run.

Question 2 is a sample practice question to provide students practice in language skills:

Question 2: Which of the following sentences does not obey the rule of parallel construction?

- A) Salesmen are expected to travel four days a week, to send in daily reports, and to

- make out weekly vouchers.
- B) All typists are given instruction in handling office equipment, and in serving as receptionists.
 - C) It was not only Smith's poor forecasting of marketing conditions but he also didn't seem to provide adequate production facilities.
 - D) The executive has the ability either to plan or to get things done.

The correct response to Question 2 is, of course, "C." If the student responds incorrectly, the instructor may wish to include a comment (such as a definition of the term "parallel construction") in order to help the student identify the proper response and to learn in the process. Many programs of this type also have scoring routines which keep track of the number of right and wrong responses. The instructor can assign a point value to each question and change this value from program to program. If the terminal is connected to a printer, the instructor can ask the student for a printout of his or her score. Using this technique, the instructor can ask the student to retake the review or practice test until a certain level of competency is achieved.

CLASSROOM BENEFITS

The benefits derived from using invention programs of this type are threefold. First, the student has privacy in taking the practice tests and needn't worry about having an instructor staring over his or her shoulder. Second, the instructor can monitor the progress of each student in terms of language skills without devoting valuable class time to these skills or using conferences or tutorials to do the same. Third and probably foremost, such programs are indeed effective. At Clarkson, I have designed programs such as QUESTION for use in a sophomore level business communications course entitled "Introduction to Managerial Communications." "Introduction to Managerial Communications" blends group work with individual assignments. Students, in groups of four, create their own companies complete with an organizational structure, and develop products or services that their companies can market. While doing this, students write marketing proposals, sales letters, brochures, and advertisements for a wide range of audience levels for an equally wide range of purposes. Using a format similar to the one outlined in Exhibit 1, I created on a floppy disk a series of review questions from which 50% of the midterm grade was comprised. I left my floppy disk on reserve at the library so that students could copy the questions or programs for each chapter onto floppy disks they had purchased. Students could take the quizzes or reviews at their own leisure and as many times as they liked on their own Z-100 computers, or on one of the 50 Z-100 computers available to the undergraduate student body. For those few students who did not have ready access to a Z-100 desktop computer, I modified the software with the help of a student who had good programming skills, to work on the mainframe computer (an IBM 4341) in MUSIC. Students were given a code and a password so that they could get a hard copy of the quizzes without the matching statement. They used their textbooks to find the correct response.

Of the 36 students who took the midterm, 33 used either the soft copy or hard copy of the review questions to prepare for the exam (8 used the soft copy, 13 used the hard copy, and 12 used both the hard and soft copies). Grades on the objective portion of the test for those who used the software were, as can be expected, significantly higher. In evaluating the software at the end of the course, most students agreed that this form of instruction should be kept as it was , in their opinion, a valuable form of individualized instruction.

PREWRITE -- AN OPEN PROGRAM

Like the closed program QUESTION, PREWRITE is an interactive program. However, instead of matching a student response with a concealed instructor response (ie., matching statement), PREWRITE consists of a series of open-ended questions (hence the name open program) which aid the student in creating a working outline of a paper. PREWRITE programs can be written for a variety of different business documents including memos, proposals, marketing reports, and sales letters (see Exhibit 2). The instructor can include as many as 30 questions per program, with questions as short as one line or as long as 10 lines. Again, a programming background is not necessary, but a working knowledge of BASIC or PILOT is. The instructor may include any comments he or she wishes in the program after each question to help the student check on the type and extent of the response. As with QUESTION, the program can be assigned any name as long as it is not longer than eight characters. The key difference between the QUESTION program and the PREWRITE program is that in PREWRITE the student's remarks are saved in a program independent from the questions asked by the instructor. The student's responses can be printed out on a printer formatted to accept the software. The key to the PREWRITE programs' success is the instructor's ability to anticipate student problems and to write a series of specific, probing, well- sequenced questions. As with the QUESTION program the two major elements in this dialog are the teacher and the student. The computer serves only as a channel of communication.

Exhibit 2 presents a sample PREWRITE program designed to help the student write an outline for an effective sales letter using the familiar AIDA format found in such texts as Murphy and Peck's Effective Business Communications (third edition). As with the QUESTION program, the instructor may want to include one or more string variables such as \$NAME in order to personalize the interaction or dialog. Each question in this program is preceded with a specific comment or remark which serves to orient or focus the reader's attention on a specific stage or step in the program. Here the program is designed around AIDA:

- A = attract the reader's favorable attention
- I = arouse the reader's interest
- D = create desire and convince the reader
- A = make clear the action the reader needs to take

Questions 1-7 in Exhibit 2 focus on helping the student brainstorm for ideas about his product or service in "Introduction to Managerial Communications"

and to develop an effective attention-getting opening. Questions 8-10 help the student expand on the theme announced in the attention-getting opening by suggesting ways in which the writer can hold the reader's attention. Questions 11-13 help the writer develop a body of convincing evidence to support his or her claims about the product or service, and Question 14 attempts to suggest ways in which the student can handle the thorny issue of price. Finally, Question 15 helps the student brainstorm for an effective action close to end his or her unsolicited sales letter. After completing Question 15, the student has a workable outline to develop an effective sales letter.

CONCLUSION

Computer-generated invention programs provide the instructor with an important vehicle for monitoring and enhancing a student's ability to write effective business documents. These programs release the instructor from hours of conference time that might be spent on initial drafts because they provide the instructor with a valuable, almost tutorial, service. Invention programs can be developed, and even personalized, for individual students and writers in order to help them with a number of different writing tasks such as proposals, reports, memos, and letters. Such programs can be easily adapted to meet the needs of the business world as well.

Herb Smith received his Ph.D. in literature from Kent State University, Kent, Ohio, in 1980. Before coming to Clarkson University as an Assistant Professor of Technical Communications, Dr. Smith worked in business as a medical sales representative. He teaches courses in managerial communications, business reports, and editing. Dr. Smith is an active member of ABCA and STC, and abstracts articles appearing in the ABCA Bulletin.

EXHIBIT 1: CLOSED PROGRAM

R: The following questions have been designed to quiz the student on
R: certain concepts in the class readings.

T:

*LBQ1

T: Which of the following statements is an accurate definition of the
T: word "communication"?

- T: A) Communication is interaction.
T: B) Communication is the successful
T: exchange of information between
T: sender and receiver where the
T: intended message is conveyed to
T: the receiver without distortion.
T: C) Communication is the transmission
T: and interchange of facts, ideas,
T: feelings, or courses of action. It
T: is an event or happening that takes
T: place.
T: D) All of the above.
T: E) None of the above.

A:

M: D

TN: There is one answer which is slightly better than the others. Only
TN: "E" is incorrect.

JN: *LBQ1

TY: That is the correct answer Chris. "D" is the best answer to this
question.

*LBQ2

T: Which of the following sentences does not comply with the rule of
T: parallel construction?

- T: A) Salesmen are expected to travel four days
T: a week, to send in daily reports and to
T: make out weekly expense vouchers.
T: B) All typists are given instruction in
T: handling office equipment, and in
T: serving as receptionists.
T: C) It was not only Smith's poor forecasting of
T: marketing conditions, but he also didn't
T: seem to provide adequate production
T: facilities.
T: D) The executive has the ability either to plan
T: or to get things done.

A:

M: C

TN: Your response is incorrect Chris. Remember, in parallel construction
TN: ideas and actions of equal importance are phrased in the same
TN: grammatical form. Go back and try again.

JN: *LBQ2

TY: That answer is correct Chris. Continue with the other questions in
TY: the quiz.

EXHIBIT 2: OPEN PROGRAM
SALES LETTER

Hello, my name is Beatrice-- your guide and mentor. In "Paradiso," the third book of the Divine Comedy, I guided Dante on his journey through the future life. I have returned to guide you in the development of an outline for an effective sales letter for your course work in "Introduction to Managerial Communications" (TC 209).

Before we begin, tell me your name:

\$NAME

(Hit the asterisk key (*) and then hit the RETURN key to continue.)

Question 1

Students often find the following approach useful in developing the structure of their sales letters. A sales letter often complies with the following formula:

- A - Attract the reader's favorable attention.
- I - Arouse the reader's interest.
- D - Create desire and convince the reader.
- A - Make clear the action the reader needs to take.

Select one of the products or services that your company has already developed to use as the subject of your sales letter. Write the name of that product or service here: (Hit * and RETURN when you are through).

Question 2

Often the opening paragraph of a sales letter is very short for it is designed to do one thing: attract the reader's favorable attention. Often, the best way to catch the attention of a busy reader is by promising something that will benefit the reader. List three or four prominent features or characteristics of your product or service and match them with reader benefits. For example, Cycle brand dog food comes in four sizes so that the discriminating dog owner can select the appropriate size for his or her dog. What features does your product have and how can these be translated into reader benefits? (Hit * and RETURN when you are through).

Question 3

As mentioned earlier, you want to keep your opening paragraph short-- preferably two to five lines. Here are five suggestions on how to get your reader's attention. There are many others:

- A) Identify a problem that your reader may face.
- B) Begin your letter with a relevant quotation.
- C) Start your letter with a significant fact about your product or service.
- D) Offer a solution to a problem
- E) Begin your letter with a special offer or gift.

Based on our readings and class discussion, can you think of other attention-getting openings? Write them here. (Hit * and RETURN when you

are through).

Question 4

Now select one approach and write one or two possible openings here. Remember, keep it short and have it address a reader benefit. (Hit * and RETURN when you are through).

Question 5

You now want to expand on the theme started in your attention-getter in order to get and maintain the reader's interest. Begin to tell what your product or service is and what it will do for the reader. (Hit * and the RETURN key when you are through).

Question 6

You may want to focus on physical properties--important features, construction, performance, or function

OR

You may want to focus on values or benefits, particularly if you are offering a service. These values might include comfort, health, recognition, or security.

Here you should note some of the features and/or benefits provided by your product or service. (Hit the * and then the RETURN key when you are through).

Question 7

Here are some benefits that you may or may not want to include:

- | | |
|-----------------------------|---------------|
| A) Approval (by others) | E) Efficiency |
| B) Beauty or Attractiveness | F) Pleasure |
| C) Cleanliness | G) Savings |
| D) Health | H) Protection |

Are any of these benefits appropriate to your product or service?
Can you think of others? If so, note them here. (Hit the asterisk key (*)) and the RETURN key to continue.

