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PROGRAM MANAGEMENT COURSE
INDIVIDUAL STUDY PROGRAM

AN ANALYSIS OF THE ROLE OF LANGUAGE
IN ORGANIZATIONS

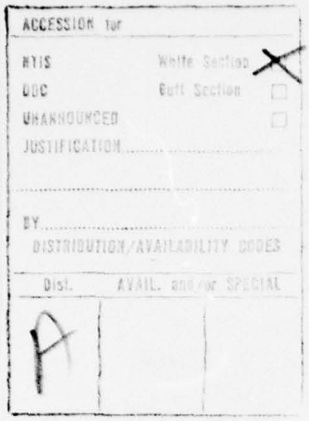
STUDY PROJECT REPORT
PMC 77-1

Michael A. Cody
LTC US Army

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AN ANALYSIS OF THE ROLE OF LANGUAGE IN ORGANIZATIONS

Individual Study Program

Study Project Report

Prepared As A Formal Report

Defense Systems Management College

Project Management Course

Class 77-1

by

Michael A. Cody
LTC US Army

April 1977

Study Project Advisor
LTC Don Fujii, USAF

This study project report represents the views, conclusions and recommendations of the author and does not necessarily reflect the official opinion of the Defense Systems Management School or the Department of Defense.

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DEFENSE SYSTEMS MANAGEMENT COLLEGE

STUDY TITLE:

AN ANALYSIS OF THE ROLE OF LANGUAGE IN ORGANIZATIONS

STUDY PROJECT GOALS:

To understand and analyze the role of language and communications in probable success/failure of managers (with emphasis on project managers). To identify, define, and explain the role of language in complex organizations like Project Management Offices. To provide a highly readable and concise review/guide for personnel involved in project management and/or management relationships with other complex organizations.

STUDY REPORT ABSTRACT:

A survey of 116 members of Program Management Course 77-1 was conducted to determine if their responses were supportive of related literature. A literature research effort relative to project management, management problems, semantics, and communications was used as a basis to postulate general and specific communications problems in the complex organization. The student survey supported the concepts of horizontal, vertical, and cross-discipline communication hazards, the concept of divergent experiential fields resulting in word image displacement, the proliferation of "bureaucratese" and jargon, and the potential for communications breaks or gaps resulting from common word symbols.

The report explains the process of communication, identifies numerous roles of language and language problems, presents the results of the class survey, highlights barriers and potential conflicts resulting from language, and offers useful considerations for limiting the inhibiting features of language in organizations.

SUBJECT DESCRIPTORS: Communication, Language, Management, Program Management.

NAME, RANK, SERVICE	CLASS	DATE
Michael A. Cody, LTC, US Army	PMC 77-1	April 77

EXECUTIVE SUMMARY

The general purpose of this Individual Study Program was to analyze the role of language in complex organizations. Specifically, the goal was to provide a highly readable review/guide that would identify, define, and explain the role of language in probable success/failure of managers.

Numerous studies of both civilian and military management have emphasized the importance of communications skills in success. With Army Project Managers devoting up to 98 percent of their productive time in communications related activities, the importance of understanding the role of language is self-evident.

To help meet this need, the report provides both general and specific delineation of problems and conflicts resulting from individual experiential fields, the communication process itself, the organizational structure, education, obsolesence, jargon and "bureaucratese", and other factors.

Since much of the report is based on literature research, a survey of 116 members of Program Management Course 77-1 was conducted to determine if their responses were supportive of the literature. Relative ease in communicating non-specific terms was apparent in the survey. Specific terms, however, were much less successfully communicated.

The report then relates the survey results and general communications hazards to the manager of any complex organization, although program/project management is highlighted. Such potential problem areas as

horizontal, and cross-discipline communications, word image displacement, and potential breaks and/or gaps resulting from common word symbols are discussed.

Throughout, personal considerations for limiting the inhibiting features of language in effective communication are stressed.

ACKNOWLEDGMENTS

I wish to thank particularly my wife, Gretchen, for her editorial and typing assistance and, more importantly, for helping to prove daily that meaningful communication is not only possible but also a beautiful experience.

Working with LTC Don Fujii, my faculty sponsor, was a richly rewarding experience. His continuous professionalism and specific assistance with the class survey were of inestimable value.

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CHAPTER ONE - INTRODUCTION

> I am a barbarian here, because I am not understood by anyone. Ovid - Tristia

The cry of the confused, the lost and the damned throughout recorded history has been, "No one understands me." Whether it is a scientist marooned with savages or an unhappy husband describing his wife to his mistress, the psychologist will agree that the lack of orientation resulting from an inability to communicate effectively can only result in a loss of life effectiveness and degraded job performance.

The administrative oriented manager of computer technicians, the comptroller allocating funds to research scientists, and the "up from the ranks," blue-collar, middle-manager orienting management trainees whether they are fresh out of Harvard or a service academy have an equally awe inspiring situation to face.

Not only are they not understood, frequently not appreciated or respected, and living a potential trauma of social inadequacy, they frequently are unable to really understand their peer, subordinate and supervisor criticisms.

While the project manager does not live on a desert isle, his immediate environment in a time of shrinking budgets, inflation, and close scrutiny from external and internal sources may indeed seem savage at times.

Numerous studies conducted at the prestigious Defense Systems Management College emphasize directly and indirectly the importance of

communications abilities to project manager, and therefore individual project, successes. Army managers have been identified as devoting up to 98% of their productive time in activities directly involving communication.[1] A 1973 survey of Department of Defense Program Managers revealed that the two most frequently identified characteristics for successful program management were, "ability to identify problems" (89%), and, "overall high communication skills ability" (74%).[2] Other studies have provided strikingly similar results from surveys of project management students, course graduates, and practicing managers.[3]

When one perceives the direct interfaces with other activities deeply embroiled in the program managers veritable existence (Figure 1),[4] the only surprise resulting from the surveys and studies is that not all managers recognize or verbalize the total significance of communication in their lives. This is strikingly brought home by a cross-cultural study of civilian managers in Japan, Great Britain, and the U.S. in which approximately 74% of the sample cited communication breakdowns directly as the single greatest barrier to corporate excellence.[5]

Man is the product of his environment. Managers are human. Managers make decisions. Managers are expected to be competent. This competence primarily depends on the performance of other humans. It is derived from skills in acquiring and interpreting information with a high level of

---

[1] This type of notation will be used throughout the report for sources of quotations and major references. The detailed identification of each is in the referenced bibliography commencing on page 69.

GENERAL PUBLIC
PROJECT OFFICE (PMO)
TEST AND ANALYSIS
MATERIEL DEVELOPER
DOD AGENCIES
FOREIGN GOVERNMENTS
COMPTROLLER
PRIME CONTRACTORS
SUB CONTRACTORS
SUPPORTING ORGANIZATIONS
SAFETY (OSHA)
SPECIAL TASK FORCE
USERS
OTHER PMS
OTHER SERVICES

SERVICE HEADQUARTERS
COMBAT DEVELOPERS
NEWS MEDIA

OSD/JCS
GAO
SASC/HASC

SAC/HAC
OMB
UNIONS
TRAINERS
LOGISTICIANS
RESEARCH SCIENTISTS
CIVIC ORGANIZATIONS
POLITICIANS
FAMILY
SUBORDINATES
LAWYERS
HOST INSTALLATION
INTELLIGENCE
PROFESSIONAL GROUPS
TRANSPORTATION

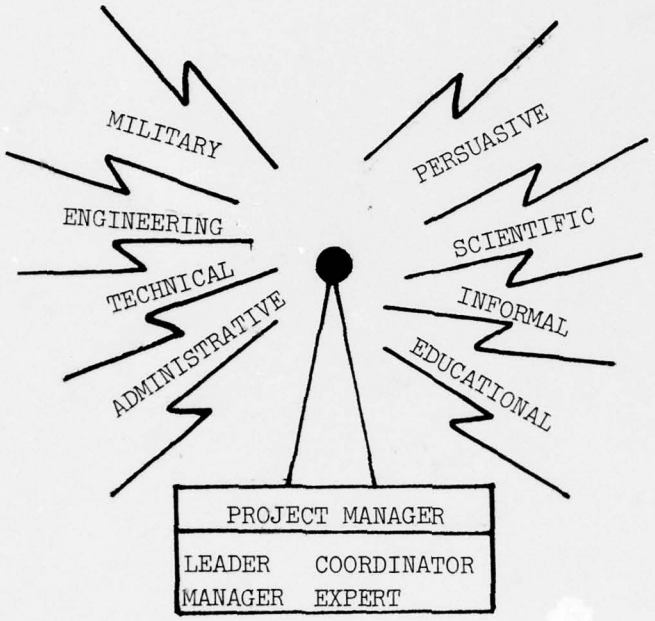


Figure 1. Project Manager Communication Interfaces

sensitivity and coordination.[6] Success, to a great extent, is predicated on the manager's ability to make decisions relatively error-free.

With these as premises we are faced with an obvious problem. Placing a manager in the situations earlier mentioned does not totally negate his material success, but it does drastically inhibit his capabilities and can wreak inestimable damage on the manager, his peers, subordinates and superiors, and the project he manages.

This, then, is the subject of our examination - the role of language in organizations.

CHAPTER TWO - THE ARENA

> Language is the only instrument of science, and words are but the signs of ideas. Samuel Johnson - Preface to his English Dictionary

Communication: An Act

Many authors, teachers, managers, psychologists, and sociologists have addressed the problem of communications within organizations. Interviews with managers of large and small manufacturing organizations consistently brought forth the same answer to the question, "What do you consider to be your most serious problem?" The common answer was, "Communication."[7]

Most people will agree that there are three interrelated means of communicating. For our purposes we shall class them as:

1. Writing
2. Speaking
3. Non-verbal (action)

While this may seem simplistic, the acts themselves are not.

If we accept "communication" as Webster's "the transmission or exchange of thoughts and emotions," then we can begin to evaluate the tools available for accomplishment of the act. In writing, we have communication of thought and emotion by means of language, format, and delivery means. Delaying "language" to a later time, we find that format and delivery means can have significant impact. Does the message arrive as a hand-written memo from the top, or a mimeographed handout from the administration office? If the message is typed, is it an original that

is neatly prepared, or a smeared copy full of erasures and typographical errors? Was the message delivered by a messenger, the mail man, through distribution, or merely dropped on a desk? The impact of these factors is so evident as to deny further discussion.

Speech may be defined as, "the communication of thought and emotion by means of voice, language, and bodily action."[8] Again evading "language" temporarily, we must admit that the impact of tone, volume, timbre, and inflection on words and their meanings is obvious. The simple word symbol "you" can reflect surprise, terror, romance, curiosity, and the gamut of human emotions. When coupled with action (a clenched fist, an imperative finger, or an outstretched searching hand) it may assume even more clear cut variations. Again there is no present value in further elaboration.

Non-verbal communication is a more recent addition to the recognized communication scene. The popularization of "Body Language" does not invalidate its importance. The presence or absence of bodily action, facial expression, or muscular tension can communicate in itself. The number of stories trailing off into vapid smiles because of a wifely inexplicable look, or romances blooming from a smile are legion. The scholarly sweat resulting from a professorial frown and the unscientific thoughts resulting from a provocatively crossed leg need no clarification to most men.

We have then, in general terms, rather rapidly dismissed all of the variant considerations but language from our discussion of communication.

We shall involve ourselves with other factors as we continue, but they are beyond the scope of our established definitions.

Language: Symbols

Language is an atlas -- an atlas that can never truly depict all the paths and lanes of the countries represented within it.[9] Words are not objects. An object is a picture in one's head, the image one sees when an event comes into the field of his sense organs. It is not the event, only one's abstraction of the event. Therefore, each object is unique to a particular person in a distinct space-time interval, and contains a number of characteristics limited by his experiences.[10] Words are not the object they represent, only a map or stimuli to direct one to the object level. The measure of words, then, is how effectively they direct one to the object image desired.

