

Creative Obfuscation

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Abstract—A rational and popular viewpoint is that the function of scientific writing is to communicate knowledge. A study of prominent journals, however, suggests that clear communication is not appreciated within the reading-writing-refereeing community. If clarity is a goal for a journal, the editor must take action.

DR. Fox was an actor. He looked distinguished and sounded authoritative. Provided with a fictitious but impressive biography, he was sent to lecture about a subject on which he knew nothing. The talk, "Mathematical Game Theory as Applied to Physician Education," was delivered on three occasions to a total of 55 people. One hour was allowed for the talk and 30 minutes for discussion. The audiences consisted of highly educated social workers, psychologists, psychiatrists, educators, and administrators. The lecture was comprised of double talk, meaningless words, false logic, contradictory statements, irrelevant humor, and meaningless references to unrelated topics.

A questionnaire administered after the talk indicated that the audience found Dr. Fox's lecture to be clear and stimulating. None of the subjects realized that the lecture was pure nonsense [1].

If an unintelligible communication is received from a legitimate source and if this communication claims to be in the recipient's area of expertise, recipients might assume that they are wasting their time because they receive no useful knowledge. In terms of knowledge, they would be wasting their time. But their involvement in this activity may lead them to try to justify the time spent. Furthermore, the greater the unintelligibility, the greater the need to rationalize about the time spent (e.g., if you cannot understand a paper, it must be a high-level paper). This might be called the Dr. Fox hypothesis: An unintelligible communication from a legitimate source in the recipient's area of expertise will increase the recipient's rating of the author's competence.

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If the Dr. Fox hypothesis is valid, researchers who want to impress colleagues should write less intelligible papers. Journals seeking respectability should publish less intelligible papers and meetings should feature speakers who make little sense. This strategy would be beneficial for advancement by an individual researcher or by a journal. Its major drawback is that it does not promote the advancement of knowledge.

If one believes that academic communications should enhance knowledge, researchers should invest energy in developing understandable ways to present their findings. Academic conferences and journals should look for researchers who have interesting studies and can present them clearly. Other things being equal, researchers who are also good communicators should be rewarded more highly. This is called the "communication-for-knowledge hypothesis."

This paper contrasts the "communication-for-knowledge" and "Dr. Fox" hypotheses using written communication.

The rational viewpoint favors the hypothesis that the function of scientific writing is to communicate knowledge. This viewpoint seems to be popular among faculty. For example, on a questionnaire given to a convenience sample of eight, all agreed that "it helps to write clearly when you submit a paper for publication."

But the rational viewpoint conflicts with the conclusions of some observers. Mahoney [2] gives advice to the researcher who plays the publication game: "Whenever you have a choice between common language and technical argot, use the latter." Authors who ignore this advice do so at some personal risk, says Mahoney.

Then there's anecdotal evidence. For example, I heard of one paper that was rewritten numerous times to improve clarity. It was submitted for publication but was quickly rejected. The author then sent the first draft to the same journal. Although she felt this paper to be incomprehensible, it was accepted.

Many people advised me that it was a poor use of my time to try to improve the clarity of a book I was writing. Furthermore, two faculty members who read early and late versions expressed a preference for the early versions, which I thought were poorly written.

On the other hand, although much anecdotal evidence favors the Dr. Fox hypothesis, I could find no empirical

Not What You Know But Where You're From

Two psychologists, Douglas Peters, now at the Univ. of California at Irvine, and Steven Ceci from Cornell Univer., selected 12 articles published in the most respected psychological journals. They rewrote the abstracts, doctored opening sentences, and substituted fake names and institutional affiliations for the authors. Then they resubmitted the papers to the journals that had published them.

Reviewers for three of the journals spotted the deception. The other nine papers went through the review process, typically with two referees involved. Ceci and Peters report that, of the 22 editors and reviewers involved in reading the papers, only four recommended publication—which adds up to a 73 percent rejection rate by journals for papers they had previously accepted.

The authors submitted their study to *Science*, but it was rejected. However, it will be published in the June 1982 issue of *Behavioral and Brain Sciences* along with commentary prepared by 60 scientists.

—From a news item in *Science*, p. 1087, 1980

evidence to compare it with the communication-for-knowledge hypothesis. This situation prompted the work I now describe.

THE EFFECT OF JOURNAL PRESTIGE

The communication-for-knowledge hypothesis implies that better journals can attract better authors. They would also devote more effort to refereeing and editorial assistance. Finally authors would be motivated to do a better job in view of the prestige of the journal. This hypothesis suggests a negative relationship between reading difficulty and prestige. Under the Dr. Fox hypothesis, readers assume that less intelligible journals are more competent.