Question 8

So that your readers will desire to take the action you request, you will need to convince them of the benefits supplied by your product or service. One piece of evidence which often accompanies a sales letter is a brochure. Will you include a brochure with your letter? (Type * and hit the RETURN key when you are through).

Question 9

The sections of the letter that create desire and help convince the reader can range from one paragraph (when a brochure is included) to several paragraphs. Again stress reader use and benefits. For example, if the product is an expensive shirt, its appearance will be valued, hence the writer should provide ample physical description. If the product is a blender for use in the kitchen, it will be valued for its durability and utility, hence its construction should be described.

What features of your product or service will create the most desire

and translate into the most desirable reader benefits? (Type * and hit the RETURN key when you are through).

Question 10

You will need to supply evidence to show that what you claim is true. This evidence may include satisfied customers, recognized authorities, agencies or testing laboratories, or the company name and reputation.

Which of the above will you use? Can you think of other sources? (Type * and hit the RETURN key when you are finished):

Question 11

You may have convinced the reader that your product or service meets a specific need and that it offers a range of benefits and services. Your reader may not yet be convinced that it is worth the price.

If your product or service is a bargain, say so.

If the price of your product or service may be a drawback, try to make it affordable and within reach. You may find one of the following techniques helpful:

- A) Present the price in weekly or monthly installments.
- B) State the cost in unit measures (ie. \$6.00 per book instead of \$120.00 for the entire set of 20 books).
- C) Emphasize the price in terms of the life of the product--so much per day, month, or year.
- D) Compare the price with money spent on nonessentials.

Note here the approach you plan to use (hit the asterisk key (*) and then the RETURN key when you are finished).

Question 12

Now you are ready to write the "action" part of the AIDA sales letter plan. This is the "hook" for here you ask the reader to take the action you have been tactfully leading up to in your first letter. Make the action easy to take and clear. You may wish to include one or more of the following inducements:

- A) A reply card
- B) A return, pre-addressed, stamped envelope
- C) A phone number

Which of these will you use? Can you think of others? (Include them here. Type * and then hit the RETURN key when you have finished. DO NOT EXIT FROM THE PROGRAM YET).

You have now created an outline for a persuasive, unsolicited sales letter using the AIDA plan. You are now ready to SAVE your comments by assigning them a name which must not exceed 8 letters or numbers.

Give your program a name here by entering the following information:

SAVE (program name) .PLT

Try running your program before making a hard copy on the printer.

AN EXCHANGE OF UNDERSTANDING:
HUMANIZING OUR COMMUNICATION MODEL

Douglas J. Stock, Sir Sandford Fleming College

ABSTRACT

The present communication models (the Shannon-Weaver offsprings) misrepresent human communication. A new, more human model is offered, one which focuses on the communication act as it is actually lived. Highlights and advantages of the new model focus on the need for individual, direct seeing tempered by an appreciation of the play element in language and culture, the rhetoric/dialectic relationship, and the everpresent ambiguity problem. Two basic types of communication breakdown are explored and are more specifically examined as they relate to teaching and management. Finally, the new model is seen in the light of modern man's pressing concern with language.

THE DEFICIENCIES OF OUR CURRENT MODEL

Teaching communication theory, at present, makes for an interesting contradiction. On the one hand, communication teachers feel compelled to give students a sound, theoretical basis for understanding our much-celebrated information age by providing them with an appropriate communication model; on the other hand, by subscribing to the type of models represented in the current flood of communication textbooks, teachers actually distort and misrepresent human communications.

It is no wonder the current models run counter to the teacher's central task. All the talk about communications as the transfer of information, and the ceaseless chatter about senders, receivers, messages, channels, encoding, decoding, feedback, noise, etc. is often just that, a lot of noise, and not terribly pertinent to the language and communication problems students actually have; indeed, the problems may end up compounded. Even when the model is dressed up and made to appear human (sender = writer, receiver = audience, etc.) the mechanical nature of the original shines through the best of disguises. As well it should, considering the origins of the model.

The Shannon-Weaver model of Shannon's mathematical, information theory serves as the basis for our current communication models. As a mathematical theorem and theory of information transfer, this model is of profound importance to the whole of our information, computer age. However, its importance as a model of human communication is, at the very least, questionable. Not that we cannot think of human communication as the transfer of information or ideas. We can and do, and certainly learn something about communications and ourselves in the process. But is this all there is to human communication?

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A transfer or transmission of information and ideas? Is this transfer or transmission even the most important aspect? Do we not lose something of the flavour and complexity of language and human interaction by subscribing to such a theory? And most important, does such a model actually help in the classroom or the workplace where the real problem and pressing need is that of understanding, and of people whose own understanding, as demonstrated in their communications, is often sadly lacking?

For my own part in the matter, I have done everything from ignoring the teaching of communication theory to outright attacking the current models. There are a host of things that the models completely miss or pay lip service to only. For example, little or no attention is given to the interplay of human dialogue, or to the individual's perception and understanding of whatever it is that is being communicated, or to the exchange of understanding that occurs and the shared meaning which results from the exchange. What is missing is any workable explanation or account of the meaning making process known as human understanding - and by "workable" I mean something that can be productively used in the classroom or the workplace.

My criticism of the Shannon-Weaver model, in short, is twofold. First, it clutters rather than clarifies the communication act. As indicated earlier, there is simply too much going on and much of it is foreign to our actual experience; thus the immediacy of the act, in all its subtle simplicity, is both displaced and misrepresented. Second, the emphasis is too narrow and onesided; thus the central focus and dialectical character of the act is lost. The Shannon-Weaver model places primary importance on the message source which codes the all important message prior to sending it. This emphasis and Shannon's concern with coding a message such that it overcomes the muddling effects of noise and retains its original, intended structure and form, when being decoded, lead him to search for the deeper more general rules of structure which belong to the message in its entirety. Shannon's uncovering of these deeper, information structures (including pattern, order, relation, the control of error, etc.) has had a major impact on the whole of our information revolution and on much of modern science. Unfortunately, when we adapt the Shannon-Weaver model to human communication and place the same emphasis on the source, other equally important aspects are neglected. As well, the abstract nature of Shannon's theory and its esoteric language make the theory inaccessible to all but a select few.¹

Nice if you can get it, but I, like most others, deal mainly with "the many" whose concerns and experiences are far less philosophic and abstract and much more practical and concrete. In other words, people are engaged directly with the everyday world in its immediacy, the world of "getting and spending" as T. S. Eliot provocatively coined it, and their words/acts reflect this direct, immediate relationship. One of my principal concerns, then, is to have a communication model which fully accommodates the direct, immediate relationship people have with each other and the everyday world of experience.

A MORE HUMAN MODEL

What we need is a communication model that accurately compresses the complexities of human communication to the bare bones of its own simplicity, yet fully accommodates its profound enigma without losing sight of its central role in human experience. In order to develop such a model, we must begin by suspending for the moment our knowledge of how other models portray the communication act and try instead to describe it as it actually unfolds. In this fashion, we reveal the inner structures of what is most familiar to us and, paradoxically, what is seldom understood and often taken for granted. We begin with the simple act of human intercourse (a dialogue between two people) where one person engages in the communication of something to another person, who then engages in the communication of something in return. Though the two individuals say (communicate) something different, they share a common experience because each of their communications is concerned with and is mediated by the same "something", namely the object of their dialogue: be it the weather, their health, a mutual friend, etc. Every act of communication, therefore, necessitates not only the communicators but also the object(s) which mediates the communication, be they the "concrete objects" of perception, or the "abstract objects" of the mind (our ideas, emotions, beliefs, and opinions), or the inevitable combination of the two. All acts of communication, then, are a "communication of" something and that something is the "object as mediator". It provides the common ground which bonds the individual communicators to the dialectics of a shared experience, and results, ideally, in an exchange of understanding.²

The following two models, Figures 1 and 2, present the fundamental components found in all acts of human communication - a non-reducible triad. The second diagram, Model in Action, presents the exchange of understanding and the unfolding of meaning. The models as presented are ideal in nature in that they picture the basic components of the act pure and simple, and prior to any impediment or communication breakdown.

Figure 1, the base model, represents the bare bones or necessary components of any human communication. The non-reducible triad is composed of two separate communicators and an object as mediator, all of which is encompassed with the world horizon of meaning. By this we mean the horizon of meaning where all communications, all objects, all meaning is found. We can no more go outside this horizon than we can go outside space and time. But we can and do continually expand this meaning horizon. If we reflect for a moment on history, we can see easily how this world horizon of meaning has continually changed, developed, and expanded. For example, in the area of science (physics) the world horizon has shifted from a Ptolemaic, to a Copernician, to a Newtonian, to an Einsteinian universe, and change continues to take place.