Words are, at best, a weak substitution for an imperfect image in an all too fallible mind -- a frequently grossly distorted representation of a highly fluid and dynamic event.

Language is one of the key elements differentiating man from the "lower animals." As wonderful and important as it is, it is still an attempt to make static that which is dynamic-- life and our environment. It is an effort to section off some of the continuous experiences developing. One of our prime difficulties is that pre-existing words are used, of necessity, to express or describe new events. This limits, or drastically reduces, the unique features of the concepts or feelings that can be communicated.

The effective speaker must be aware that words are general (classes like animals or sports); specific (dog, salmon, baseball); abstract (love, righteous, freedom); or concrete (school, daisy, Mary Smith). Equally important is the realization that all word meanings vary according to the speaker, listener, time, place, and the occasion associated with their use.[11] This, then, is the cornerstone of the "youth-culture" distinction between "person" and "individual."[12] Older people tend to consider the terms synonomous.

Language: Abstractions

Dr. S. I. Hayakawa, more readily recognized today for his recent upset election to the U.S. Senate and his methodology in dealing with student demonstrators, has made an indelible mark in the field of semantics. The abstraction ladder is his basic development that differentiates the levels of abstraction.[13] While Figure 2 is not Hayakawa's, it is closely derived from his work. The significant factor here is that the more abstract the term, the fewer characteristics of a specific individual event are represented.

Another important facet of abstraction is that it provides a means of classification.[14] Self evidently, "Ed" is uniquely himself and drastically different from any other object under the same classification. The key is in accepting and remembering that all objects or people included under a general classification are unique, and must not be treated as if they are totally similar. So long as we can maintain cognizance of this distinction we are less likely to err than when we give abstractions the status of reality.

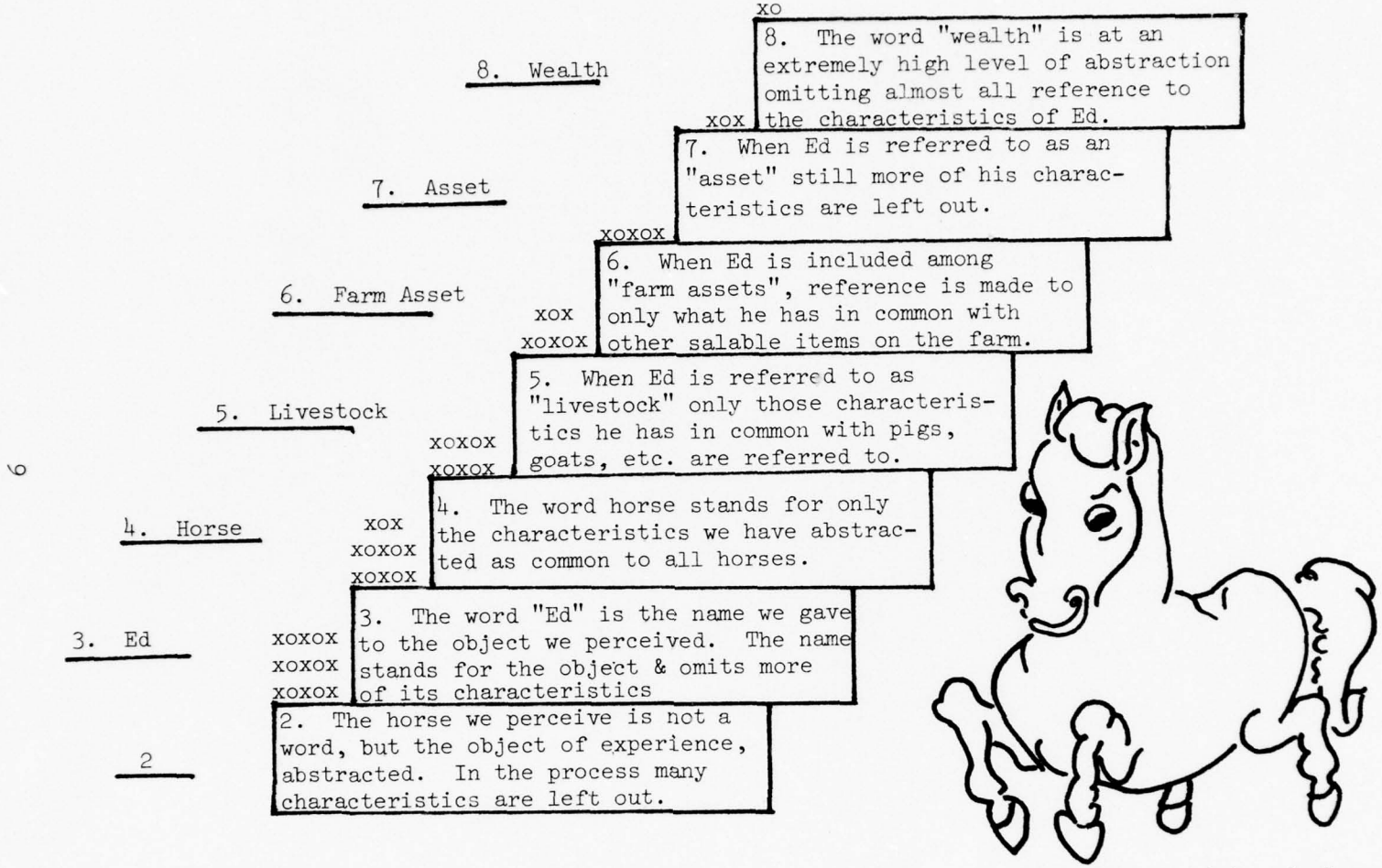


Figure 2. The Abstraction Ladder

Language: Representation of Reality

Consolidating what we have discussed thus far, and carrying it one step further, we find in Figure 3 the classic triangle of reference.[15]

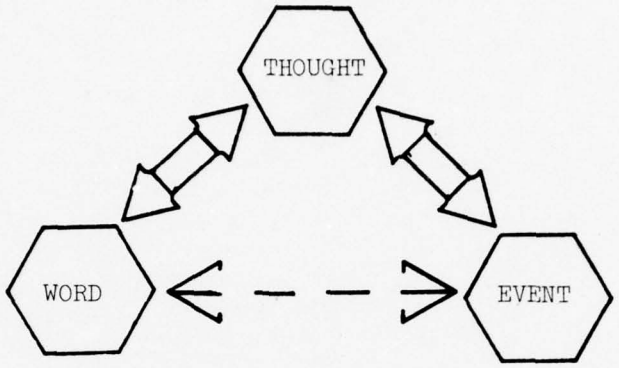


Figure 3. The Triangle of Reference

The word (symbol) means what we want it to mean; therefore, the relationship between word and thought is a direct and personal one. The relationship between thought and event is equally personalized. The relationship between word and event is, however, neither direct nor personal. The comprehension, or object establishment, is correlative to the thought process.

Every event is viewed in a myriad hues through the imagery processes of our perception and then "painted" by the limits of our vocabulary. While this act, in itself, limits effective communications, the true depth of the problem is revealed in the next area of discussion - the **process of communication.**

Language: A Process Limitation

The process of language transmission is generally made up of from five to eight steps, depending on the point of view of one's favorite author.[16, 17, 18] In Figure 4, for clarity, we shall expand the process to nine.

Step one: The event itself. This may be an action, item, process, etc.

Step two: The object, or mental image we perceive in relation to the event.

Step three: Encoding the object, or translating the perceived image into symbols within the limits of our vocabulary and experience.

Step four: Preparing the message, or organizing the symbols into the sequence and form selected as most appropriate.

Step five: The carrier of the message (voice, written message, facial expression, etc.).

Step six: The receipt of the message (act of hearing, seeing, or reading).

Step seven: Decoding the message, or translating the received symbols (within the limits of our vocabulary and experience).

Step eight: Determining the meaning of the total words in image form.

Step nine: The personal reaction to the object perceived.

The reaction serves as feedback that can impact on the encoder by changing his perception of the event (object), his choice of symbols (language), or organization (message). Interestingly enough, and frequently ignored, is the fact that this feedback may even alter the event itself.

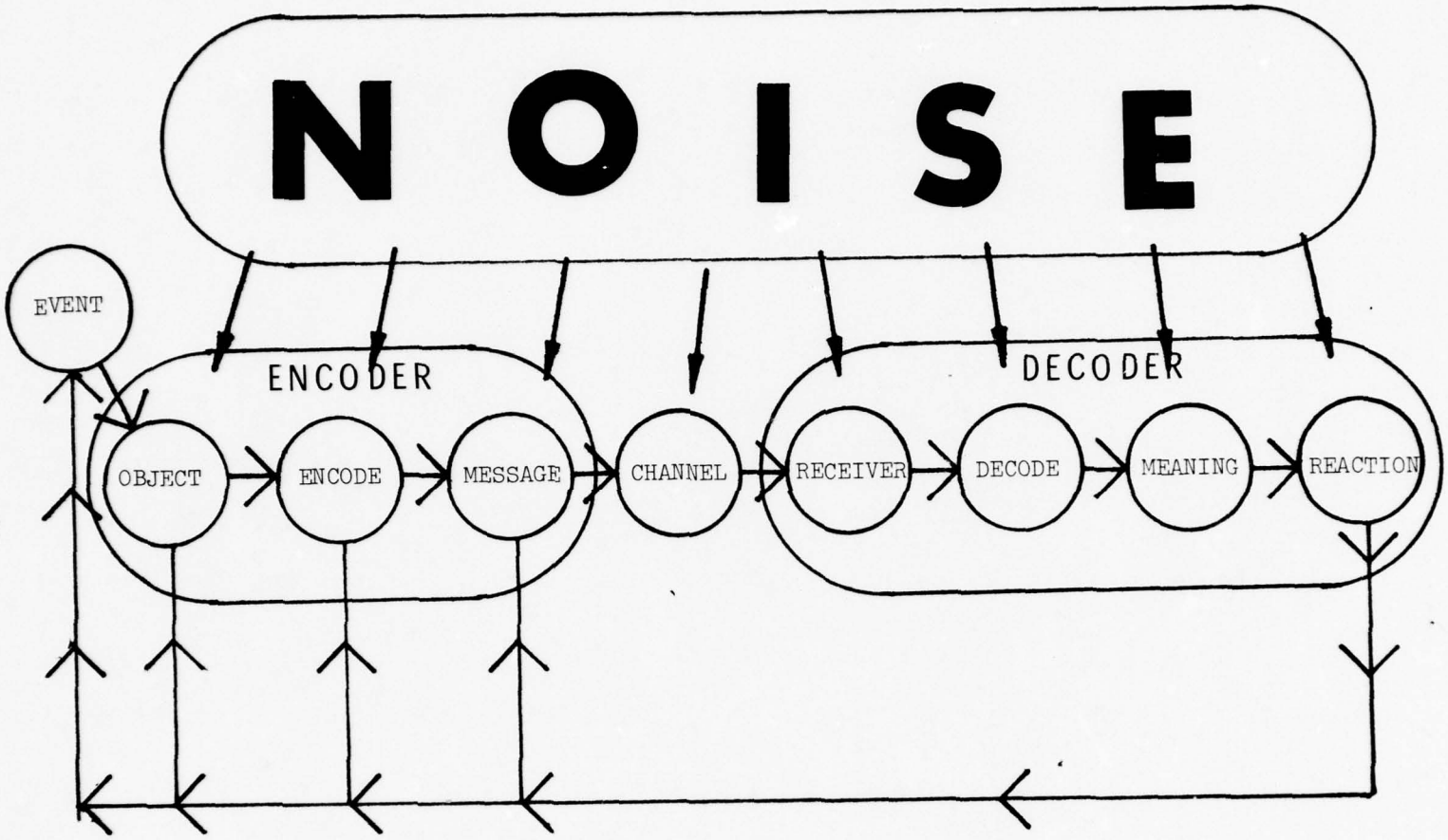


Figure 4. The Communication Process

Hanging over this entire complex process is noise, another element that reduces the accuracy of the transmission. The noise is manifested by such divergent considerations as experience, timing, environment, speaker, listener, place, and occasion. Environment, in this instance, must include social, economic, and political considerations as well as physical environs.