Many ways exist to make writing less intelligible. You can use faulty logic. You can convert words to numbers as illustrated in the clever "1 + 1 = 2" paper by Siegfried [3]. Finally, you can reduce readability. I examined this last approach. Loveland *et al.* [4] estimated readability for ten management journals. They used the Flesch Reading Ease Test [5] and found that the journals differed substantially in their readability (the coefficient of variation was 30 percent). I obtained prestige ratings for these ten management journals by surveying 20 faculty members.

According to the Dr. Fox hypothesis, difficult reading should be associated with high prestige. Table I shows that such a relationship was found. The correlation coefficient, +0.67, is statistically significant at the 0.05 level. (An attempt to control for other variables did not add to predictive power.)

EQUIVALENT PASSAGES TEST

It might be argued that more prestigious journals discuss more difficult issues and this, in turn, might require more difficult language. That would explain the results of Table I.

To control for this explanation, I selected conclusions sections from papers in four management journals and rewrite them to alter the Gunning Fog Index without altering the content. (The Gunning Fog Index G is based on average sentence length S and the percentage W of words with three or more syllables: $G = 0.4(S + W)$. It is designed to approximate the grade level of education needed to understand the material.) I found it possible to simplify the writing without any apparent change in the content by such steps as

- eliminating unnecessary words (generally adverbs and adjectives)

TABLE I
READABILITY VERSUS PRESTIGE*

Journal	Prestige	Reading ease (Flesch)
<i>Administrative Science Quarterly</i>	1.5	20
<i>Harvard Business Review</i>	2.2	32
<i>Academy of Management Journal</i>	2.5	29
<i>California Management Review</i>	2.9	33
<i>Industrial Relations</i>	3.3	23
<i>Advanced Management Journal</i>	3.6	46
<i>Journal of Systems Management</i>	3.7	33
<i>Business Horizons</i>	4.5	29
<i>Personnel</i>	4.7	36
<i>Supervisory Management</i>	5.3	54

* Prestige decreases as the index goes up; reading ease increases with increasing Flesch score.

TABLE II
READABILITY OF EQUIVALENT PASSAGES*

Source	Version	Gunning Fog Index	Competency rating by faculty
Cort and Dominguez [9]	Easy	10	3.2
	Moderate	16	3.9
	Difficult	22	3.6
Armstrong [10]	Easy	8	3.7
	Moderate	15	4.3
	Difficult	21	4.1
Kotler and Connor [11]	Easy	8	3.5
	Moderate	14	3.6
Parkan and Warren [12]	Easy	10	2.9
	Moderate	17	4.6

* Original version was "moderate" in each case.

- substituting easy words for difficult ones
- breaking long sentences in two.

Additional guidelines were borrowed from Strunk and White [6]; by reversing those guidelines, I created more difficult versions for two of the studies.

The more difficult versions were at about the level of journals with high Fog Indexes. The easy passages, were, however, easier than the easiest journals. Table II presents the Gunning Fog Index for each version.

I gave test subjects questionnaires containing one version of each of four passages, which were assembled by using each of the 36 possible combinations. The instructions were

On the following pages we have attached samples from papers that have been published in academic journals. The samples represent the conclusions sections from different papers. Please read each sample carefully. On the basis of each sample, please rate the competence of the research that is being reported.

The subjects were not told the names of the journals or authors.

Faculty members in management from Wharton, New York University, and Columbia University were surveyed in 1979 and I received 32 replies. Over 87 percent of the respondents had acted as referees. When asked if they could guess the purpose of this study, 22 percent did not respond; 50 percent said no; 12 percent guessed wrong; and 16 percent guessed right.

Respondents rated competency on a scale ranging from one (highly incompetent) to seven (extremely competent). They also stated their confidence in each of their ratings on a scale from one (not at all confident) to seven (extremely confident).

Faculty members reported a modest degree of confidence in their ratings (average, 4.3). Average ratings are in Table II. The faculty rated the easy versions lower than the other versions, a conclusion significant at $p < 0.05$, according to the Mann-Whitney Test [7].

CONCLUSIONS

Overall, the evidence is consistent with a common suspicion: Clear communication is not appreciated. Faculty are impressed by less readable articles. Lack of clarity is especially helpful when content is poor [8]. "If you can't convince them, confuse them."

Improvements in the clarity of academic journals are unlikely, then, to be initiated by researchers. If clarity is a goal for a journal, the *editor* must take action. Such a program would aid in the communication of knowledge. It's cheap. It's needed. Let's do it. Now!

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(The reading grade level for this paper is less than 12 by the Gunning Fog Index. *Ed.*)

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