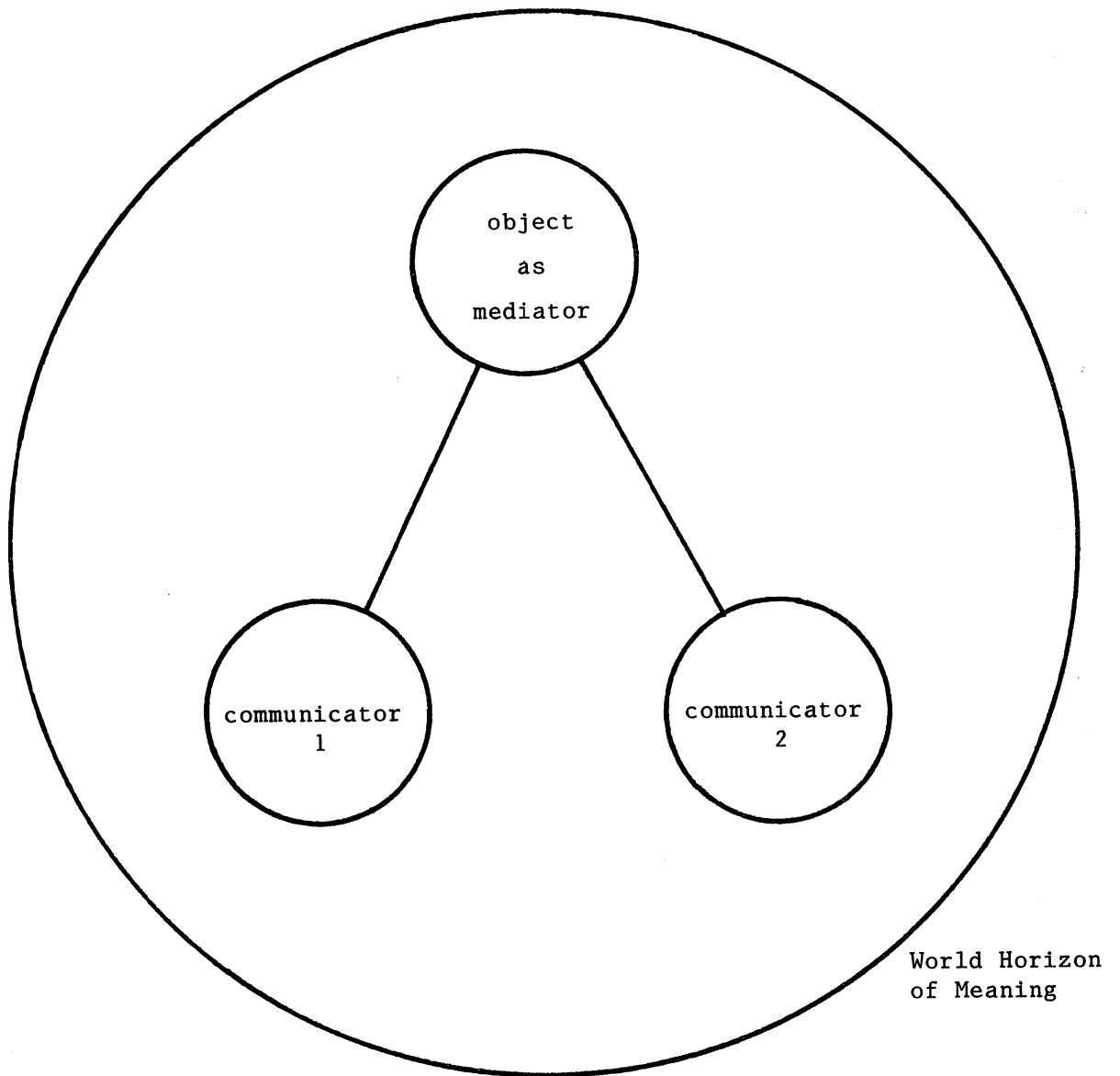


Figure 1
COMMUNICATION BASE MODEL

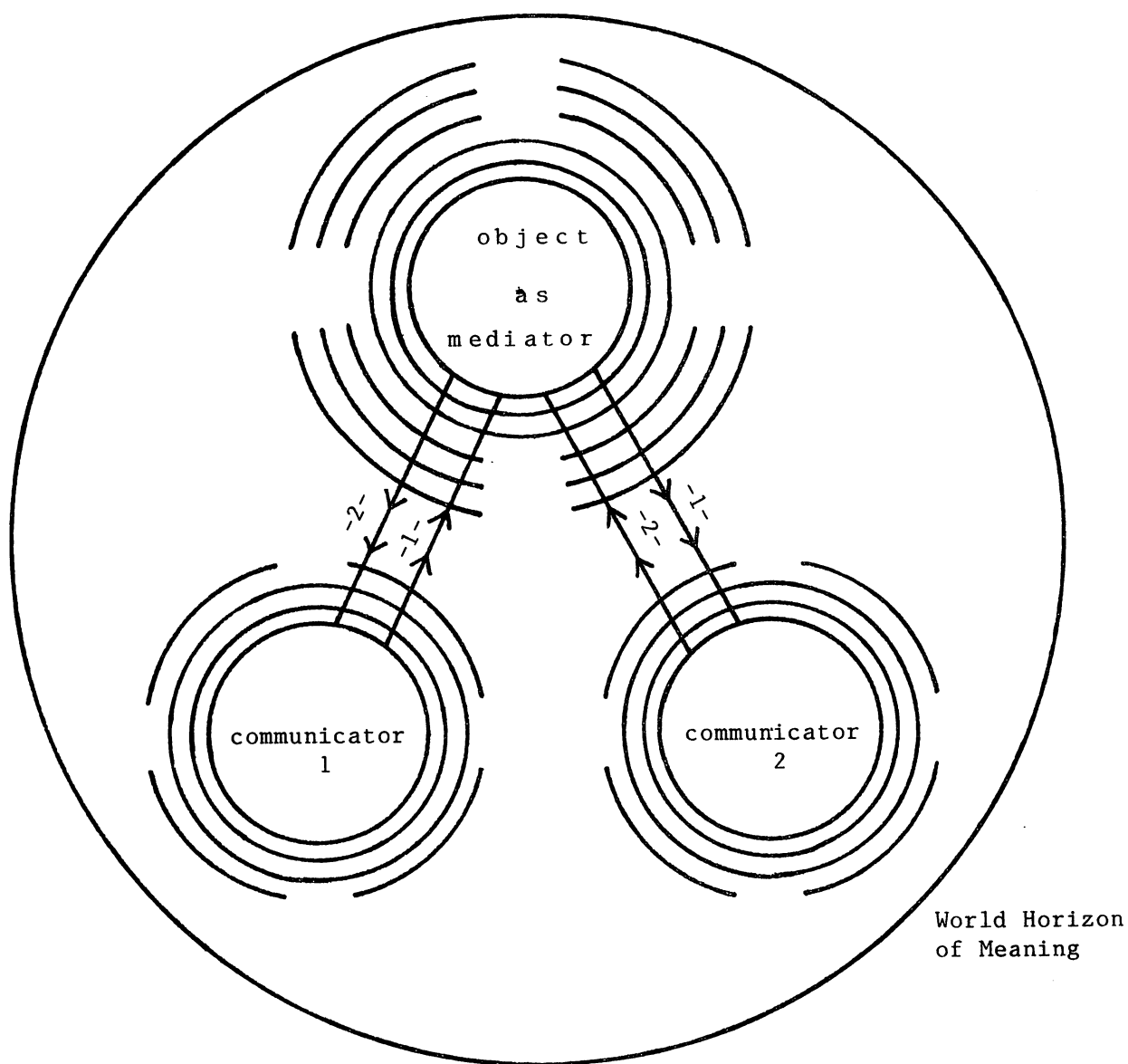


Figure 2
MODEL IN ACTION

In Figure 2, the concentric and partial circles around the object represent the new and possible meanings for the object. The new meanings come to be as a result of human dialogue and the exchange of understanding. The lines and arrows indicate the ongoing dialogue as mediated by the object, as well as the mutual exchange of understanding and the shared meaning. The partial concentric circles around the communicators represent the new and possible meanings for the individuals involved. It is a well known truism that "the more we learn about the world, the more we learn about ourselves". Should we remove one of the principal components, we destroy the communication: no object = no dialogue = no communication. If we remove a communicator, no communication takes place, strictly speaking. A communication to oneself is called thinking - thinking out loud if one chooses. Also, we could theoretically add as many communicators to the model as we wish; mind you, the circles, lines, and arrows would get pretty confusing. The additional communicators, though, would still share the same object as their common ground. Finally, the dialogue can vary. In oral communication the dialogue is overt and the feedback immediate, though always mediated by the object(s). In written communication the dialogue is tacit and, therefore, mediated through both time and space. The dialogue remains every bit as important, as any good writer will tell you, but more difficult to relate to and accommodate, as any English teacher will testify to.

The next diagram, Figure 3, represents how when two objects are entertained together a genuine growth of understanding is achieved.

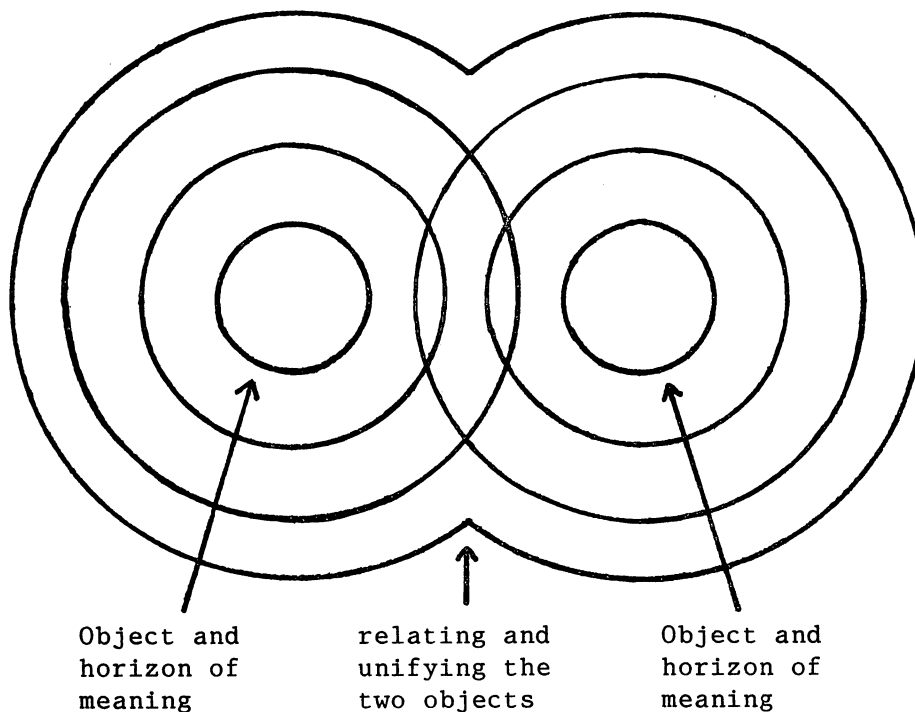


Figure 3
GROWTH OF UNDERSTANDING

When entertaining the two objects, the horizon of meaning of each object sheds light on the other such that a mutual, enlarged meaning apprehension occurs. In short, the two objects, the two ideas, become interrelated and unified. The human mind is constantly identifying, comparing, and correlating the objects of its experience. In the process of examining, measuring, and evaluating such objects, and then relating them to each other through the use of analogies and metaphors, the mind determines the order and structure of the world.

HIGHLIGHTS AND ADVANTAGES OF THE NEW MODEL

There are four main aspects of the model that need clarification. One of its salient features and strengths is its ability to make clear and emphatic the need for individual and direct seeing. Genuine, effective communications demand this individual, direct seeing which is the capacity of the individual to see an object in the light of his or her own particular experience and respond in the individual way that only he or she can and ultimately must. Direct seeing allows individuals to express their ideas, feelings, beliefs, and opinions as they relate to the particulars of a given communication. The model encourages direct seeing by focusing on the "what" of a communication (the object in relation to the communicators), rather than just the "how" or the "process". Direct seeing has the ingenious ability of creating its own how. To explain I must cite a passage from the great G. B. Shaw when he comments on how writers achieve an effective style.