Language: Development

Acceptance of the logic thus far leads us to the next phase. Since noise impact is most significant on the encoder (three steps) and the decoder (four steps) it establishes a need for analysis of the mental or human process.

Three factors determine our ability to effectively and efficiently perform the encoder and decoder functions.

There is no attempt to establish a hierarchy since these factors literally function as a limiting triad. Vocabulary determines the number of available symbols we utilize in description of the event. Thought, or reasoning if you prefer, determines the manner in which we organize the symbols selected, as well as our analysis of the event in preparation of symbol choice. Attitude includes the preconceived images or characteristics we ascribe "automatically" to any specific self-imposed generic classification.[19]

Language: Sources

We have established vocabulary, logic, and attitude as the determining factors in both encoding and decoding actions. Their source, therefore, should be a critical sector of our analysis. Perhaps we can best establish

the sources by identifying the three generally accepted aspects of life brought to bear by any communicator: experience, training and research.[20] The role of each properly requires some explanation or qualification.

Research is the self-directed study and analysis we employ in an effort directed toward self-improvement. The effort, in this context, must be considered to be primarily scholastic or educational in nature. Training has some overlap with research, but is externally directed. This is not to imply that no self-motivation is involved in training, only that, in this sense, training is normally directed by a higher authority and more task oriented in nature. The final consideration, experience, is the product of all life activity to which we, as individuals, have been exposed. It clearly includes both training and research, but further incorporates the total environment (self, physical, and ambient) in which they transpire. Further, it inculcates a continuing viability since our evaluation of each new experience is progressively changed and modified by our peculiar previous experience. In this sense, no experience can be considered as a discrete and common event to multiple observors.[21] Properly oriented and controlled experience, research, and training can bring closer together our frames of reference, but can never totally overlap any two individuals (even twins) with the same vocabulary, reasoning, attitudes, or even earning capabilities.[22]

Communication: Removing Blockage

A large number of techniques have been developed whereby administrators or managers may remove or alleviate the major blockages that reduce communication effectiveness.[23]

Encoder blockage:	Special personnel or organizations with the function of information dissemination. Formal and informal reporting systems. Training, research experience.
Message blockage:	Report preparation standards. Message summarization.
Symbol blockage:	Improved style. Visual aids. Standardized terms, acronyms, abbreviations. Training, research, experience.
Channel blockage:	Liaison officers. Routing, clearing and screening procedures. Rearrangement of hierarchic levels and intermediaries. Exploitation of informal channels.
Receiver blockage:	Special personnel or organizations with the function of incoming information analysis. Increased use of face-to-face communications. Training, research, experience.

A point to consider is that a certain amount of communication blockage is not only axiomatic but desired. Without it, people would be unable to concentrate on specialized roles, and lose the "blur" that often precludes conflicting interests from "blowing the lid off" an organization. Use of any one of these techniques is not guaranteed to improve communication, since coping with one source of blockage may bring another type into

being. Further, the imposition of excessive controls may result in an information overload.

Language: Jargon

We would be remiss in ignoring jargon since it has become an integral part of organizational knowledge and communication. Every profession, trade, art or science, government or institution has its technical vocabulary -- commonly referred to as jargon. These special dialects are used partly to designate things or processes which have no exact symbology in common language, and partly to provide greater exactness in nomenclature. Additionally, they save time, since, being totally understood by the practitioners of a science, they have the exactness of mathematical formulas and reduce the involved description of a process or action to a single symbol.

This specialized expansion of language is extremely fluid. New terms are coined with unlimited abandon and discarded without equivocation when they have served their purpose.[24] Highly technical in nature, these subculture languages possess large volumes of technical terms that remain totally foreign to the most literate speech and incomprehensible to the devotees of other sciences.[25] This is clearly evident in "governmentese" -- perhaps the most obvious example to the general public, since the evening news first purveyed "Vietnamization", "Enclave Defense", and "Phase I Economics". The complexity of this jargon is reflected in the more than 24,000 acronyms and terms included in the U.S. Army lexicon.[26] The development of this heavy "bureaucratese" may interfere with communication, rather than help it, by making messages dull and uninteresting.

In addition, while it may facilitate communication among experts, it can seriously hazard interdiscipline communication and totally befuddle administrators. Managers are not immune, themselves, as they frequently distract attention from their desired symbols through the use of hierarchial authority symbols.[27] Figure 5 provides an all too pervasive example that is not as ludicrous as it appears at first glance.

Language: Selection

While our selection of symbols is limited by our individual vocabulary, there are still word options available to most of us. For an analysis guide, an evaluation of numerous authors provides the following list as a means of consideration in selecting language symbols:

Target audience size: The larger the audience, the more diversified the attitudes to be encountered.

Age level: Recent experimentation at Northwestern University indicates that dyads of the same generation communicate meaning much more effectively than dyads of different generations, even with such simple abstracts as "cookie".[28]

Sex: Is the target audience of mixed sex or all of the same sex? There are, in spite of women's liberationists, sexually oriented attitudinal differences.

Occupation/specialty orientation: Interests, needs, and vocabularies are largely determined by occupation.

Educational level: Both formal and informal education help determine attitudes and vocabulary.

Social membership: Special group membership is often indicative of interests and prejudices.

MEMORANDUM _____

SUBJECT: Buzzword Generator

1. The buzzphrase generator consists of three columns of buzzwords numbered zero to nine.

Column 1	Column 2	Column 3
0. integrated	0. management	0. options
1. total	1. organizational	1. flexibility
2. systematized	2. monitored	2. capability
3. parallel	3. reciprocal	3. mobility
4. functional	4. digital	4. programming
5. responsive	5. logistical	5. concept
6. optimal	6. transitional	6. time-phase
7. synchronized	7. incremental	7. projection
8. compatible	8. third-generation	8. hardware
9. balanced	9. policy	9. contingency

2. The procedure is simple. Think of any three-digit number at random. Then select the corresponding buzzword from each column. Put them together and WHAM! POW! ZAP! You sound just like you know what you're talking about.

3. Take for instance the number 257. Take word two from column one, word five from column two and word seven from column three. You now have "systematized logistical projection." You don't know what it means but don't worry, neither do "they".

4. Would you prefer "balanced incremental flexibility." Possibly "parallel reciprocal options." Or maybe "integrated transitional contingency." How about "functional third-generation hardware" and "optimal management mobility." Now that ought to do the trick.

5. The important thing is that the buzzphrase generator provides the user with the perfect aid for preparing anything on any subject. Automatically you have one thousand different combinations, all of which will give you that proper ring of decisive, progressive, knowledgeable authority.

Figure 5 - The Buzz Phrase Generator

Subject matter knowledge: Comprehension level of technical terms is a critical factor.

Primary interests and desires: What are the primary values, needs, and desires of the group to be reached?

Attitude toward the communicator: An extremely difficult factor to establish, but critically important, is the level of friendliness, respect, or esteem held by the audience for the communicator.

Attitude toward the subject: The differences between interest, apathy, awareness, and negativism need no explanation.

Attitude toward purpose: Both the stated and real purposes of the communication must be considered. All too frequently they are not the same.[29]

The Trap of a Large Vocabulary and Learned Jargon

S. I. Hayakawa succinctly establishes the nascent hazards of a learned vocabulary without a corresponding concern for the true meaning of its component symbols. In the course of gaining a "higher education," many traumatically difficult books are encountered. In managerial and administrative communications the same concept applies. In some cases the answer to the obvious question, "Why", is equally obvious. "The subject matter cannot be simply stated to the unlearned receiver." An advanced level communication dealing with chemistry, radiation, or economics presupposes a detailed background on the part of the receiver. This, however, is not the only reason. Hayakawa warns that a learned vocabulary has two functions:

1. The communication function - giving expression to ideas.

2. The social function - conferring prestige on its users and arousing respect and awe among those who do not understand it.[30] It seems totally safe to state that whenever the social function becomes more important or significant than the communication function, true communication suffers.

Summary:

In a period of computerized life and space-age excitement, management has latched onto "corporate model", "innovative management", "interface", and "real-time"[31] as easily as a former president adapted "game plan", "red-dog", and "score" to national economic endeavors. The touchstone of language selection for effective communication must be recognition that words are symbols (and the chief tools of thought and communication). We must constantly look beyond the symbol to find the true meaning intended.

A key point of cognizance should be that ideas are not transferred to, but aroused in a receiver, and the resultant ideas are the product of his attitudes, logic and vocabulary as much as the encoders. There is no communication without the receiver keying it into his own values.[32]

CHAPTER THREE - A TEST

> Conversation is the
> image of the mind;
> as the man, so is
> his speech.
> Syrus - Maxims

The Participants

To state principles and espouse causes have been common traits of man. This author is no exception. Principles, however, require testing before general acceptance can be achieved. To this end, the Program Management Course (PMC) students in the DSMC 77-1 course were selected as a test bed. Table 1 shows the Service and affiliation structure of the survey group.

	MILITARY	CIVILIAN	TOTAL
Army	26	7	33
Navy*	17*	20	37*
Air Force	33	5	38
Industry	0	8	8
TOTAL	76	40	116

*1 Marine Included

Table 1 Participants in DSMC 77-1 Language Survey

Out of a total class of 128 there were 116 responses. Some general assumptions about the group are applicable:

1. Since the college has selection criteria, and the Services recognize the importance of acquisition management, the PMC students represent the upper strata of their peer groups.

2. Since participation in project management and attendance at the college are relatively voluntary, the students attending have a relatively high degree of motivation to be successful managers.

3. Based on the above, and the rank structure of the class, the students reflect a relatively high degree of management experience.

The Purpose

A survey of the class members should provide verification of the principles discussed thus far. Further, it will serve as a basis for further discussions and establish commonality with the reader.

The Instrument

A simple word association instrument was designed (Figure 6). The first section, non-specific terms, serves as a means of identifying the extent to which the participants associated a term with a general area - or the degree of commonality with which they initially viewed an abstract word symbol.

The latter part of the survey utilized specific acronyms and abbreviations. This shorthand language is a form of "jargon" and serves as technical language for the Services. Recognizing the variants in Service assigned meanings, the Service affiliation of each participant had to be determined for a fair evaluation of the results.

Individual Service lexicons[33, 34, 35, 36] were used to determine the "official" recognized meaning of each term utilized. It was possible, therefore, for an Army respondent to select a "correct" Navy meaning for a symbol and still be "wrong" in that he did not recognize his Service unique meaning.

AFFILIATION: (Circle one in each column)

ARMY	MILITARY
NAVY	CIVILIAN
AIR FORCE	
INDUSTRY	

For each of the following seven words, write a brief description or definition of the first related thought that enters your mind on reading the word symbol.

MANAGER _____

FILE _____

TANK _____

DEGREE _____

HANGER _____

STOCK _____

WING _____

Following are acronyms and abbreviations. In the space provided enter your best judgment as to their meaning. In the event you can apply more than one meaning, enter only the one you believe to be most common to you and your peers.

