The Mathematics of Persuasive Communication

by Philip Yaffe

At first glance mathematics and persuasive communication – writing, and particularly public speaking - would seem to have little in common. After all, mathematics is an objective science, whilst speaking involves voice quality, inflection, eye contact, personality, body language, and other subjective components.

However, under the surface they are very similar.

Above anything else, the success of an oral presentation depends on the precision of its structure. Mathematics is all about precision. It is therefore not so odd to think that applying some of the concepts of mathematics to oral presentations could make them substantially more effective.

As they say in the film industry, three key factors go into making a successful movie: the script, the script, and the script. Likewise, three key factors go into making a successful speech: the structure, the structure, and the structure.

Not convinced? Then let's start with something less radical.

I think we can all agree that good speaking is related to good writing. If you can write a good text, then you are well on your way to preparing a good oral presentation. Therefore, if you improve your writing, you will also improve your speaking.

To simplify matters, from now on we will talk mainly about good writing, because in most cases the same ideas apply directly to good speaking.

Know what you are doing

Many commercial companies do not live up to their potential - and sometimes even go bankrupt - because they fail to correctly define the business they are in.

Perfume companies, for example, do not sell fragrant liquids, but rather love, romance, seductiveness, self-esteem, etc. Bio-food companies do not sell organic produce, but rather honesty, purity, nature, etc. Automobile manufacturers do not sell transportation, but rather freedom, adventure, spontaneity, prestige, etc. The fact is, each industry, even each individual product, may have to determine what it is truly all about - and there are thousands of them!

Writers are lucky. There are numerous variations to what we do, but there are really only two fundamental types of writing. It is important to recognise this, because not only are they quite different, in some respects they are exactly opposite. So unless we clearly recognise which type of writing we are doing - and how it differs from the other one - we will almost certainly commit serious errors.

What are the two types? And how do they differ?

Creative Writing	Expository Writing
Texts such as short stories, novels, poems, radio plays, stage plays, television scripts, film scripts, etc. The fundamental purpose of creative writing is to **amuse** and **entertain**.	Texts such as memos, reports, proposals, training manuals, newsletters, research papers, etc. The fundamental purpose of expository writing is to **instruct** and **inform**.

Essential attitude towards expository writing

Because the objectives of creative and expository writing are so different, before striking a key you must adopt the appropriate attitude towards the type of writing you are doing.

Creative writing attitude

Everyone *wants to read want what you are going to write*.
After all, who doesn't want to be amused and entertained?

Expository writing attitude

No one *wants to read what you are going to write*.
Most people don't like to be instructed and informed. They probably would much prefer to be doing something else.

The importance of recognising and adopting the "expository writing attitude" cannot be over-stated, because it can dramatically change the very nature of what you are writing. Here are a couple of examples.

A. Corporate image brochure

I was once commissioned to write a corporate image brochure. Two things are certain about these expensive, glossy booklets:

- Almost all companies of any size feel compelled to produce them.
- Virtually no one ever reads them.

Starting from the attitude that no one would want to read what I was about to write, I created a brochure that people not only read. They actually called the company to request additional copies to give to friends, clients and professional colleagues!

B. Stagnating product

On another occasion, I was commissioned to develop an advertising campaign to revitalise a product with stagnating sales. Applying the expository writing attitude, I discovered that three of the product's key benefits were not being properly exploited. Why? The manufacturer felt that ***everything*** about their product was important, so for years they had been systematically burying these three key benefits under an avalanche of other information of less interest to potential buyers. The new campaign sharply focussed on the key benefits; virtually all other information was moved to the background or eliminated. As a result, sales shot up some 40% in the first year.

With some nuances, this self-same expository writing attitude can be - *and should be* - applied to speaking, as well.

Essential approach to expository writing

Because creative writing and expository writing have essentially different objectives and attitudes, they require essentially different approaches.

Creative writing approach

Play with language to generate ***pleasure***.
In other words, use your mastery of the language to amuse and entertain.

Expository writing approach

Organise information to generate ***interest***.
Clever use of language will never make dull information interesting; however, you can organise the information to make it interesting. Forget about literary pyrotechnics. Concentrate on content.

We are now going to leave creative writing, because most of what we write, and say, is expository.

What do we mean by "good writing"?

We are now ready to return to the notion of how mathematics applies to good writing, and by extension to good speaking.

When someone reads an expository text or listens to an expository speech, they are likely to judge it as good or not good. You probably do this yourself. But what do you actually mean when you say a text or a speech is "good".

After some struggling, most people will usually settle on two criteria: ***clear*** and ***concise***.

Mathematics depends on unambiguous definitions; if you are not clear about the problem, you are unlikely to find the solution. So we are going to examine these criteria in some detail in order to establish objective definitions - *and even quasi-mathematical formulae* - for testing whether a text or a presentation truly is "good".

A. Clarity

How do you know that a text is clear?

If this sounds like a silly question, try to answer it. You will probably do something like this:

Question: What makes this text clear?
Answer: It is easy to understand.
Question: What makes it easy to understand?
Answer: It is simple.
Question: What do you mean by simple?
Answer: It is clear.

You in fact end up going around in a circle. The text is clear because it is easy to understand . . . because it is simple . . . because it is clear.

"Clear", "easy to understand", and "simple" are synonyms. Whilst synonyms may have nuances, they do not have content, so you are still left to your own subjective appreciation. But what you think is clear may not be clear to someone else.

This is why we give "clear" an objective definition, almost like a mathematical formula. To achieve clarity -i.e. virtually everyone will agree that it is clear - you must do three things.