Shaw explains the relationship of style to a writer's effectiveness of assertion:

Effectiveness of assertion is the Alpha and Omega of style.
He who has nothing to assert has no style and can have none;
he who has something to assert will go as far in power of style
as its momentousness and his conviction will carry him. ³

Style is not something cultivated on its own, or added in the way we add tinsel to a Christmas tree; rather, style is the effectiveness or quality of the assertion itself. In light of this truth and of what has been said about direct seeing, I add the following corollary to Shaw's statement: "Direct seeing is the Alpha and Omega of the communication process. He who fails to develop direct seeing can have nothing of his own to say; he who does develop direct seeing will go as far in mastering the how of the communication as its momentousness and his conviction will carry him." A good teacher (in the classroom or the workplace) knows that the most difficult and unquestionably the most important thing for the student to learn is the art of direct seeing. The present model recognizes the same truth and accommodates it accordingly.

The second important feature of the model is the emphasis it places on the element of play as fundamental to human communication. This play element is crucial not only to communications but, according to Johan Huizinga, to the whole of culture and civilization. In his classic work, Homo Ludens: A Study of the Play Element in Culture, Huizinga argues eloquently and convincingly that "pure play", as an instinctive and voluntary activity provides one of the main bases of civilization. It permeates virtually every aspect of life and receives its fullest expression in human imagination, freedom, and creativity. This play element must be understood on its own merits as a cultural fact in life, and not as something serving another more basic, biological urge; for example, as "a discharge of superabundant vital energy" or as "the satisfaction of 'imitative instinct'", or as "simply a 'need' for relaxation".⁴ Huizinga proceeds to show how everything from contest, war, and law to poetry, art, and philosophy are shaped and directed through the play element.

Huizinga explains how the very structure of language, in its extensive use of metaphor, is a direct expression of the play element:

Behind every abstract expression there lie the boldest of metaphors, and every metaphor is a play on words. Thus in giving expression to life man creates a second, poetic world alongside the world of nature.⁵

The poetic play of language is testimony to the primordial nature of the play element in human communications. As well, the play element as it unfolds in human dialogue often gives rise to the endlessly entertaining exchange of humour, wit, and story telling. The jokes, puns, whims, word play, jests, wisecracks, etc. come to life in the dialogue as made possible by the element of play. The spontaneity and carelessness that the play element brings to human communication is what gives every communication act its potential uncertainty and unpredictability; hence, we can at one time be entertained, challenged, even threatened. The play element in communications is an incredibly rich, fertile ground in need of much cultivation, and it deserves clearly major consideration in any theory of human communication.

The third important aspect in need of clarification is the relationship of rhetoric to dialectic as it unfolds in a communication. This relationship is critical to our understanding of the communication act. The two are so intertwined, and the interplay between them so complementary that they are like two sides of the same coin. Simply stated, rhetoric refers to the art of informing and persuading, and dialectic refers to the exchange of understanding which occurs during a dialogue, specifically to the ongoing and spontaneous give-and-take of the dialogue which both separates and unites the communicators. From the moment the communication begins, the two take hold and feed one another. For example, in a verbal communication individuals want to ensure the rhetorical quality of their statements, but can do so only within the context of the dialogue which is itself marked by a spontaneity and unpredictability that continually challenges the individual's rhetorical powers. Thus, rhetoric is locked into and fed by the give-and-take of the

dialogue. Similarly, the dialectic is locked into and fed by the quality of the rhetoric, by the individual's ability to clearly make himself or herself known. In written communications this relationship is never as immediate or explicit as it is in speech; however, in both cases the interplay of rhetoric and dialectic shapes and gives direction to all that is said and written. Questions about which of the two is the most important or which comes first are futile and beside the point. It would be like asking, "Which comes first, the chicken or the egg?" And the answer would be equally meaningful. What matters is to note how this vital relationship is a built in feature of language and communication, a feature which augments, shapes, and directs every act of communication. An appreciation and understanding of it is basic to any communication theory and model.

The fourth and final feature concerns the ever present problem of ambiguity, which is a conspicuous problem because ambiguity permeates the whole of human existence. There are very few black or white truths or yes or no answers when it comes to an agreed, mutual understanding; certainly this is true of important issues which seldom if ever afford a simple yes or no. In an important communication, then, the object in question which mediates the individual's exchange of understanding is seldom distinct, uncluttered, or unfettered, and is always subject to individual interpretation.

There is even good and bad ambiguity. Bad when the ambiguity clouds or distorts the object of the communication. Good when the ambiguity enhances it. For instance, the purposeful use of a pun can create both humour and a heightened or enlarged meaning. Advertisers use puns and word plays all the time. Take for example the ad for a bank who urges customers to invest in its new savings plan and employs the following caption: "Your Future Is In Our Interest". The purposeful double meaning given to the "Future" and "Interest" creates an enlarged meaning that invites a moment's reflection and maybe even a smile.

Examples of bad ambiguity are so ever present we need not waste time on them. It is enough to state categorically that ambiguity saturates our communications because human existence is equally fettered by it. The problem is best summed up by Maurice Merleau-Ponty, a French writer/philosopher. His thought goes to the heart of the matter when he developed what he termed the "philosophy of ambiguity", which is based on the recognition that "we are mixed up with the world and with ourselves in an inextricable confusion".⁶ The problem of ambiguity leads naturally to the next major issue: communication breakdown.

COMMUNICATION BREAKDOWN: TWO BASIC TYPES

Once we begin to see human communication as necessitating dialogue, mediated by an object, and culminating in a mutual exchange of understanding and a shared meaning, we develop a definite sense of an ideal, authentic communication as opposed to the imperfect, inauthentic type. However, given the nature of language, the communication process, as well as the basic human condition, the ideal is never easy to achieve. Trouble or breakdown can occur at any

time or place and for a host of reasons; in fact, there are at least as many separate reasons as there are separate communicators. However, there are some general and common causes. They can be divided into essentially two camps: those affecting the object, the thing itself which mediates the communication; and those affecting the communicators. Though the division is somewhat misleading since the two are not really divisible, the division serves a worthy purpose.

The Things Themselves

Breakdowns can occur when for one reason or another the object (the thing itself) is made obscure or is displaced from its central role as mediator. For instance, the object is obscured when it is in improper focus. It appears vague, ambiguous, confused, etc. In part this is to be expected in light of what has already been said about the general problem of ambiguity. There is also the problem of direct seeing or, rather, non-direct seeing. No genuine apprehension of the object is possible until there is individual, direct seeing. As a result, the object remains ill-defined, and the breakdown in communication is inevitable. The following diagram illustrates this failure to define and see the object. When both individuals fail to define, yet continue to discuss and argue, then we get what I call "The Argument From Ambiguity".

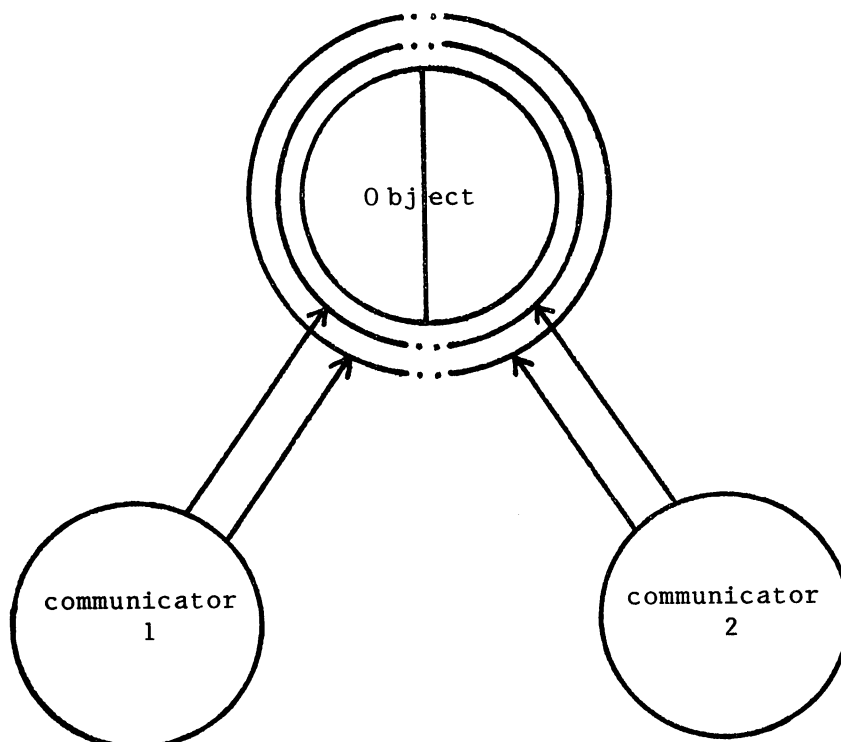


Figure 4
THE ARGUMENT FROM AMBIGUITY

If the object of discussion is not adequately defined, for whatever reason, then an unbridgeable rift separates the communicators. In Figure 4, the line down the middle of the object indicates the rift in interpretation. The communicators agree on the object in name only; their understanding of it is another issue. The true object remains obscured and ambiguous. The communicators can talk on and on, even yell and scream, but until the object is mutually defined, no coherent and constructive exchange of ideas is possible, let alone a resolution to the argument.

An object, also, can be displaced from its central mediating position when too much attention is placed on either the who or the how of a communication rather than on the what of it. Examples of the first instance (the who) are common enough. Every teacher knows the problem of students who "write for the teacher"; that is, they write what they think the teacher wants to hear and muddle their own understanding of the subject matter because too much time is spent trying to second guess the teacher. Or, there is the case of the novice employee who is more concerned with impressing the boss than with clarifying and understanding the task at hand. In both cases, particularly the latter, too much attention to the how rather than the what results in something that is all form and no content: pretty to look at, but beside the point.

At the best of times, communication breakdown as related to the mediating object are multiple and compound. However, in the present age of science and technology the breakdowns acquire some very pronounced and problematic features. In his recent book, Radical Reflection and the Origin of the Human Sciences, Calvin Schrag examines the origins of modern communication breakdown and concludes that our excess emphasis on specialization and the ever-growing complexities of the physical and human sciences has produced a modern day equivalent of "a tottering Tower of Babel in which each speaks its own tongue, producing a virtual breakdown of communications."⁷ And all this, I might add, in spite of our much-celebrated information age. The proliferation of these specialized and esoteric tongues erode instead of clarify the common ground we all share: "the originary world of pure experience".⁸ In other words, it is not so much that these new tongues obscure the objects of their inquiry, rather they make them unintelligible to all but a select few, and in doing so make the common ground or centre from which they allegedly proceed no longer recognizable.