1. ACR _____
2. ADC _____
3. BOB _____
4. CRC _____
5. MDC _____
6. NR _____
7. PAC _____
8. plt _____
9. SOI _____
10. TF _____

Figure 6 Language Survey
DSMC 77-1

The Survey

The survey forms were distributed to students during a two hour class in Values and Interpersonal Strategies in Management during the 6th week of the 20 week course. Completion and return of the forms was voluntary, however, social pressure probably contributed to the high rate of return. Approximately 15 minutes were allocated for completion of the survey.

The Results

Summaries of the results are presented in Tables 2, 3, and 4. There was a relatively high degree of commonality in associating non-specific terms with a single area of interest. This varied from a low of 36% (File) to a high of 80% (tank), and a low of four meanings assigned (Manager, Degree) to a high of seven (File, Tank, Stock, Wing). Drawing a simple mean there were less than six meanings per term and a prime selection commonality of 60% (see Table 2 for groupings).

Commonality in identification of unique Service meanings for specific symbols was not achieved to the same level. The lowest number of meanings assigned was seven (Plt) and the highest was 36 (CRC). "Correct" identification varied from 2% (ACR) to 66% (Plt). Again establishing a simple mean we find an average of 21 meanings assigned and 24% "correct" identification (see Tables 3 and 4 for groupings).

These tables and summary results by Service, as well as specific detailed response iteration by symbol and Service/affiliation are included in the Appendix.

SURVEY SYMBOL	TOTAL RESPONSE CATEGORIES	RESPONSE GROUPINGS (NUMBER SELECTING IN PARENTHESIS)					
MANAGER	4	Director/ Leader (83)	Resource Coordinator (17)	Program Manager (15)	Other (1)		
FILE	7	Data Repository (42)	Data Record/ Folder (41)	Put Away (20)	Admin System (6)	Troop Column (3)	Other (4)
TANK	7	Tracked/Army Weapon (93)	Storage Repository (17)	JCS Arena (3)	Other (3)		
DEGREE	4	Educational Award (75)	Measurement (30)	Temperature (10)	Other (1)		
HANGER	5	Aircraft Facility (77)	Clothes Holder (32)	Holder (3)	Storage Area (3)	Other (1)	
STOCK	7	Ownership Certificate (45)	Parts Inventory (43)	Raw Material (10)	Wall Street/ Market (4)	Rifle Part (4)	Other (3)
WING	7	Airfoil/ Plane (73)	Air Force Unit (28)	Bird Part (10)	Building Section (2)	Other (3)	

Table 2 Survey Response Groupings: Non-Specific Terms
(116 Responses Included)

SURVEY SYMBOL	TOTAL MEANINGS ASSIGNED	MOST FREQUENT RESPONSE BY SERVICE: UNDERLINED REPRESENTS AN "OFFICIALLY" DESIGNATED ABBREVIATION (NUMBER SELECTING IN PARENTHESIS)			
		ARMY (33)	NAVY (37*)	AIR FORCE (38)	INDUSTRY (8)
ACR	31	Armored Cavalry Regiment (22)	None/unknown (16)	None/unknown (25)	None/unknown (7)
ADC	23	Assistant Division Commander (13)	None/unknown (7)	Air Defense Command (25)	None/unknown (3)
BOB	15	Bureau of Budget (12)	None/unknown (17)	Bureau of Budget (14)	None/unknown (6)
CRC	36	None/unknown (11)	None/unknown (19)	None/unknown (14)	None/unknown (6)
MDC	37	None/unknown (17)	None/unknown (17)	None/unknown (14)	None/unknown (4)
NR	22	Number (11)	Not required (13)	Not required (12)	Not required (3)
PAC	16	Pacific (21)	Pacific (30)	Pacific (14)	Pacific (6)
Plt	7	Platoon (29)	Pilot (10)	Pilot (28)	Plant (3)
SOI	21	Signal Operations Instructions (16)	None/unknown (17)	Standard Operating Instructions (19)	None/unknown (5)
TF	18	Task Force (30)	Task Force (17)	Task Force (13)	Task Force (3)

* 1 Marine Included

Table 3 Survey Responses: Specific Symbols
(116 Responses Included)

SUMMARY TOTALS

116 RESPONDENTS	"OFFICIAL"	OTHER	% "CORRECT"
ACR	2	114	1.7
ADC	20	96	17.2
BOB	15	101	12.9
CRC	8	108	6.9
MDC	19	97	16.4
NR	21	95	18.1
PAC	38	78	32.8
PIT	77	39	66.4
SOI	17	99	14.7
TF	67	49	57.8
TOTAL	284	876	24.5

Table 4 Summary Totals: "Correct" Identification of Acronym/Abbreviation Symbols

Conclusions

Recognizing that this survey was not a highly scientific instrument, and was not intended to be one, the conclusions we can draw are general in nature.

It seems apparent that horizontal, vertical, and cross-discipline communication hazards are real when we witness the large member of different meanings applied to specific symbols by various Service affiliates.

Image creation in the recipient becomes clearly a problem when we consider the divergent meanings applied to common specific symbols.

The many different experimential fields of the respondents are reflected in their widely disparate responses.

The ability to help the recipient create a general image with general terms appears to be relatively easy. Helping to make that image a finite copy of the encoders; intended image appears much more difficult, even when we use specific symbols.

Careful evaluation of the audience becomes of paramount importance in symbol selection for both general and specific understanding.

The social or esteem inducing role of jargon is highlighted by the low level of recognition of specific terms.

The proliferation of "bureaucratese" language appears to be supported by numerous seemingly local or common, but "non-official" meanings for symbols.

Probable gaps or misdirected recipient thought flow, even if of short duration, resulting from all of the above may well distort image creation.

Summary

Although the survey presented symbols in a relatively sterile environment without supporting or clarifying context, it seems reasonable to accept the conclusions as generally representative. If my initial thought response to "BOB" is "my wifes' brother," it is logical that to some extent his image will impose itself on my mind whenever I see or hear the symbol -- even if you clearly identify it initially as "Bureau of the Budget" or "Beginning of Business."

The communication of general concepts and high level abstractions like livestock is simple by comparison with sharing my image of my horse, "Ed." Hayakawa and the ladder of abstraction are supported by the survey.

CHAPTER FOUR - THE CONFLICT

In every age and
clime we see
two of a trade can
ne'er agree
Gay-Rat-Catcher and Cats

Conflict: Boundaries

We accept without flinching the truism "the world is growing smaller" as a product of highly improved transportation and communication during the last fifty years. These same advances, coupled with industrialization, have had major impact on the growth of big-business and complex organizations.

While the basic subject matter, most of its conclusions and ramifications, and almost all of its implications are related to all groupings of people, we shall basically limit direct discussion to "complex organizations." While not all project manager offices will meet this definition, the vast majority of the organizations with which they deal will. This definition, "Organizations that are deliberately structured to achieve specific goals, and of significant size and complexity," will be somewhat expanded to establish discussion parameters. We will not consider international organizations or factors, thereby eliminating foreign languages from our considerations, although many project managers must face this added problem as well. We further assume that our "manager" must answer to some higher authority. We also assume an organization of sufficient diversification to include managers, technicians, scientists, and workers. We differentiate between "worker" and "technician" by consideration of technical training and specialty orientation requirements. To simplify,

without attempting to draw a finite boundary, a computer programmer or repairman will be considered a technician. Comptrollers, lawyers, contract specialists, and their equivalent will also be considered technicians. "Scientist" we shall consider by the definition of Hower and Orth, "any person having a technical education with at least one degree from a recognized educational institution and devoting most of his time to professional R&D activities."[37] The generic term "worker" will be applied to assembly personnel, lathe operators, maintenance personnel, construction workers, and corresponding levels of activity. This differentiation is not intended to imply that technical knowledge or skills are not required by any specific type of "worker."

The placement of first line supervisors becomes extremely difficult within these limits, and must, therefore, be left to the reader's discretion. A working foreman or lower-level supervisor plays a part in both "manager" and "worker" categories, and his role and problems must be viewed in light of this peculiar environment.

These outer boundaries imply several internal divisions which are worthy of comment. We have established systems of authority, status, and specialization -- an organization of technically necessary interdependence if the organization's goals are to be accomplished. In this act we face status blocks between strata that prevent the development of totally common goals and perceptions of reality. We create some degree of alienation from the organization by strata, with the inner circle of "top management" the least alienated.[38]

In our organization we must recognize that physical barriers exist between groupings. We recognize that it is extremely difficult to occupy different positions in physical and social space without differing perceptions of goals, needs, and reality. The differences between worlds of thundering heavy machines or humming electronics, and one of muted telephones, quiet secretaries, and executive desks, are horrendous. In this context we go from a world where action is primary and communication secondary to one where the priorities are reversed. The closer one gets to the decision-making center, the greater is the importance of communication, and the less obvious is the dependence of work accomplishment on communications.[39]

We accept an organization, as well, where the superior's right to be the primary source of influence over his subordinates restricts free interaction between his subordinate specialists and those of other parallel groups. We do not include the degree of social control that allows only vertical funneling of information, and, therefore, precludes organized cooperative efforts.[40] In short, our organization recognizes significant breaks between the institutional and managerial levels and again between the managerial and technical levels. We recognize that messages from one part of an organization require translation to be totally effective in others without adding noise to the system.

Conflict: Language

The management "game" is not a game. It is not a war. It is not a fight in the corporate or bureaucratic jungle. Each of these analogies, though commonly used, is self-defeating. Each implies a winner and,

therefore, a loser. No organization intentionally has one internal group profit at the total expense of another; they prefer to have all sub-groups "win" through the mutual application of effort toward achievable common goals. The immediately recognizable rules for "profit" (monetary, expansion, social, service accomplishment), success, recognition, and self-perpetuation or regeneration are common. The conflicts of language are seldom considered.

Some variation of democratic leadership has become common to all organizations since Mayo and Lewin popularized the Human Relations approach to management. The resulting communication "between the ranks" is based on participation and justification, as well as recognition of both work and worker problems.[41]

Management needs, and can reasonably expect, information and ideas from technicians and scientists in language understandable to non-scientists.[42] People need a common frame of reference for full understanding, and, therefore, it is common for organizations to develop their own administrative language. Gross points this clearly as he explains how these languages perform a morale-sustaining function in older organizations, and, while slowly picked up by noviates, are never fully understood by outsiders.[43] Anyone may use words of his own choice, but, to be effective, they must be useful, clear, and acceptable to the receiver. True and meaningful communication is best between groups with shared goals and perceptions of reality. This is the lodestone for development of informal groups.[44]

There are problems in relations between manager and managed even in the "best" of organizations. Authority always generates some resentment. Further, the functions of the control pyramid include provision for conflict resolution. While high-level resolution provides the advantage of relative impartiality, it also provides a lesser command of the facts and greater expense to the organization. Lower level settlement provides greater immediate knowledge and faster resolution, but is potentially much more disruptive to the manager's relationship with the "loser." Ernest Nagel points out that, despite our best efforts, we include subconscious preconceptions in our analyses and actions.[45] Very few humans are capable of the scientific effort required to eliminate "feelings" or unconscious bias from their comprehension efforts. Connotative meanings[46] to words are specialized individualistic perceptions of words, and are not limited to just symbols like "fire" or "crash." Words heard in receiving a reprimand or losing a judgement may consistently evoke a blocking response in the future.

Hierarchial ranking is not necessarily a function of ability. It is the source of relative power. The issue of perceived ability versus hierarchial ranking compounds the problem of understanding between and within strata.

A large and exact vocabulary is a most important executive characteristic. Johnson O'Conner states it is the most important.[47] Based on research conducted by his engineering laboratories, he states that top executives score higher on word meanings than even college professors and lawyers. He further claims to have established that there is a direct

relationship between hierarchial level and extent of vocabulary. Mr. O'Connor tells of a study in which the vocabularies of college seniors entering corporations as management trainees were evaluated. Every man in the top quarter became an executive within five years. Not one in the bottom quarter became an executive. Executive recruiters stress that a college diploma is becoming a universal requirement for admission to the management group, and the ability to express oneself well (orally and in writing) is tremendously important for the top level.