As well, the preoccupation of our age to create special methodologies and sophisticated techniques to combat the ills of the world is based on an illusion. William Barrett calls it The Illusion of Technique, the title of his recent book. The urge to find the right method, the perfect technique, is based on the belief, at times a desperate one, that: "You have only to find the right method, the definite procedure, and all problems in life must inevitably yield before it."⁹ This preoccupation with technique and allocating to it primacy over everything else leads to the distortion and concealment of the objects, the things themselves. The primacy given to method also turns the notion of individual, direct seeing into some sort of bizarre ritual that all members of the cult must practice. I can only conclude that man's present obsession with method and technique is a type of modern

fetish made possible by man's penchant for the theoretical, mechanical, and abstract, and when coupled with his insensitivity and lack of openness to all that surrounds him, the net yield is a perversity of the "things themselves", the objects of our understanding, consequently a perversity of our self understanding. Finally, I suggest that our current enchantment with Shannon's mathematical information theory when adapted as a model of human communication is, in part surely, a reflection of this modern fetish and lack of openness.

Communiques Versus Communications

The second aspect of communication breakdown focuses on problems more related to communicators. In the study of rhetoric this involves an awareness of audience. Every good communicator knows that success or failure is dependent on the ability to read one's audience carefully and accurately. Important as this is, it is old hat and has been virtually thrashed to death in some cases. What I want to focus in, instead, is the dialogical character of human communication, and though related to audience awareness it provides a more encompassing perspective since it concerns equally both parties of a communication and treats them as equals. The best way to clarify this dialogical character and show how a violation of it results in a communication breakdown is to compare a communication to a communique.

A communique is an illegitimate offspring of a communication, one that has spread with alarming speed and thoroughness across modern, technological society. Unlike its parent (a communication), a communique is onesided and incomplete; it is also unsuccessful usually and is ultimately counterproductive. What separates it from the parent is the lack of genuine dialogue, and dialogue provides every communication with its give-and-take character. Therefore, a communique moves in one direction only: it sends messages but does not participate in any exchange of understanding. As a one-way messenger, a communique bares a strong resemblance to the current communication models, the Shannon-Weaver offsprings, which are more concerned about how information is sent than about clarifying and ensuring the dialogical character of a communication which includes the exchange of understanding and a shared meaning.¹⁰

Ironically, then, a communique tries to circumvent the very thing it is dependent on for its success: human dialogue. The very meaning of the communique is wholly dependent on dialogue; after all, it is through human dialogue, as mediated by the world it attempts to reveal, that meaning arises. All meaning comes into being in a historical, intersubjective world - a world populated by individuals who are forever mixing with and learning from one another and who bring with them individual perspectives, interpretations, and the stamp of their particular historical time and place. However, because communiques ignore the dialectical character of a communication, even though dependent on it, the recipients of a communique are susceptible

to abuse and exploitation. A communique could easily entail the infringement of an individual's rights and freedom, and since a communique is not concerned with either the response or the needs of others, then the individual would have little recourse but to accept the infringement. In present day society, everyone has had a taste of these infringements.

There are numerous types of communiques, some more exploitive and uncaring than others. We might, for instance, want to classify a set of instructions from a turgidly written technical manual as a type of communique, insofar as it comes from a recognized authority and instructs us in some official capacity; but we would not consider such a manual exploitive. What is missing from it is the humanizing touch of an effective writer, one who understands the technology in question, the audience he writes for, and the interplay of the two.

The following two diagrams represent two types of communiques. The first, Figure 5, is a milder, less offensive type, for example, a directive sent to a subordinate or a turgidly written manual. The second diagram, Figure 6, illustrates the more exploitive type of communique, the type associated with authoritative and bureaucratic governments or large, impersonal institutions or companies; all of them are in the habit of sending communiques and expecting certain given responses. In the diagrams the terminology is changed to reflect the one-way direction of a communique. Therefore, instead of indicating "Communicator 1" and "Communicator 2", they are replaced with the titles "Official Source" and "Receiver" or "Multiple Receiver".

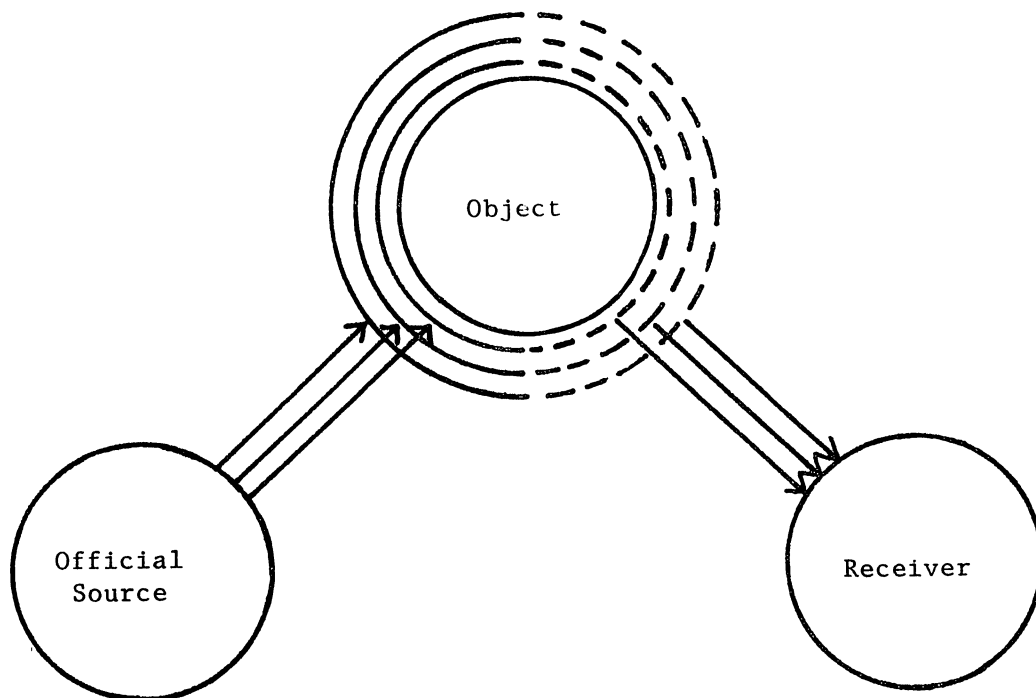
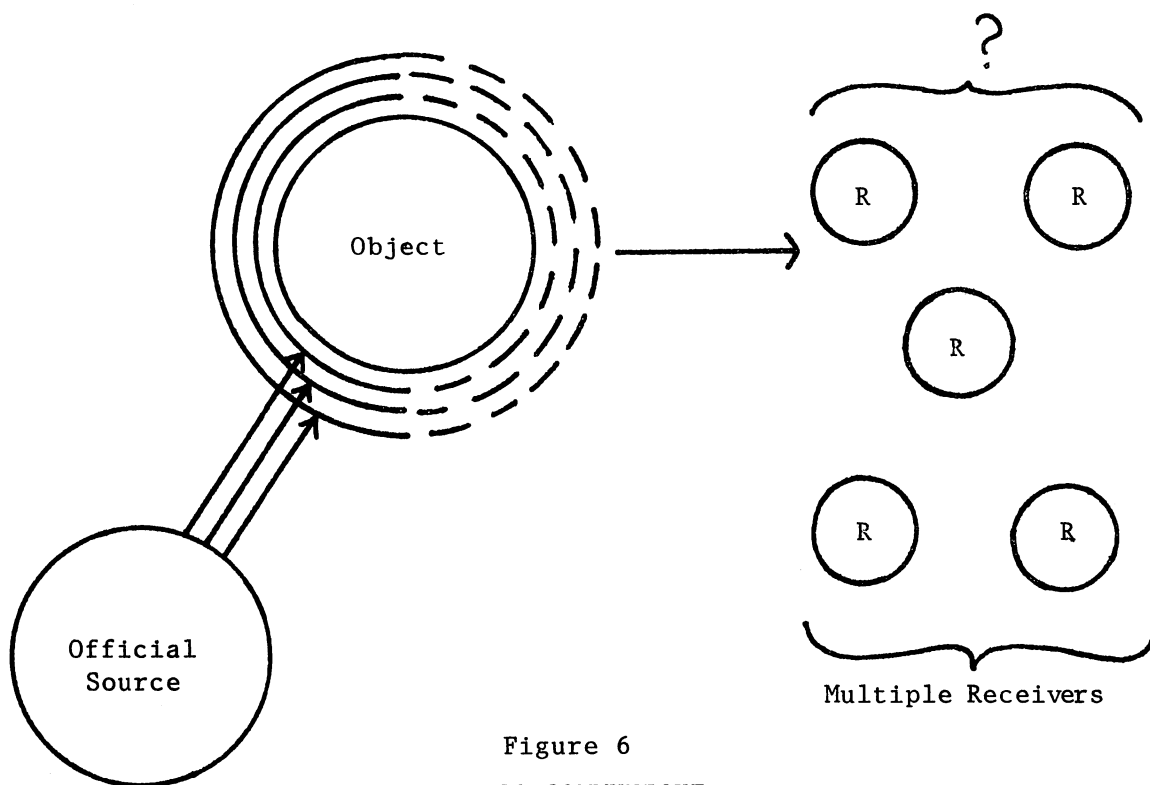


Figure 5
A ONE TO ONE COMMUNIQUE

The one-way arrows indicate the lack of authentic dialogue. The dotted lines partially around the object represent the lack of a shared meaning and the likelihood of misinterpretation.



The dotted lines, the single arrow, and the question mark represent the lack of authentic dialogue, the strong likelihood of misinterpretation, and the probable confusion and alienation of the multiple receivers.

One of the challenges of a communicate is trying to redirect and turn it back into a communication. The "one to one communicate" is the easiest of the two to deal with simply because there are fewer variables, but it can provide enormous resistance. In the example of a directive sent to a subordinate, the sender must learn to view himself or herself as not just an official source and superior, but as an equal partner, one who cares sufficiently to listen as well as talk and become involved in an exchange of understanding and a shared meaning. The mass communicate, however, is more complex since it is a hybrid of our massified and standardized society - a society that places an unhealthy premium on "cost effectiveness" as its measure of success, and we must admit that communicates, if nothing else, are cost effective. They are also exploitive, often boring, sometimes infuriating, and always loaded with implications and messages, none of which are very complimentary to their audiences (receivers). Any disciple of Marshall McLuhan would be only too willing to clarify those implications and messages, and we will, in the next section, clarify them.

SOME IMPLICATIONS FOR TEACHING AND MANAGEMENT

Both types of communication breakdowns, those affecting the things themselves and those affecting the communicators, have vast implications for both management and teaching. The first type of breakdown is more concerned with the methods used to achieve our perception and understanding of the things themselves. In the case of teaching this involves the entire area of teaching methodology, and has resulted, more often than not, in the search for the perfect method, the "just right" technique. In the area of language and communication instruction, this type of search has produced some less than satisfactory results. The technique approach when applied to the art of communication ends in a packaged set of rules and their application. Long lists of rules and pre-packaged responses may make for good recitals, but are not particularly helpful when confronted with the challenge and the dialectical spontaneity of real human communication. All method or technique approaches to language and communication provide at best 20-20 hindsight. They are good at telling us where we have been and how we got there, but are often useless in telling how to proceed or what direction to follow. The only practical way to know how to proceed and in what direction is to develop one's capacity and understanding of individual, direct seeing, as tempered by an appreciation of the play element in language and culture, the ongoing rhetoric/dialectic relationship of the communication process, and the essential ambiguity which permeates all human activities.

Of the two types of communication breakdown, however, I want to focus on the second type which is concerned with how communicators relate to each other. This relationship is every bit as fundamental as is the one between the communicator and the object which mediates, and it has some particularly interesting implications.

From the outset, then, one of the greatest challenges to teachers and managers is learning to fully accommodate the dialogical character of human communication. The ongoing exchange of understanding and the shared meaning require genuine openness from the individuals involved and a willingness to both give-and-take in a responsible way. This exchange and sharing demands that individuals, be they students or workers, be treated as equals and be given the liberty to explore the communication in accordance to their wants and needs. To give mere lip service to this equality and liberty simply does not work and is spotted in a moment. Finally, communiques have no rightful place in either education or management. Unfortunately, they have already made themselves quite at home and are not about to be uprooted.

Teaching

The most conspicuous example of communiques in education is the mass lecture, a teaching method that feels quite at home in our so called "higher" institutions of learning. The principal attractiveness of the mass lecture is its cost effectiveness, and one need not be an accountant to see why. In times of economic restraint (underfunding) educational institutions often resort to mass lectures across the board, if they can, to all first year

students - ironically, they are the least prepared for them. To those who object on pedagogical grounds, they are told: "Students are big people now and can no longer expect to be spoon fed. Sooner or later they must learn to work on their own like the rest of us." End of the discussion, or should we say, end of the communique?

For anyone who has ever had to learn and endure through the mass lecture technique, its implications and hidden messages should sound ever so familiar:

1. The teacher is the source and the student the empty vessel to be filled.
2. Passive acceptance is encouraged; active criticism is discouraged.
3. Individual wonder and discovery on the part of the student is neither asked for nor rewarded, thus, unimportant, even a liability.
4. Recall or rote learning is the most desired type of learning.
5. The student's ideas or opinions are inconsequential; what matters is what the lecturer says.
6. Do not rock the boat.

In a mass lecture there is no attempt at dialogue, no attempt to stimulate the dialectical interplay of wonder and critical inquiry. Rather, students are told, "These are the facts, the ideas, the theories; learn or memorize them (the result is the same) and report back." Or at best, "Think about these facts, ideas, and theories, and apply them to a specific situation." Even when a seminar, question period is provided (30+ students, once a week for 50 minutes) the questions are usually, "Would you please explain or clarify the text?" or "Why did the lecturer say such and such?" Since there is little if any time for deviation, no real dialogue or exchange of understanding takes place; instead, we get only greater clarification of the teacher's understanding in the hope, and on the assumption, that the students will learn.

No wonder students are bored and frustrated. Who would want to hear the endless pontifications of a teacher on a single subject, punctuated only by questions for the sake of clarification? No wonder students get frustrated. Who would want to spend all of their valuable learning time trying to figure out what someone else means, and to be told that their ability to do so is the full measure of their success? In all events, the conclusion should be clear: ditch the mass lecture and substitute a more authentic type of teaching/communication method.

Management

Although I am hardly an authority in the area of management, my model does point to a few basic principles regarding effective communications. To begin with, learning to accommodate the dialogical character of a communication means more than just keeping the lines or channels of communication open. The metaphor of "lines or channels" is misleading, insofar as it adds an unnecessary feature or mediating factor to the communication act that detracts from its immediacy and dialectical simplicity. Rather than opening up the lines or channels, one is tempted to say: "Get rid of them, recognize them for what they are: bureaucratic clutter. Substitute the real thing: genuine human dialogue which takes us directly to the heart

of the matter." Management tends to build too many channels, too many levels of management, all of which clutters and diffuses the communication flow so that it often appears as bits of information coming from who knows where, and for who knows what real purpose. The acid test for excess channels is to note the activity of the unofficial channels: the grapevine, hearsay, and the gossip corners. The more active they are, the greater the excess of the official channels.

Although the multiple layers of management can never be eliminated, especially in large companies and institutions, they can be made more efficient, authentic, and accountable. For instance, I am told that Japanese management often employs one half to a third the number of management levels of its North American counterpart, and the Japanese get greater efficiency to boot. The reason is not hard to figure out: the more up front the communication, the bigger the dividends.

Finally, should management decide to authenticate its communication, by sharing its decision-making power with all who want to and can handle it, then the relationship of management and worker is transformed. When both parties are willing to begin an exchange of understanding and share a common meaning, then the workplace changes from one of alienation, drudgery, and boredom to one of challenge, interest, and comradeship. But this transformation will never occur so long as people stubbornly and self-deceptively blame the other and, thus, refuse to work towards an authentic communication. And by authentic we mean a communication which involves humility, trust, hope, faith, critical thinking, and, dare we say it, love of one another.¹¹ When working towards the authentic, management and labour learn to overcome their differences and separateness and appear more and more as one and united.

COMMUNICATION AND LANGUAGE

No theory of human communication is complete until it addresses the all important issue of language. I say "issue" because for modern man language is clearly an issue: endlessly familiar, enchanting, everpresent, yet deceptive, perplexing, and limiting. So pervasive is this issue, we hear talk of a new metaphysical image of man, a shift from that of the "self-made man" to that of the "self-expressed man".¹² Such a shift makes sense when considering how in modern man's repeated confrontations with language he has come to recognize that the nature and limitations of language are his own as well.

This realization is a strong contrast to earlier views of language when it was thought of as a kind of tool that the mind learned to master as a skill the the same way man became skillful with other tools. Or, as Bertrand Russell once remarked, language was seen as a "transparent medium" which could be used without paying any particular attention to it. But all that has changed. The whole of modern thought is concerned with the issue of language, and this is especially true of philosophy and literature. The work of such people as Wittgenstein, Heidegger, Joyce, Kafka, to mention but a few of the more

outstanding contributors, has revolutionized our understanding of language and, consequently, our self-understanding.

The view of language as a tool is now replaced by a more subtle, accurate account. For instance, Merleau-Ponty explains how words act as more than just signs for something; words point beyond themselves insofar as they are always in relationship with other words and other meanings. Similarly, language is not so much a tool or means, it is much more like a sort of being and that is why it presents things to us so well. He gives the example of a telephone call:

A friend's speech over the telephone brings us the friend himself, as if he were wholly present in that manner of calling and saying goodbye to us, of beginning and ending his sentences and of carrying on the conversation through the things left unsaid.¹³

A person's words, speech, therefore, become synonymous with that individual.

As well, the notion of language as a transparent medium has been replaced by a growing awareness and rethinking of the relationship between language, thought, and self. More than ever before we see the power of abstract thought, made possible by language, as enabling us to cope with and make sense of the multiple aspects of reality which are not directly present to us, and through which we relate ourselves to the world the way we do. Many believe that it is this capacity which differentiates us from animals, and that through the acquisition of language we become selves. Thus, language is fundamental to our humanity and individuality in ways not dreamed of until recently.¹⁴

At the same time much has been said about the limitation and deception of language. Franz Kafka is an excellent example. A master of language and a genius of metaphor (Kafka gave us such provocative metaphors as "The Metamorphosis" and "The Castle"), he came to despair of language, especially metaphor. What was once seen as an incredible gift and capacity of the mind to look at an object and think automatically of the image of another object came to be distrusted by Kafka, and proof that the mind makes false the object by incessantly creating a transcendent, metaphysical world over and above the real one. Yet Kafka found himself and man at large as powerless against this deception. Kafka's despair is reinforced by Wittgenstein, whose philosophical investigations of language revealed that not only is human knowledge circumscribed by language but language is all we have: there is no court of appeal over and above language - no pure logic or mathematics, no transcendent world of pure ideas lying behind or beneath ordinary experience. "All meanings are born within the human world of the everyday, and have to return there to be tested."¹⁵

For good or ill language and understanding are bound together. This point is further reinforced in modern hermeneutics, which claims we possess our world linguistically: "Word and subject matter, language and reality, are inseparable, and the limits of our understanding coincide with the limits of our common language."¹⁶ Language and understanding are both inseparable,

structural aspects of man and his world and are not some sort of optional function man can choose or not choose to engage in. Our capacity for language is precisely our capacity for understanding since language is the precondition and basis for all understanding. Language accomplishes this in a remarkably subtle way in that it remains virtually transparent to the world and the things that are manifest through it. "Knowing a language, therefore, does not mean knowing rules and structure but rather knowing how to make oneself understood by others regarding the subject matter."¹⁷

I conclude, then, that language and communication are more than just the coding and sending of messages and information. Rather, language and communication are both tied to man's central preoccupation and passion which is that of understanding: the world, himself, and others. The test of any communication model is how accurately it reflects this central concern. When it does not, we are obliged to create one that does. In doing so, we honour the principal meaning and function of language. In the words of Martin Heidegger that means seeing, "Language as the house of Being." To which I add, "and we, every last one of us, are the keepers of that house".