Conformity and image are recognized requirements for advancement in both military and civilian executive ranks. Younger executives like to explain that conformity is a purgatory phase that must be passed through to reach the level where they can do as they please. Senior executives point out that the higher one goes, the less he can afford to "stick out" in any one area. He must play the role he is cast in. He must conform downward as well as upward. The luxury of an inadvertent word may flow all the way down the organizational chain and rebound with serious trouble.[48] Method International, a London school for actors, even teaches classes in aplomb and dignity for executives. They emphasize a slow solemn manner suggesting that each word has been chosen with deliberation.[49]

Any administrator trained in a scientific specialty suffers rapid technical obsolescence.[50] The violent upheavals of technological change result in a constant challenge that can best be corrected by training and development programs. For the last decade these programs have only been instituted as a situational response. If one only partially accepts Weber's theory that the root of authority for a bureaucrat is his knowledge

and authority, this obsolescence still clearly increases the conflict between authority and ability previously discussed. As incongruous as it seems, people resist change. This is due to uncertainty, age, educational background, and level of aspiration. An individual frequently will not even perceive the situation he faces unless spoken to in his own personal frame of reference.[51]

The worker today is no longer starved for affection and affiliation when he comes to the office or factory. Most of his gregarious needs are met outside the organization. This reduces his overlap frame of reference with the organization, and impinges added difficulties on communication.

No one but a comic willfully makes an attempt to look or sound foolish in his verbalization. Executives devote approximately 75% of their time to the communicative act, and their language foibles and failures must be assumed to be unintentional.

Conflict: Horizontal

Communication among peers provides task coordination as well as emotional and social support. Psychological forces commonly push people toward peer group relationships. This horizontal closed circuit satisfies the need to know from your own kind without taking into account other organizational levels. This, in itself, can be disruptive. When divisions are discrete parts of a department, interdivision conversations concerning division activities can hazard departmental programs. When "vice-presidents" talk only to "vice-presidents" they maintain their social status level, but frequently miss the really critical information at levels below

them. Further, the more hierarchially oriented the communication, the more information becomes the secret property of selected groups. The power potential, and ability/authority separation resulting is clear.[52] In this environment, message format can become extremely important as key incumbents respond only to telegrams, long-distance calls, and personal visits. Organizational charts and hierarchial structures are designed to alleviate this problem, as each successive strata is a more inclusive clustering intended to handle those aspects of coordination beyond the subcomponent units' scope.[53] This structural requirement, coupled with obsolescence, places advancing managers in a position where they must think in new terms, communicate in a new way to new people about new events, and understand and relate advancing technology to their organizational needs. Each of these considerations is in conflict with our established rules relating to organizational language, and supports the need for an excellent initial vocabulary.

Added problems arise when we cross disciplines in horizontal flow. Both professionals (technicians) and bureaucrats (managers) occupy achieved rather than ascribed status. Their relationship is largely determined by the amount and kind of knowledge the technician has.[54] The relationship between hospital treasurer and surgeon is far different from that between comptroller and development engineer. Another barrier exists in managerial attitude and training. A manager frequently makes decisions which he intuitively knows are correct, but cannot defend in communicable terms. This is offensive to the scientist. Conversely, the scientist will often hesitate to verbalize unless he is talking scientific facts. He is fearful of the "smooth-talker" that can make him look foolish.[55]

The effectiveness and efficiency of middle managers today is frequently dependent on how well they can work with computers. With more advanced production systems, a whole new generation of ideas has required skills beyond commonly existing supervisory knowledge. This has led to recent college graduates reaching middle-management levels quite rapidly in specialized areas. With age differences added to the technology problem, another barrier has been erected.

The worker's dilemma is even more severe. The higher an executive's strata the more he is walled off from reality by symbolic representations and abstractions.[56] Written and verbal thoughts going through channels (official and unofficial) tend to get garbled. With hierarchial secrecy, the sociological resistance of personnel at high levels in communicating with lower levels, and low level supervisors normally getting by on the basis of experience rather than technological sophistication, the prevalence of false communication and rumor at worker levels is understandable. The resulting alienation and fear tend to make less secure and more unpleasant the worker's position in the organization. We sometimes forget that the more unpleasant one's position is, and the lower his strata level, the more he tends to communicate his feelings about his work.[57] When we consider these barriers in light of the tendency to withdraw from and distrust groups whose approval we are unable to win, and which no longer are able to satisfy our needs,[58] it is almost surprising that a satisfactory level of productivity can be achieved by workers in a large organization. Their word selection in communication must frequently be contrary to organizational goal achievement.

Conflict: Vertical (Hierarchial)

Managers reveal the tendency to maintain a picture of themselves as the administrative elite. They express their demands in terse messages which say "produce", "predict", "cut costs", "control". The terseness of the symbols selected may well carry a subconscious message contrary to the managers' best interests and intentions.[59] There is a concurrent recognition on the part of the specialist (technician or scientist) that their specialized language and shorthand categories can be badly garbled in transmission through non-specialist channels. This leads to the development of specialist communication channels beyond the formal channel of the hierarchy. Recognition of the channels and their hazard to authority, on the one hand, and sustenance of them on the other, presents significant verbal blockage in this area.[60] An unusual facet of this situation is that the higher and lower ranking "line" personnel tend to form a coalition against the technician and scientist. Dalton found much of the cause to be sociological. The specialist tends to be younger and better educated, he violates regional norms in speech and dress, and he has less organizational experience. When the specialist offers advice and suggestions, they are commonly resented, particularly since these personnel tend to be relatively transient employees.[61] This is, at least, one area where management and worker can agree. With their involvement in the other hazards discussed, the specialists' communicative performance can hardly be efficient.

The creation of large conglomerates has removed this one vertical bond. Recognizing the dilemma of the person within the "system"

perceiving its problems, many large civilian organizations "import" top management to gain expertise and dispassionate opinions. Worker awareness that new forces control management, and that former local relations and memberships (tenuous as they may have been) are no longer valid, reduces their participation to a purely economic one.[62] Iteration of a point made previously is apropos to the workers vertical channel. No person may communicate with his supervisor as he does with a peer.[63] Social and economic inhibitions drastically impact the symbols selected -- sometimes to the detriment of the message required. There are, in addition, two basic premises of individual behavior that are particularly pertinent at this point.[64]

1. Identification of an individual with a group leads him to adopt and defend the standards and behavior of the group. Manager criticism or adverse comment about labor has a universally recognized reaction from labor. The obverse is equally true.

2. Having adopted the standards of one group, the individual tends to use those standards in evaluating the behavior of other people and the importance of other groups.

Experimental group studies have shown the impact of status on vertical communications. High status members receive large amounts of communications, reject correct suggestions from low status members, and reduce work satisfaction of the lows as well as their motivation toward communicative contribution.[65]

Conflict: Non-Participant Involvement

The involvement of effort in communicating organizational good-will, community involvement, and need satisfaction, are basic products of Public Affairs Divisions. Most of the factors relating to individual assistance to, or inhibition of, these efforts have already been discussed in Chapter One and earlier sections of this chapter. There is one area that merits further specific comment. That area is the role of the specialist, either high-level technician or scientist. A bureaucrat's authority rests on a legal contract backed by formal sanctions. Management decisions often conflict with purely specialist considerations. The crucial problem is that judgment of the manager's decisions is accomplished by internal superior management. Final judgment of the scientist, however, rests in the hands of his organizationally external peers.[66] The industrial scientist feels the need to maintain his self-image as a good scientist. He does not want to incur disapproval from his scientific peers. He resists pressures to conform in "the name of science," feeling sure his compatriots will approve even if his superiors do not. He feels the need to communicate, not in laymans' terms with his managerial supervisors, but with other scientists.[67] In addition, he must feel a sense of inadequacy resulting from limited funds, controls imposed by non-scientific managers, and job-imposed absence from the main stream of scientific information. The relationship of these issues to the personal phases of the communication process stands without further clarification.

Conflict: Retrospect

The attitudes, problems, barriers, mental and physical divisiveness, sociological and psychological pressures, training, education, and obsolescence discussed are individually and collectively significant. Attempting to establish hierarchial ranking is far beyond the scope of this paper.

Reflecting momentarily on some selected portions of the conflict, we find incongruities common.

Obsolescence is prevalent, but organizational people seem to tend toward unwillingness in updating themselves. They seem to lose sight of themselves and reality as they are progressively more enslaved by words. Sanguine young executives, pleading temporary conformity as a means to achieve freedom, become enmeshed in the need to conform downward as well as upward and horizontally. The specialists problem is, perhaps, personified by the mediocre physician with a pleasing "bed-side" manner, who is extremely successful with patients and disliked by his peers. Work groups may have a common objective and still not perceive of themselves as a group.[68] Their attitudinal group may be just one portion of their functional group, and may be primarily made up of "organizational outsiders." Interestingly, we have seen that people can think and act, while groups tend to react -- often without thought on the part of their members. Almost regardless of his role, any individual reacts to and with his peers in a totally different manner than he does in relation to a superior. These patterns can all interplay detrimentally when dealing with an "outsider" whether manager or specialist. The distortion

generated by words passed through any communication channel, whether formal, informal, vertical, or horizontal results in "half-truths," rumors, hierarchial secrecy, and increased blocks that must be considered.

An experience shared by most lecturers perhaps encapsulates the entire situation. One soon learns to simply say "thank you" to those who come to the platform, shake hands, and say, "I sure agree with what you said." It can be totally disillusioning, if pressed further, to hear their version of the talk they admired so greatly. What is said and what is understood may have little relation in fact.

CHAPTER FIVE - CONCLUSIONS

> Physicians attend to the
> business of physicians, and
> workmen handle the tools
> of workmen.
> Horace - Satires

The Beginning

The issues of image development, encoding, message development, reception, decoding, meaning assignment, and reaction are all tempered in and by reality as it is perceived. If one perceives a strip of tire rubber as a rattlesnake, the sudden panic, sweat, and tremors resulting are real. In evaluating behavior and images, it is immaterial what an event really is. What is significant is what the recipient saw or heard as reality. All behavior, without exception, is completely determined by images of reality. Words selected are representative symbols of our reality, but recipient comprehension is representative of a totally different image. To each of us, others are acting from error and illusion rather than reality. Even if we are right, it may still be the only reality the other person knows.[69] Figure 7 depicts just a few of the factors that assist in symbol selection, interfere with communication, and determine our individual reality.

General Problems

Experiences are highly personalized in nature, and two people in the same physical situation share little common experience. Meanings assigned to words only agree so far as experiences agree.[70] Not surprisingly, these differences result in further differentiation of reality. This may well be a reason why Richardson, Bellows, Henry and Company, in

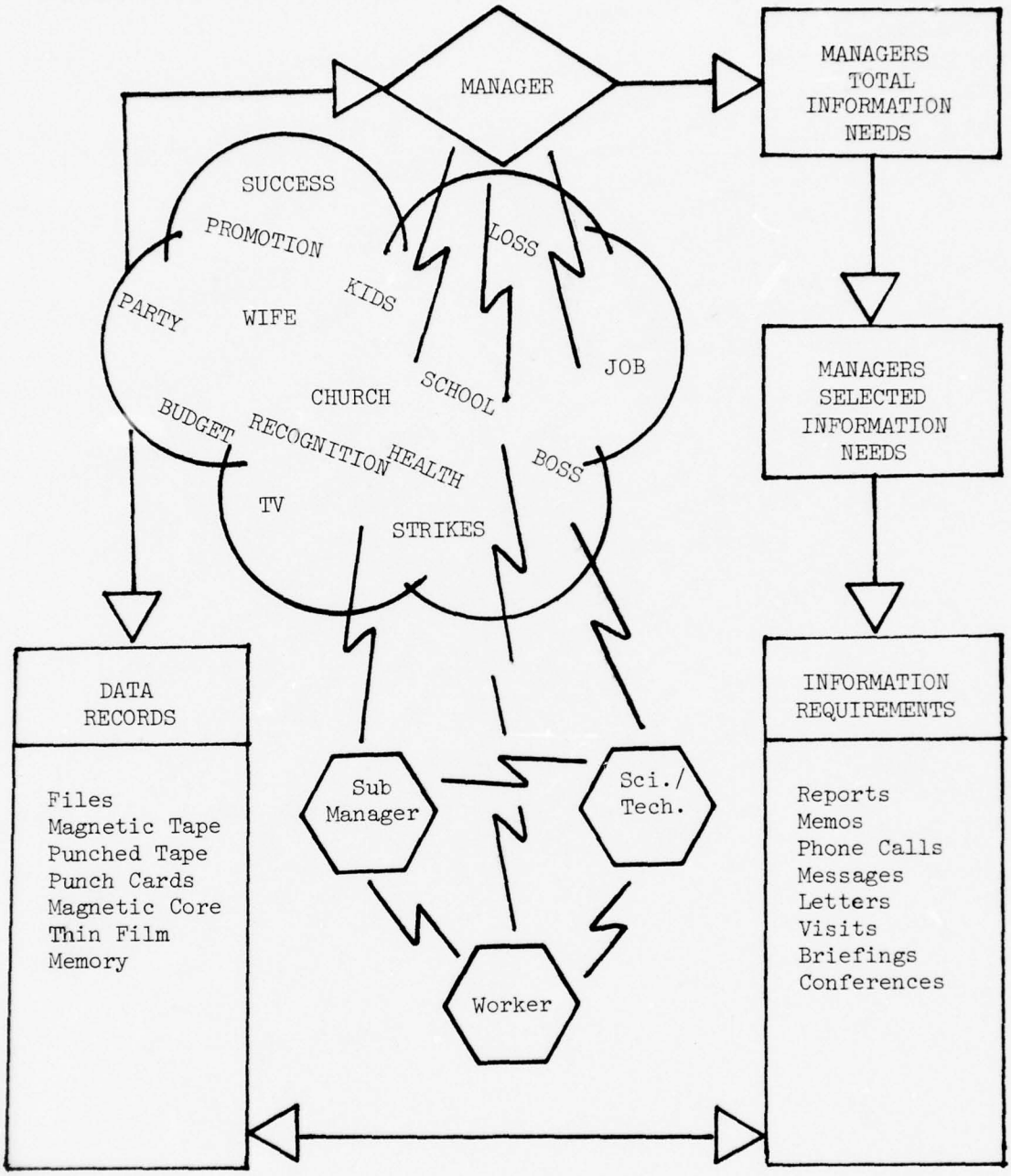


Figure 7. Organizational Information Patterns

a study of top executives, found that they tended toward early maturity, high practical intelligence, and an early demonstration of wide-ranging interest, knowledge, and curiosity.[71] The establishment of hierarchial rank direct relationships with vocabulary and broad knowledge is strongly supportive of increased training and education requirements for managers. Table 5 shows an extract of a study by Burack and Pati.[72]

	Current	Short-range outlook
Foreman	17%	56%
Superintendent	73%	88%
Manager	85%	91%
Maintenance Supervisor	46%	75%
Production Scheduler	40%	69%
Industrial Engineer	84%	87%

Table 5 Educational Importance (forecast)

The significance of these findings is in the clearly recognized need for increased formal education at the middle-manager levels. Advanced degrees become increasingly important with increased technology. The requirements for knowledge of linear programming and computers were almost unheard of in mid-management levels a mere generation ago. Inability to cope with these developments results in blocked mobility, difficulties in staffing, and motivational and attitudinal problems, as well as obsolescence. Compounding this situation is man's resistance to admitting and correcting obsolescence. Figure 8 presents some of the variables associated with the individual, organization, and society that inhibit corrective action and increase the rapidity and level of obsolescence. The result of all these machinations could well be the creation

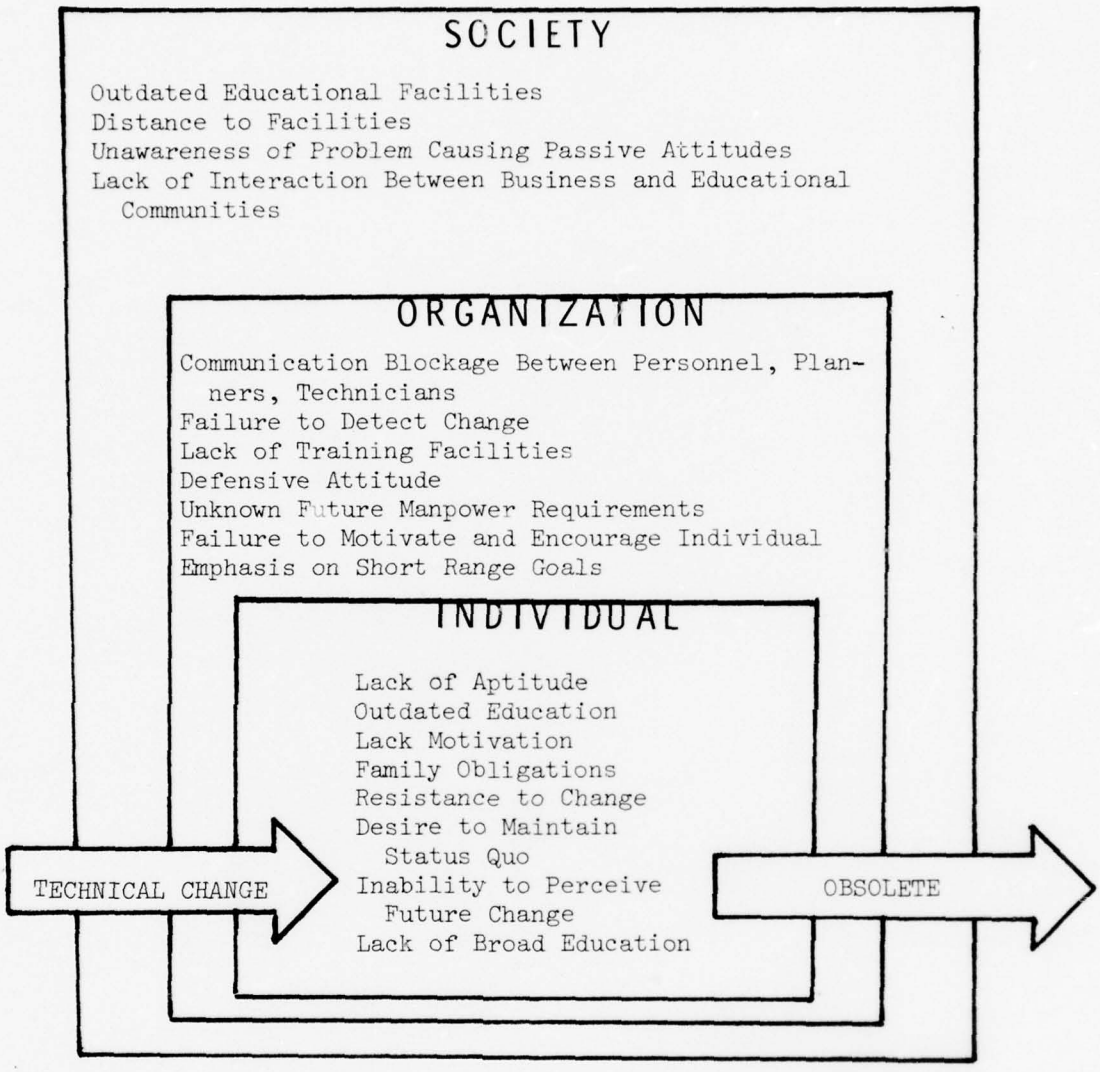


Figure 8. Managerial Obsolescence Causes

of a new organizational language barrier - this one between the BS or BA and the PHD.[73]

Language Problems

The concept that we perceive and then define is common, accepted, simplistic, understood, and false. We define events before we perceive them based on our attitudes.[74] The problems of exchanging meaning in ordinary conversation are present to an even greater degree in organizations. There is a whole complex package of roles, expectations, feelings, norms, prejudices, values, goals, and experiences in each communicant. To expect anyone to be able to set aside these considerations is naive.[75] Further traps are set in the effort to appear up-to-date and well-read. This frequently results in the sacrifice of clarity to conformity. Additionally, one can easily explain his position, even when it is not clear in his own mind, with the "you know what I mean" position. This self-centeredness infers that "if I use a word it will be clear to you." The communicator who pedantically uses dictionary concreteness as a protective coating forces recipients to starchy labels that may not fit their experience. Additionally, this communicator presupposes energetic recipients who are so eager to understand that they will go to a dictionary. This is also naive. Cliche-ridden language meets equal resistance in sluggish responses to tired ideas.[76]

Communication Problems

Beyond all the barriers, and encompassing each of them, is the communication network itself. The formal network is generally relatively static, while the organization it attempts to inspire is viable and

dynamic. Responding to an ever changing environment is a basic requirement that is, consequently, met by the informal network. These flexible channels can carry information with amazing speed and accuracy - particularly non-controversial organizational news. In that informal nets rely on social groupings, social groupings are based on common attitudes and beliefs, and people who do not share common beliefs have difficulties in communicating, it is axiomatic that cross strata informal communication is limited in both volume and accuracy. This is a prime factor in the military "crew" (mixed skills and social strata) requirement for "packet training." Crew integrity, with its associated opportunity for each individual to learn the others idiosyncrasies and action habits, holds high military priority.[77]

Conflicts

The ultimate justification for a scientist's act is his knowledge and judgment. If wrong, his peers will still defend him. The final justification for an administrative act is that it is in line with rules and regulations and has been approved by a superior. This conflict, just one of several discussed previously, may serve a worthwhile purpose. The verbalization of conflicting interests allows genuine differences of interests and beliefs to surface. The resultant tests of power and authority may lead to organizational adjustment and peace.[78] Regardless of symbol selection, differences in economic interests and power positions cannot be verbalized away. The effort to remove conflicts and alleviate tensions via inter strata social activities like bowling, does not really have much chance of success. Without superordinate goals there may be resultant increased hostilities.

The Hazard of Strata

The lack of verbal and sociological commonality between strata is not the only potential problem. All upward communications have achievement orientation interjected as a barrier. A variety of status rewards are designed to proliferate conformation to rules and task performance standards. Whether consciously or not, upward communications tend toward information transmission and personal glorification. In addition, transmission through each higher level forces the introduction of views more removed from first-hand knowledge. This upward flow also necessitates abstraction at each level. By the time a message "bubbles out" at the top it may be so abstract that the original meaning is lost.[79] This does not imply that we should allow excessive latitude in communication. We should, in fact, strive for the highest fidelity and never accept a less than satisfactory performance.

Conclusions

Until man invents a better means of communication, we are subject to the vagaries of an inadequate, imprecise, misused symbolic system of expressing thought and emotion-- language. Good communication does not necessarily lead to good management, but poor communication does limit managerial effectiveness.[80] Perhaps we should modify the definition established earlier by stating that intended within it is the concept that communication is essentially a process of acquiring greater mutual understanding of one anothers' experiences and attitudes.

With training so important, the four essentials for administrators presented by Sir Eric Ashby provide some guidance applicable to most

communicators.