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NOTES

1. For a clear and comprehensive account of Shannon's information theory, and its importance for our information revolution as well as its adaptation in modern science see Jeremy Campbell's Grammatical Man (New York: Simon and Schuster, 1982).
2. The inspiration and the method behind my model comes from the philosophical discipline known as phenomenology. I am particularly indebted to the work of Paulo Freire. His two books Pedagogy of the Oppressed (New York: Continuum, 1970), and Education for Critical Consciousness (New York: Continuum, 1981), have provided a solid basis upon which to construct a model. It is Freire who originally develops a theory of education and communication which hinges on the need for human dialogue as always mediated by the world of experience. What I have done is to further develop the theory into a specific model with particular applications.
3. Bernard Shaw, "Preface" to Man and Superman (Middlesex, England: Penguin Books, 1965), p. 35.
4. Johan Huizinga, Homo Ludens: A Study of the Play Element in Culture (Boston: The Beacon Press, 1955), p. 2.
5. Ibid., p. 4.
6. Maurice Merleau-Ponty, Sense and Non-Sense (Northwestern University Press, 1964), p. 73.
7. Calvin O. Shrag, Radical Reflection and the Origin of the Human Sciences (Purdue University Press, 1980), p. ix.
8. Ibid., p. ix.
9. William Barrett, The Illusion of Technique (New York: Anchor Books, 1979), p. 25.
10. The genesis for the idea of a communique versus a communication comes from Paulo Freire in his book Education for Critical Consciousness (New York: Continuum, 1981), p. 137.
11. The six item list of "humility, trust, hope, faith, critical thinking, and love" comprises the necessary ingredients for genuine human dialogue. See Paulo Freire Pedagogy of the Oppressed (op. cited), pp. 77-81.
12. Professor C. B. Cox, a paper presented at the O.C.T.E. conference, "Winds of Change" (Toronto: Oct. 27-28, 1983).
13. Maurice Merleau-Ponty, Signs (Northwestern University Press, 1964), p. 43.

14. Men of Ideas, "The Philosophy of Language", Bryan Magee interviewing John Searle (London: The British Broadcasting Corporation, 1978), p.182.
15. William Barrett, Ibid., p. 74.
16. Hans-Georg Gadamer, Philosophical Hermeneutics (Berkeley: University California Press, 1964), p. xxviii.
17. Ibid., p. xxx.

MANAGEMENT

TOWARDS MORE EFFECTIVE COMMUNICATIONS WITH THE JAPANESE

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ABSTRACT

A brief overview is given of the problems facing the Canadian businessman when investigating the Japanese market, and some general guidelines are suggested towards more effective and positive communications with our major overseas trading partner. Japanese cultural and social behaviour patterns are examined and the ways these interact with their business dealings, and their view of the foreigner. Some basic ground rules for the Canadian businessman are outlined in tackling negotiations and dealings with the Japanese.

COMMUNICATIONS PROBLEMS

Setting

Communicating with the Japanese from a business viewpoint presents a number of problems for the Canadian who has little or no prior experience or face-to-face contact with the Oriental.

Let us look first at Japan as a geographic entity. It is tiny by any yardstick -- in land area about one third the size of British Columbia. In geographic layout, imagine if you will a line drawn east to west across the borders of Alberta and B.C. through Kamloops and Calgary. The land area between that line south to the U.S. border would approximate the layout of Japan. Then populate that area with 120 million people and you have some local reference to the population density the Japanese have to contend with.

It is not hard to appreciate that with such density has developed an extremely complex social structure. At the same time, Japanese society has been subjected to some cataclysmic events -- particularly since 1867 when Japan first emerged into modern Western society modes from what was until then a totally feudal existence.

There are no longer shogun, warlord and samurai classes in Japan, but it is important to realise that there remains a very strong awareness of the social pecking order -- exemplified by a number of subtle distinctions, particularly in the business classes.

When two Japanese businessmen meet for the first time, they each urgently need to know how the other fits into the social order. Therefore, in traditional form, as they introduce

themselves to each other, they elicit in the first few words of conversation what university they attended, and their approximate position in the company they represent.

The university is normally the key to one's social standing in the business world, as universities and colleges in Japan have a very definite order of precedence in the modern Japanese social scale. With this knowledge behind them, both businessmen know how to behave towards each other, and who is senior to who. Politeness is paramount in Japanese society, and there is a need to know one's exact place in the firmament. Without this knowledge, both men would be uncomfortable with each other.

The family unit is another important facet of Japanese life and often misinterpreted. Within the family, the man is invariably shown as the dominant partner. In many ways he is. But both husband and wife have their place. The husband is the breadwinner, and goes out to work. The wife is the family manager -- looking after the house, the food and cooking, the children and their education, and the budget. Strange as it may seem, many Japanese men surrender their pay cheques to their wives each month, and in return receive a small monthly allowance. The wife will keep scrupulous accounts of daily expenses, look after mortgage payments on the family home, savings for the annual vacation, and any other financial matters. While outside the house the man is treated as the "boss", in the home they are often equal partners, and frequently the wife may be the dominant personality in family decisions.

In the work sense, Japanese have a similar longing to "belong" to a group. Hence the prevalent "employment for life" ethic which affects almost all areas of Japanese employment. One joins a company on leaving school or university, and one stays. To the Japanese, shifting from one job to another, moving employers to gain a promotion or more money, means a person is displaying a distinct lack of loyalty to his group. Therefore it never happens. Not only that, no Japanese employer would consider such an applicant, fearing a lack of security and loyalty in his personality.

Promotion in a Japanese company tends to be slow, and is invariably based first on one's seniority, and only then on ability. A company is viewed as an entity rather than as the achievement, or brainchild, of a particular person. A "get-up-and-go" personality in Japanese society does not fit the mould of conformity, and modesty, which they find generally desirable.

The process

Within a Japanese company, decision making is invariably one of consensus and committee. Ideas for product changes or service improvements are floated around a department either by memo, or more likely by group meeting and discussion. Ideas

then are filtered along to every involved element of the company. Decision-making thus tends to be a very slow process. But it also is very thorough, and an idea will be adopted and adapted to suit the needs and desires of all concerned. Once made, the decision tends to be the right one -- albeit there may be a certain degree of compromise involved. It also benefits by the fact that every element of the company has had its say, and in the final analysis everyone is behind the final decision. In this way there are no laggards, no doubting Thomases, no backbiting. Everyone is gung ho for the project.

We in the West are far more used to making fast, on-the-spot, executive decisions on our own. In Japan this is rare indeed, and it is only likely to happen when a basic decision has already been taken and the president or managing director of a company has already been empowered to negotiate to a certain point.

Swift decisions in our Western way are sometimes right, sometimes wrong. But right or wrong, we tend to cope well with short-term solutions. Even when a mistake is made, it is often a short-term problem, and there is time for correction and adaptation.

The Japanese often find it somewhat difficult to react quickly and firmly to a suddenly-changing market situation. It may be that their thorough analysis of a marketing concept has already worked out a possible solution to a market change. But if this has not been foreseen, there tends to be a very long, and embarrassing, pause before any action is taken.

Generally, however, the Japanese -- like most Orientals -- tend to look towards the long term. In the Orient, "tomorrow" is merely a second on the clock of life. They are far more concerned with their position relative to the minute and the hour hands of any clock.

The Japanese, like the Chinese, have had a highly developed civilised society for several thousand years, and they have become masters of negotiation and obfuscation. While their civilisations have developed along very different lines to our own, they have had infinitely more experience than ourselves in the wiley arts of negotiation.

Remember, too, that even a century ago Orientals universally regarded Westerners as totally barbaric -- hideous, smelly, hairy monsters from across the sea, who were highly verminous, and never took a bath from one year to the next. This was not necessarily a purely racial prejudice, but a genuine revulsion at our insanitary habits. Just reflect for a moment. Imagine, today, you see an old tramp on the street -- dirty, unkempt, and ragged. That would have been the self-same image the Oriental had of the average Western sailor he met a mere century ago.

While we have changed much since then, in the minds of the Oriental we are still young children on their timescale.

Union-management relations are an unusual admixture in Japan. Bearing in mind the paternalistic attitudes of company managements towards their employees, it is perhaps not surprising to know that many large companies in fact assist to form a union for their workers. By North American and European standards, trade unions in Japan are relatively tame. There is certainly not the massive conflict and confrontation taken almost as a matter of course by management and union in our society.

In Japan there is a higher degree of negotiation, compromise, give-and-take. Again, the paternalistic attitudes assist this. At the same time, one should not assume Japanese unions are pussycats. They do not go on massive months-long strikes like ours do. Nor do their managements lock out employees. But if a trade union in Japan fails to get what it feels it deserves, it never hesitates to make its point very effectively with management and public alike.

Each April, Japan goes through what is called the "Spring Offensive" -- a time when many government and transport unions engage in contract and wage talks with employers. If they fail to gain a reasonable slice of their demands, they go on strike. This may only last six hours, but the effects can be devastating.

This is particularly true of the transport unions. Japan relies to such a high degree on public transit that if the country's trains and subways are shut down for even a few hours, the whole nation grinds to a halt.

Let's be honest. Overall, very little is ever gained by either employer or employee in the long term when a long strike is involved. Both parties lose out in the end -- either through lost wages, or lost production, and profit, and customers. In Japan, they tend towards the compromise. Strikes tend to be short and sharp, but no lasting economic harm is done. It is the gesture and the temporary inconvenience that count. The employees are saying, in effect: "Listen folk. You need us as much as we need you. Don't forget us."

COMMUNICATIONS SOLUTIONS

Setting

When looking at Japan as a potential customer for your products or services, it is paramount to study the Japanese market environment thoroughly, and at first hand. It cannot be hurried, and one must overcome some natural impatience. It will be a long, hard grind, and expensive. But like any other endeavour, it has its rewards.

The Japanese market is difficult to penetrate because it is so different, so foreign, to our own. Thus, without a good understanding, it is difficult to be successful.

Look first at the way the Japanese live, and bear in mind their cheek-by-jowl existence. Look inside a Japanese home. Then you will realise that most North American kitchen appliances will never sell in Japan -- they are far too large. Japanese kitchens are tiny -- little more than the size of an average Western broom cupboard -- and are the despair of most housewives. Any refrigerator or cooking stove we might use in our homes would take up the entire space of a typical Japanese kitchen.

Look at the shelves in a Japanese supermarket or corner grocery. Make a small purchase at a department store, and see how exquisitely it is wrapped for you. Packaging in Japan is extremely important, and no matter how valuable or unique a product may be it will not sell well unless it is attractively and neatly packaged.

Price is not necessarily of vital importance either -- particularly for a foreign product. There is a certain snob appeal and prestige involved in purchasing foreign goods in Japan, and good packaging coupled with a well-planned advertising and promotion campaign could well mean success for a product, even at a considerably higher price than the domestic item.

Japanese, along with most Orientals, hold great store in what they call "face". In other words, one does not by one's words or actions allow another to lose their dignity in public.

In Japanese, the word for "yes" is "hai". But they really have no easy way of saying "no". For by saying "no" to your face they are afraid YOU will lose "face". So they never say "no" with such finality. And this is sometimes what causes more misunderstandings among Westerners than anything else.