1. "To know how to code requests to experts.
2. To teach experts how to code their requests to management
3. To know how to integrate the replies into a simple decision.
4. To know how to transfer this decision into action."[81]

The government, and many large members of the family of complex organizations, have attempted to overcome parts of the problem by furnishing expert technical writers to translate the output of scientists into more understandable form.[82]

The task is not hopeless. Communication exists and works in organizations. The degree of efficiency and final effectiveness of the language employed in any specific instance is the question. Until detailed psychological investigation is conducted, we will not know a finite answer. We cannot predict our own success, or the degree of inhibition imposed on goal accomplishment, in any specific organizational situation. We can, however, state with confidence that the project manager in todays world faces a problem. His role encompasses all of the issues we have discussed, with interfaces that cross all social, economic, and power strata. He faces the hazards of internal superior management judgments as well as congressional and public scrutiny. His project is frequently totally dependent on his ability to "sell" his decisions and successes to non-technical superiors. His funding is ultimately controlled by more non-technical "outsiders" whose motivation and decisions are influenced strongly by their constituents and political necessities.

In short, narrow differences in the knowledge and application of language can mark the difference between success and failure for the project manager. Vocabulary may well be more significant to success than technical expertise.

AUTHOR'S NOTES

The author believes the final success or failure of this analysis will be measured in the mind of each individual reader. Were he to evaluate his performance as an encoder and yours as a receiver, he would ask these questions?

1. Are you now more aware of the impact of language in your organization?
2. Do you better recognize the potential impact of multiple environments on your communications?
3. Does it now seem possible to you that some of those messages gone awry could have been your fault?
4. Will you consider any of these facts in an effort to improve your communications?
5. Do you now realize the possibility of your present (or rapidly approaching) obsolescence? If so, will you consider it as a factor in your communications?
6. Will you attempt to shape your future communications by considering individuals as well as requirements?
7. Have you gained in understanding yourself?

If we have both succeeded in this communication, the only acceptable answers are "yes" to each question.

APPENDIX

Survey Results: DSMC 77-1

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ARMY TOTALS

	37 RESPONDENTS	NUMBER SELECTING "OFFICIAL"	OTHER	%	NOTES; "INCORRECT" RESPONSE IF SIGNIFICANT
ACR	MILITARY	0	26	0	21(81%) Armored Cavalry Reg
	CIVILIAN	0	7	0	
	TOTAL	0	33	0	
ADC	MILITARY	1	25	4	12(46%) Asst Div Commander
	CIVILIAN	0	7	0	
	TOTAL	1	32		
BOB	MILITARY	0	26	0	11(42%) Bureau of Budget
	CIVILIAN	0	7	0	
	TOTAL	0	33	0	
CRC	MILITARY	0	26	0	
	CIVILIAN	0	7	0	
	TOTAL	0	33	0	
MDC	MILITARY	0	26	0	
	CIVILIAN	0	7	0	
	TOTAL	0	33	0	
NR	MILITARY	4	22	15	10(38%) Number
	CIVILIAN	1	6	14	
	TOTAL	5	27	15	
PAC	MILITARY	1	25	4	18(69%) Pacific
	CIVILIAN	0	7	0	3(43%) Pacific
	TOTAL	1	32	3	21(65%) Pacific
Plt	MILITARY	25	1	96	
	CIVILIAN	4	3	57	
	TOTAL	29	4	88	
SOI	MILITARY	15	11	58	9(35%) Standard Operating
	CIVILIAN	1	6	14	Instructions
	TOTAL	16	17	48	
TF	MILITARY	26	0	100	
	CIVILIAN	4	3	57	
	TOTAL	30	3	91	
TOTAL	MILITARY	72	188	28	
	CIVILIAN	10	60	14	
	TOTAL	82	248	25	

NAVY TOTALS *

	37 RESPONDENTS	NUMBER SELECTING "OFFICIAL"	OTHER	%	NOTES: "INCORRECT" RESPONSE IF SIGNIFICANT
ACR	MILITARY	1	16	6	
	CIVILIAN	1	19	5	
	TOTAL	2	35	5	
ADC	MILITARY	7	10	41	
	CIVILIAN	2	18	10	
	TOTAL	9	28	24	
BOB	MILITARY	1	16	6	
	CIVILIAN	4	16	20	
	TOTAL	5	32	14	
CRC	MILITARY	0	17	0	
	CIVILIAN	0	20	0	
	TOTAL	0	37	0	
MDC	MILITARY	7	10	41	
	CIVILIAN	10	10	50	
	TOTAL	17	20	46	
NR	MILITARY	6	11	35	7(41%) Not Required
	CIVILIAN	5	15	25	6(30%) Not Required
	TOTAL	11	26	30	
PAC	MILITARY	15	2	88	
	CIVILIAN	16	4	80	
	TOTAL	31	6	84	
Plt	MILITARY	4	13	24	5(29%) Platoon
	CIVILIAN	13	7	65	6(30%) Platoon
	TOTAL	17	20	46	
SOI	MILITARY	0	17	0	6(35%) Standard Opns Inst
	CIVILIAN	1	19	5	5(25%) Standard Opns Inst
	TOTAL	1	36	27	
TF	MILITARY	12	5	71	
	CIVILIAN	5	15	25	
	TOTAL	17	20	46	
TOTAL	MILITARY	53	117	31	
	CIVILIAN	57	143	29	
	TOTAL	110	260	30	

* 1 Marine Included

AIR FORCE TOTALS

	38 RESPONDENTS	NUMBER SELECTING "OFFICIAL"	OTHER	%	NOTES: "INCORRECT RESPONSE IF SIGNIFICANT
ACR	MILITARY	0	33	0	
	CIVILIAN	0	5	0	
	TOTAL	0	38	0	
ADC	MILITARY	9	24	27	
	CIVILIAN	0	5	0	
	TOTAL	9	29	24	
BOB	MILITARY	7	26	21	19(58%) Robert
	CIVILIAN	3	2	60	
	TOTAL	10	28	26	
CRC	MILITARY	7	26	21	
	CIVILIAN	0	5	0	2(40%) Combat Readiness Cmd
	TOTAL	7	31	18	
MDC	MILITARY	2	31	6	4(12%) Msl Development Cmd
	CIVILIAN	0	5	0	2(40%) MacDonald Douglas
	TOTAL	2	36	5	Corp
NR	MILITARY	1	32	3	10(30%) Number 10(30%) Not Required
	CIVILIAN	0	5	0	2(40%) Not Required
	TOTAL	1	37	3	
PAC	MILITARY	0	33	0	10(30%) Pacific Air Command 14(42%) Pacific
	CIVILIAN	0	5	0	2(40%) Pacific Air Command
	TOTAL	0	38	0	
Plt	MILITARY	27	6	82	4(12%) Platoon
	CIVILIAN	1	4	20	3(60%) Platoon
	TOTAL	28	10	74	
SOI	MILITARY	0	33	0	19(58%) Standard Operating
	CIVILIAN	0	5	0	Instructions
	TOTAL	0	38	0	
TF	MILITARY	14	19	42	5(15%) Ture/False
	CIVILIAN	3	2	60	
	TOTAL	17	21	45	
TOTAL	MILITARY	67	263	20	
	CIVILIAN	7	43	14	
	TOTAL	74	306	19	

INDUSTRY TOTALS

		NUMBER SELECTING "OFFICIAL"	OTHER	%	NOTES: "INCORRECT" RESPONSE IF SIGNIFICANT
8 RESPONDENTS					
ACR	TOTAL	0	8	0	
ADC	TOTAL	1	7	13	2(25%) Army Development Cmd 2(25%) Advanced Development Concept
BOB	TOTAL	0	8	0	
CRC	TOTAL	1	7	13	
MDC	TOTAL	0	8	0	
NR	TOTAL	4	4	50	
PAC	TOTAL	6	2	75	
Plt	TOTAL	3	5	38	3(38%) Platoon
SOI	TOTAL	0	8	0	3(38%) Standard Operating
TF	TOTAL	3	5	38	
	TOTAL	18	62	23	

ACR

	ARMY			NAVY			AIR FORCE			INDUSTRY		TOTAL
	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	CIVILIAN	
Accelerating Controlled Revetment								1				1
Accounting & Control Report								1				1
Accounts Receivable								2				2
Accrual		1										1
Acoustic Range					1							1
Acquisition Review		1			1	1						3
Acronym						2		1				3
Advanced Capabilities Radar				X								0
Advanced Change Request						1						1
Advanced Combat Requirements									1			1
Advanced Contractors Report						1						1
Aerial Combat Reconnaissance										X		0
Air Cavalry Regiment		1			1							2
Air Combat Radar								1				1
Air Combat Range					1	1		2				4
Air Command Regulation									1			1
Air Corps Reserve					1							1
Aircraft Control Room				X								0
Aircraft Custody Record					1							1
Airlift Control Radar				X								0
Alaskan Communications Region							X					0
American Cash Register					1	1						2
Ammunition Condition Report	X											0
Anti-Circling Run				X	1	1				X		2
Area Coordinating Requirement								1				1
Armed Carrier Requirements					1							1
Armored Cavalry Regiment		21	1									22
Armored Cruiser				X								0
Army Chief Recruiter											1	1
Army Communications Research						1						1
Army Contract Representative			1									1
Army Contract Review			1									1
Army Review Council						1						1
Authorization Change Request								1				1
Automatic Cash Register						1						1
Automatic Cargo Release								1				1
Automatic Correlation and Relation						1						1
None/Unknown		2	4		8	8		22	3		7	54
TOTAL		26	7		17	20		33	5		8	116

ADC

	ARMY			NAVY			AIR FORCE			INDUSTRY		TOTAL
	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	CIVILIAN	
Acquisition Document Control					1							1
Active Duty Commitment										X		0
Activity Designation Code										X		0
Advanced Data Control					1			1				2
Advanced Development Concept		1									2	3
Aerospace Defense Command							X	9		X		9
Aid to Dependent Children					1							1
Aide-De-Camp	X	1		X	2	1				X		4
Aircraft Directives Configuration										X		0
Air Data Computer				X						X		0
Air Defense Center		1										1
Air Defense Command		7	2	X	4	1		22	3	X	1	40
Air Development Center					1							1
Air Development Command									1			1
Analog to Digital Converter					1					X		1
Armament Development Center		1			1							2
Army Development Command						3					2	5
Assistant Defense Counsel				X						X		0
Assistant Deputy Commander		1										1
Assistant Division Commander		12	1	X	1					X		14
Authorized Data Chain										X		0
Automated Data Center					1							1
Automated Data Control					2	3						5
Automatic Data Collection					1	1						2
Automatic Data Corporation					1	1						2
Automatic Depth Control						1						1
Automatic Dial Control		1				1						2
Automatic Drift Control										X		0
Availability, Dependibility Capability		1										1
Chief Aviation Machinists Mate				X						X		0
None/Unknown		1	3		2	5		1	1		3	16
TOTAL		26	7		17	20		33	5		8	116

BOB

	ARMY			NAVY			AIR FORCE			INDUSTRY		TOTAL
	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	CIVILIAN	
Ballast on Board		1										1
Beer			1									1
Beginning of Business	X			X								0
Bend or Break											1	1
Best of Both			1									1
Booze								1				1
Branch Office Boston										X		0
Bring Own Bottle						1		2	1			4
Building Option Block						1						1
Build or Buy						1		1				2
Burden Over Briefing						1						1
Bureau of the Budget		11	1	X	1	4		13	1	X		31
Dunk for Apples		1			2							3
English Money						1						1
Robert/Name		7			4	4		9			1	25
None/Unknown		6	4		10	7	X	7	3		6	43
TOTAL		26	7		17	20		33	5		8	116