One may negotiate for hours, days or even weeks with a Japanese group, and no one will ever come out and tell you "no". The secret to remember is when a Japanese tells you, "Ah, that would be very difficult..." This phrase, in the exquisite ways of Japan, is their polite way of saying...NO. When you hear that phrase, the red lights should be flashing. Compromise and further discussion on another tack will be required to get around what the Japanese are telling you, obliquely, is an obstacle.

Another aspect of the "face" complex is not to lose one's temper in public. When you do that in Japan, as in most of the Orient, there is a temporary hush, then everyone tends to disappear, find a reason to leave, or look very embarrassed and turn their faces away. They are not embarrassed for themselves, they are embarrassed for YOU. For, in their eyes, you have lost "face" yourself in front of others, and you have done it to yourself. It has demonstrated to them a lack of personal emotional control, and you have thus "lost face".

This is not to say that Japanese never lose their tempers. The secret is to do it either in private, or away from the person who has angered you. They also have their own subtle ways of showing their displeasure, without actually putting it into words.

And there is no reason why you should not play the same game by the Japanese' own rules. Perhaps a slowly-indrawn breath... A very non-committal "Ahh sooooh.." -- two almost indispensable syllables of the Japanese language that can be used in many different ways to mean many different things -- but which, at the same time, can only be translated as "I see". Another ploy is to adapt your visage to show no emotion or expression whatever -- the "great stone face". While it is useful for you to know how to use these little bargaining tools, it is also worthwhile keeping an eye open in case your opposite numbers do the same thing. This can indicate to you if you are getting on to dangerous ground.

There is no doubt that good poker players also make for good negotiators with the Japanese.

Marketing of goods in Japan requires some depth of understanding of their distribution system. With its vast population, a great many "make work" positions will be found in many companies, and this extends also to their distribution methods. The Westerner taking his first look at Japanese distribution will consider the system very wasteful and unnecessarily expensive, and may consider cutting costs in this area. But in this he might be making a major mistake.

The Japanese have had an unemployment problem for many centuries, so they have developed a system of finding work for people to do -- unnecessary by our standards, but essential for theirs. So when a North American merchant looks at distributing his product in Japan, he may try to cut through the Japanese red tape of four or five middle-man brokers between himself and his retailers.

Inefficient or not, however, this is the Japanese system, and any foreign company trying to short-circuit the local methods will run into a total lack of cooperation and disinterest. By Japanese tradition, bucking the system in this manner is disturbing the "wa" -- the harmony of life.

The Japanese believe in orderliness, and above all in tradition. They realise that to swim against the stream causes problems for everyone.

Let me try to explain this in a very simple way. Take a look at the Tokyo subway and commuter trains in rush hour, as they arrive and depart every 75 seconds or so. The system is incredibly efficient, moving upwards of four million commuters a day in and out of the city. But while it is efficient, it is also disciplined. Watch the crowds as they get on and off the trains. Look on the

station platforms, and you will see a long series of three white lines in a row all down the platform. Those waiting to board a train queue on the two outer markers. When the train stops, and the sliding doors open, they are exactly opposite these groups of white lines, all down the platform. Commuters getting off the train do so through the centre line. Those getting on infiltrate at the sides. In that way, the train can be unloaded and loaded within the mandatory 27 seconds in order that the doors can be closed and the train moved on -- to make way for the next one just a few seconds down the line. That takes a tremendous amount of discipline, goodwill and cooperation. But it is the only way possible if the system is to work. No one would stand waiting for the train on the centre line, or they would get trampled.

Life in Japan is like that, and has been for centuries. In Japan, one has to have a high degree of discipline to coexist with one's fellow man. One learns not to buck the system, not to stand out in the crowd.

The process

The communications process in Japan relies heavily on face-to-face contact. Japanese want to see one's reaction to their proposals and mutual discussion; they want to "feel" you out, sum you up, assess your personality and reliability.

Thus, you must assume -- if you are serious about your wish to penetrate the Japanese market -- that you cannot do it at long distance by telephone, telex or letter. A permanent, physical presence is required in Japan by your company. It is not sufficient, either, that you find an office and populate it with local Japanese staff. Strong representation is required from your Canadian head office.

If you simply make the odd flight over to Japan for sales calls on an ad hoc basis, you give the unconscious feeling to the Japanese that you feel their market is not sufficiently important for you to establish a permanent office. And they will tend to treat you accordingly.

To succeed in Japan one should have a permanent base there. It may be your own office, or perhaps a joint-venture partnership with Japanese interests. The costs tend to be high, but over a period of years one builds up friendships and business relationships which will pay off in the long term. Do as the Japanese, and look towards a long-term objective, and do not expect immediate spectacular results.

In approaching business negotiations with the Japanese, one should adopt a very simple framework of ground rules. Do not lay down too many hard and fast objectives, targets, or time scales. Leave room for negotiation and adaptation. Your Japanese counterparts will have their own objectives for their market, so give them room to manoeuvre your product to their

specifications.

How does a Canadian businessman relate to a Japanese company? With whom does one do business? Generally speaking, one should try to talk to one's counterpart in a Japanese company -- someone in the same or similar levels of management. For example, the Canadian export manager might try to meet the Japanese import or domestic sales manager. If one is at managing director level, try to meet the counterpart in Japan. In this case, it is also wise to have someone lower down the scale do some ground work ahead of you, and accompany you. The main object is to find a level, common ground, and to avoid outranking or overpowering the other party.

Advance appointments should always be made, preferably with a short agenda suggested for discussion and coverage. Be punctual.

Very often, a number of the Japanese company's staff will be on hand for the meeting -- this is their committee style of management in action again. So it does no harm for you to bring some of your staff along too, to support you.

Make sure that you are aware of any other interests they may have in Canada, and the names of any senior staff they themselves have in place here. In the best analysis, one will already have contacted these people to help set up the appointments.

Ensure you stay at a good address in Japan -- in other words, a good hotel. You thus give "face" to your company.

Be open and flexible in your presentation, leave room for questions and queries. And above all, do not appear to be in a major hurry for a speedy answer. The chances are you will not get this anyway, so act accordingly.

Follow up initial meetings by keeping in contact with their Canadian office or agent. In this way you show you have a continued interest in them, and their market.

In any serious negotiations or meeting, you will often be invited out to dinner and for drinks at one of those notoriously expensive Tokyo cabarets or private bars. This is by no means a sign that your proposal is being accepted, or even that the Japanese company is interested in your product. It is, typically, a sample of Japanese courtesy and hospitality to a visitor. Even so, remember that you are under scrutiny to some degree. Did you have a bath before you came out to dinner? How are your manners? Did you let slip any business confidences while you were drinking? It is another subtle way of the Japanese testing the foreigner.

Always carry a substantial supply of your business cards with you to Japan. If at all possible, have them imprinted on the back with your name, company and title in Japanese -- Japan Air Lines will be happy to arrange this! It is a small but courteous

gesture on your part, and gives you that all-important extra "face". It also assists your Japanese counterparts with the correct pronunciation of your name, as the Japanese characters are in fact a phonetic guide for them. Again, it is an all-important matter that they pronounce your name correctly. By the same token, ensure you in turn know how to pronounce their names, otherwise you will lose some "face"!

Quite often there will be an interpreter present. This is sometimes a Japanese ploy to give the Japanese company executive more time to think and plan a suitable reply, as he may well speak some English anyway. However, it also gives him time to assess and study you while he considers his reply. As I have indicated, the Japanese have had 3,000-odd years to study the art of negotiation, and they have developed into masters.

Much has been made in recent years of the success of the Japanese in our own marketplace. So let us study for a few moments how they operate in our environment. If you look around you, you will see they have a small army of top and middle management people in Canada, learning and operating in our marketplace. Every four or five years they return to their head office in Tokyo, and are replaced by others. A relationship builds up -- an experience of the Canadian marketplace -- and they can relate immediately to what their counterparts are talking about in Toronto or Vancouver. They know the problems the Canadian market poses, because they have been through the system themselves. And they will have made some useful contacts.

Let me demonstrate how this works in Japan Air Lines. One of my former Japanese bosses in Vancouver is now managing director of the JAL Hotel System, which is building and managing hotels all over the world. We have just signed a management agreement to operate the Jin Lin Hotel in Peking, China. It just so happens that part of the financial package to build the hotel was arranged with a group of businessmen -- from Toronto. I have another colleague back in Japan who is now in charge of our international reservations department. He can relate to some of our local problems, because he shared them with us for three years, so he is that much more able to assist us when we need help for our local market. I have other key contacts in major offices in Japan who have had Canadian experience and can relate to the marketplace without lengthy explanation of local conditions.

Yet how many Canadian companies have any sort of on-the-spot management staff from Canada in Japan? Regrettably, very, very few. Certainly, we have an embassy and a trade office at the federal level, and Ontario and Alberta both have their own people in place to look after provincial affairs. But British Columbia does not have an office there, and Japan is B.C.'s prime market.

Canada is only one of a large number of potential suppliers of Japan's raw materials needs and consumer exports, yet they place major emphasis on posting considerable numbers of key individuals to Canada to find out about us. It is unfortunate that we in Canada do not as yet place as much emphasis on the Japanese market, particularly in view of its tremendous importance to our trade balance.

I also hope we are going to see over the next few years a much better coverage of day-to-day affairs in Japan in our national and regional media. Not one newspaper, magazine or TV network in Canada has any sort of permanent Canadian-staffed news bureau in Japan at the present time, and it is perhaps a sad reflection on our sense of priorities that we place so little emphasis on that part of the world which is potentially one of our largest markets.

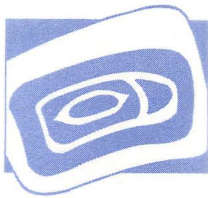
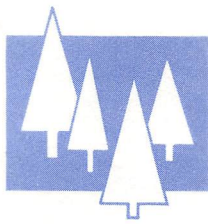
However, Canada does have two built-in advantages to our future trade relations with the Orient countries of the Pacific Rim. Firstly, we are not regarded as a political animal, and we have no major political axes to grind on the world stage.

Secondly, Canada has since World War II provided one of the few open-door immigration policies to anyone with the gumption to come here. Compared to almost every other nation, we have little regard for the race, colour or creed of our migrants. Look around you in Vancouver, or even here in this auditorium, and see how many Pacific Rim complexions are present. This is a great investment for us in our future relations with that area.

There is potential for Canadian business in Japan and throughout Southeast Asia. But we have to invest research and development funds into the area before we can succeed.

I hope I have given you a few pointers today on how to do that.

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