CRC

	ARMY		NAVY		AIR FORCE			INDUSTRY		TOTAL
	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	
Camp Red Cloud Korea		1								1
Cathode Ray Control					1	1				2
Centralized Resource Control		1								1
Central Requirements Committee				X						0
Central Review Council		1								1
Chief Reserve Component		1								1
Chief Resources Control		1								1
Chemical Rubber Company				1						1
Circular Routing Chart		2								2
Combat Readiness Capability					1					1
Combat Readiness Command		1	1		1			2	1	6
Combat Reporting Center		1			7		X		1	9
Combined Rubber Committee				X						0
Command Records & Control			1							1
Command Reporting Center		1								1
Computer Research Corp		2		1	1		1			5
Computer Resources Control				1						1
Condition Reservation Code			X							0
Configuration Review Committee				1						1
Consolidated Research Corp			1							1
Contractor Recommended Codes								X		0
Contract Requirements Criteria				1						1
Contract Review Command		1								1
Contract Review Committee				1			1			2
Continental Readiness Cmd							1			1
Control Reporting Center				1			3		X	4
Control Rod Cover				1						1
Cost Record Control				1						1
Cost Reduction Concept							1			1
Cost Relationship Control							1			1
Cost Review Committee		1			1					2
Course Requirement Criteria							1			1
Credit Reference Check					1		1			2
Critical		1								1
Critical Repair Center							1			1
Critical Resources Committee							1			1
Critical Review Council			1		1					2
Lubricant		1			1					2
Math Handbook		2		2	1					5
None/Unknown		8	3	8	11		12	2	6	50
TOTAL		26	7	17	20		33	5	8	116

MDC

	ARMY		NAVY		AIR FORCE		INDUSTRY		TOTAL
	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	
Main Display Console		1								1
Maintenance Data Card					1					1
Maintenance Data Center					1					1
Maintenance Data Collection				3	1		X	2	X	6
Maintenance Data Computer					1					1
Maintenance Data Control		1								1
Maintenance Dependency Chart					1					1
Management Data Center		1			1					2
Management Development Corp					1					1
Macdonald Douglas Corp					1			3	2	6
Manual Designation Console							1		1	2
Manual Direction Center								X		0
Marine Development Center							1			1
Material Development Command					1					1
Materials Distribution Center									1	1
Medical Center							1			1
Medical Command		1			1					2
Medical Corps		2	1		1		1			5
Medical/Dental Corps		1			2		1			4
Medical Development Command					1					1
Medical Directive Change		1								1
Medium Frequency Direction Finder								X		0
Metropolitan District Commission					1		1		1	3
Military Damage Control		1								1
Military Data Center							1			1
Military Department Comptroller		1								1
Military Detention Center							1			1
Military Development Command							1			1
Military District Commander		2			1					3
Military District of Charleston							1			1
Military District of Columbia		1								1
Military Document Control					1					1
Missile Data Center									1	1
Missile Development Command							4			4
Mission Direction Center							1			1
Mobility Development Center		1					1			2
Model Design Change							1			1
Movement Designator Code	X							X		0
"1600"		1								1
None/Unknown	1	4	3	X	7	10	1	1	3	52
TOTAL	26		7	17		20	33		5	8	116

NR

	ARMY			NAVY			AIR FORCE			INDUSTRY		TOTAL
	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	CIVILIAN	
National Range		2										2
National Register					1							1
National Repository		1										1
National Research					1							1
Naval Requirements					1							1
Naval Research						1						1
Naval Reserve		1		X	3	5				X	1	10
Navy Regulation				X				1		X		1
Non Rated							X	1		X		1
Non Recoverable									1			1
Non Recurring								1	1			2
Non Refurbishable								1				1
Non Registered										X		0
Non Return								1				1
No Record		2										2
No Response		1				1	1					3
North American Rockwell								1				1
Not Ready								3				3
Not Related								1				1
Not Reported					1							1
Not Required	X	4	1		8	5		10	2	X	3	33
Number		10	1	X	3			10	1	X		25
Submersible Research Vehicle										X		0
None/Unknown		6	4		1	5		3	1		3	23
TOTAL	26		7	17		20	33		5	8		116

PAC

	ARMY			NAVY			AIR FORCE			INDUSTRY		TOTAL
	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	CIVILIAN	
Pacific		18	3	X	15	15		14		X	6	71
Pacific Air Command		1	1	X		1		10	2		1	16
Pacific Area Command								1				1
Pacific Army Command		1										1
Pacific Avionics Center						1						1
Pacific Command		1				1						2
Pacific Fleet					2	1			1		1	5
Passenger			1									1
Patrol Aviation Command						1						1
Personnel and Admin Ctr	X		1									1
Personnel Action Center		2										2
Persuant to the Authority of										X		0
Plant Administration Co			1									1
Political Action Committee				X						X		0
Primary Address Code							X			X		0
Principal Associate Contractor									1			1
Production Activity Ctr								1				1
Program Adjustment Committee				X								0
Program Advisory Committee										X		0
Shoe								1				1
None/Unknown		2	1					6	1			10
TOTAL		26	7		17	20		33	5		8	116

Plt

	ARMY			NAVY			AIR FORCE			INDUSTRY		TOTAL
	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	CIVILIAN	
Pallet	X									X		0
Personal Loyalty Test					1							1
Pilot		1	1	X	3	7	X	27	1	X		40
Pilot Training				X								0
Pipeline Time										X		0
Plant		1		X	1					X	3	5
Plate					1							1
Platoon	X	25	4		5	6		4	3		3	50
Plot		1			3	1					1	6
Post Loading Test										X		0
Post Loading Time				X								0
Procurement Lead Time				X						X		0
None/Unknown					4	5		2	1		1	13
TOTAL		26	7		17	20		33	5		8	116

SOI

	ARMY			NAVY			AIR FORCE			INDUSTRY		TOTAL
	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	CIVILIAN	
Information									1			1
Selected Operational Intelligence					1							1
Sequence of Instruction		1										1
Signal Operations Instructions	X	15	1	X		1		1		X		18
Society of Individuals		1										1
Source of Information		1							1			2
Soviet Ordnance Intelligence					1							1
Space Object Identification										X		0
Special Operating Instructions								5				5
Special Operational Intelligence					1	1						2
Specific Operating Instructions							X			X		0
Squadron Operating Instructions								1				1
Standard of Interference					1							1
Standard of Issue		1										1
Standard Operating Instructions		9			5			19			3	36
Standard Operating Procedures					6			1				7
Statement of Intent					1			1				2
Statement of Interest								1				1
Stock Out of Inventory		1										1
Summary of Intelligence					1							1
Survey of Intelligence					1							1
System Operating Instructions									1			1
None/Unknown		1	2		8	9		4	2		5	31
TOTAL		26	7		17	20		33	5		8	116

TF

	ARMY			NAVY			AIR FORCE			INDUSTRY		TOTAL
	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	MILITARY	CIVILIAN	OFFICIAL	CIVILIAN	
Tactical Fighter						1	X	4		X		5
Tactical Force			1					1			1	3
Target File						1						1
Target Follower						1						1
Task Force	X	26	4	X	12	5	X	10	3	X	3	63
Technical File								1				1
Terrain Following					1	1		2		X		4
Test Flight						1						1
Top Flight						1						1
Torpedo Fighter				X								0
Track File											1	1
Trainer vs Fighter Aircraft								2	1			3
Training Facility						1						1
Training Film					1					X		1
Training Flight					1	1						2
Transformer				X						X		0
Triple Frequency										X		0
True or False						1		5				6
Tummy Functions						1						1
Fleet Tug					1							1
None/Unknown			2		1	5		8	1		3	20
TOTAL		26	7		17	20		33	5		8	116

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1. This is derived from Joseph S. Laposta, "A Chronometric Profile: A Project Manager Manages His Time," Class 74-1, Project Management Course, Defense Systems Management School, p 28.

2. See George N. Giacoppe, "The DOD Program Manager," Class 73-1, Project Management Course, Defense Systems Management School, app 3.

3. See Paul J. Tomes, "A Survey of Student Opinions," Class 73-2, pp 32-33, and (no author listed), "1973 Survey of PMC Graduates, as of February 1974," question 28, and Wayne L. Hinthorn, "Industry Management of Commercial Versus Defense Systems Programs," Class 75-1, p 38, all Defense Systems Management School.

4. Figure 1 is closely derived from a model by Alfred T. Crumpton Jr., "The US Army Project Manager: A Job Analysis Model," Class 75-2, Project Management Course, Defense Systems Management School, p 53.

5. See J. Hall, "Communication Revisited," *California Management Review*, Spring 1973, Vol XVI, No. 3, p 54.

6. See Joseph A. Olmstead, Harold E. Christensen, and L.L. Lackey, "Components of Organizational Competence: Test of a Conceptual Framework," HumRRO, Technical Report 73-19, August 1973, pp 64-65.

7. See Charleton J. Whitehead, "Communication - A Key to Managerial Effectiveness," MSU Business Topics, Spring 1967, pp 54-58.

8. See Milton Dickens, "Speech; Dynamic Communication," Harcourt, Brace and Company, 1954.

9. This discussion reflects the point of view of S.I. Hayakawa in "Language in Thought and Action," Harcourt, Brace and Company, 1964.

10. Whitehead, Ibid.

11. See Dominic A. LaRusso, "Basic Skills of Oral Communication," Wm C. Brown Company Publishers, 1967.

12. See Robert T. Oliver, "The Psychology of Persuasive Speech," Longmans, Green and Co., 1942, pp 61-65.

13. See Hayakawa, Ibid, p 179.

14. See Herbert G. Hicks, "The Management of Organizations," McGraw-Hill Book Company, 1967, p 285-287.

15. See C. K. Ogden and I. A. Richards, "The Meaning of Meaning," Harcourt, Brace and World Inc., 1947.

16. See Allan H. Monroe and Douglas Ehninger, "Principles and Types of Speech," Scott, Foresman and Company, 1967, pp 16-20.

17. See Bertram M. Gross, "Organizations and Their Managing," Free Press of Glencoe (Macmillan), 1964, pp 571-573.

18. See Hicks, Ibid, pp 300-302.

19. See LaRusso, Ibid, pp 18-20.

20. Ibid, pp 18-20, 63-63.

21. The Foregoing is a synthesis of Donald Snygg and Arthur W. Combs, "Individual Behavior," Harper and Brothers Publishers, 1949.

22. See Paul Taubman, "The Determinants of Earnings: Genetics, Family, and Other Environments: A Study of White Male Twins," The American Economic Review, December 1976, pp 858-870.

23. This concept is taken from Bertram M. Gross, Ibid, p 571. His version has been expanded herein.

24. The foregoing is a synthesis of Clarence L. Meader and John H. Muyskens, "Handbook of Biolinguistics," McGrath, 1928.

25. This is clearly demonstrated in A.F. Dorian, "Dictionary of Science and Technology," American Elsevier Publishing Company, 1967 and Mario Pei, "Language of the Specialists," Funk and Wagnalls, 1966.

26. See AR 310-25, "Dictionary of United States Army Terms," dated Sep 1975 (10,000 terms), and AR 310-50, "Authorized Abbreviations and Brevity Codes," dated Nov 1975 (14000 acronyms and abbreviations).

27. See Gross, Ibid, p 568.

28. See Wood, Yamauchi, and Bradac, "The Communication of Meaning Across Generations," The Journal of Communication, Vol. 21, June 1971, pp 160-169.

29. See Allan H. Monroe and Douglas Ehninger, Ibid, pp 129-134.

30. See Hayakawa, Ibid, pp 286-287.

31. See Stanley Sauerhaft, "Semantics For the Swinging Executive," Duns Review, Apr 1969

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33. See Army AR 310-50, Ibid.

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58. See Snygg and Combs, Ibid, p 187

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