1. Emphasise what is of key importance.
2. De-emphasise what is of secondary importance.
3. Eliminate what is of no importance.

In short: **C_L = EDE**

Like all mathematical formulae, this one works only if you know how to apply it, which requires judgement.

In this case, you must first decide what is of ***key importance***, i.e. what are the key ideas you want your readers to take away from your text? This is not always easy to do. It is far simpler to say that everything is of key importance, so you put in everything you have. But there is a dictum that warns: *If everything is important, then nothing is*. In other words, unless you first do the work of defining what you really want your readers to know, they won't do it for you. They will get lost in your text and either give up or come out the other end not knowing what it is they have read.

What about the second element of the formula, de-emphasise what is of ***secondary importance***?

That sounds easy enough. You don't want key information and ideas to get lost in details. If you clearly emphasise what is of key importance - *via headlines, Italics, underlining, or simply how you organise the information* - then whatever is left over is automatically de-emphasised.

Now the only thing left to do is eliminate what is of ***no importance***.

But how do you distinguish between what is of secondary importance and what is of no importance? Once again, this requires judgement, which is helped by the following very important test.

Secondary importance is anything that supports and/or elaborates one or more of the key ideas. If you judge that a piece of information in fact does support or elaborate one or more key ideas, then you keep it. If not, you eliminate it.

B. Conciseness

How do you know that a text is concise?

If this once again sounds like a silly question, let's try to answer it.

Question: What makes this text concise?
Answer: It is short.
Question: What do you mean by short?
Answer: It doesn't have too many words.
Question: How do you know it doesn't have too many words?
Answer: Because it is concise.

So once again we end up going around in a circle. The text is concise because it is short . . . because it doesn't have too many words . . . because it is concise.

Once again, we have almost a mathematical formula to solve the problem. To achieve conciseness, your text should meet two criteria. It must be as:

1. ***Long*** as necessary
2. ***Short*** as possible

In symbols: **C_o = LS**

If you have fulfilled the criteria of "clarity" correctly, you already understand "as long as necessary". It means covering all the ideas of key importance you have identified, and all the ideas of secondary importance needed to support and/or elaborate these key ideas.

Note that nothing is said here about the number of words, because it is irrelevant. If it takes 500 words to be "as long as necessary", then 500 words must be used. If it takes 1500 words, then this is all right too. *The important point is that everything that should be in the text is fully there*.

Then what is meant by "as short as possible"?

Once again, this has nothing do to with the number of words. It is useless to say at the beginning, "I must not write more than 300 words on this subject", because 500 words may be the minimum necessary.

"As short as possible" means staying as close as you can to the minimum. But not because people prefer short texts; in the abstract the terms "long" and "short" have

no meaning. The important point is that ***all words beyond the minimum tend to reduce clarity***.

We should not be rigid about this. If being "as long as necessary" can be done in 500 words and you use 520, this is probably a question of individual style. It does no harm. However, if you use 650 words, it is almost certain that the text will not be completely clea r- and that the reader will become confused, bored or lost.

In sum, conciseness means saying what needs to be said in the minimum amount of words. Conciseness:

- Aids clarity by ensuring best structuring of information.
- Holds reader interest by providing maximum information in minimum time.

C. Density

Density is a less familiar concept than clarity and conciseness, but is equally important. In mathematical form, density consists of:

1. Precise information
2. Logically linked

In other words: **D = PL**

Importance of precise information

Suppose you enter a room where there are two other people and say, "It's very hot today." One of those people comes from Helsinki; in his mind he interprets "hot" to mean about 23°C. The other one comes from Khartoum; to him "hot" means 45°C.

You are off to a rather bad start, because each one has a totally different idea of what you want to say. But suppose you say, "It's very hot today; the temperature is 28° C." Now there is no room for confusion. They both know quite clearly that it is 28° C outside and that you consider this to be very hot.

Using as much precise information as possible in a text gives the writer two significant advantages:

- **Mind Control**

  Let's not be embarrassed by the term "mind control", because this is precisely what the good expository writer wants to achieve. He needs for the reader's mind to go only where he directs it and nowhere else.

  Because they can be interpreted in unknown ways, ambiguous terms (so-called "weasel words") such as "hot", "cold", "big", "small", "good", "bad", etc., allow the reader's mind to escape from the writer's control. An occasional lapse is not critical; however, too many weasel words in a text will inevitably lead to reader confusion, boredom and disinterest.

- **Reader Confidence**

  Using precise information generates confidence, because it tells the reader that the writer really knows what he is talking about.

  Reader confidence is important in any kind of text, but it is crucial in argumentation. If you are trying to win a point, the last thing you want is the reader to challenge your data, but this is the first reaction imprecise writing will provoke. Precise writing ensures that the discussion will be about the implications of the information, i.e. what conclusions should be drawn, not whether the whole thing needs to go back for further investigation.

Importance of logical linking

Precise data (facts) by themselves are insufficient. To be meaningful, data must be organised to create information, i.e. help the reader understand.

There are two important tests to apply when converting data into information:

1. **Relevance**

   Is a particular piece of data really needed? As we have seen, unnecessary data damages understanding and ultimately undermines confidence. Therefore, any data that do not either ***aid understanding*** or ***promote confidence*** should be eliminated.

2. **Misconceptions**

   The logical link between data must be made explicit to prevent the reader from coming to false conclusions. For example: a specific situation may be confused for a general one; credit for an achievement may seem to belong to only one person when it really belongs to a group; a company policy may appear to apply only in very specific circumstances rather than in all circumstances, etc.

   To ensure that a logical link is clear, place the two pieces of data as close to each other as possible, preferably right next to each other.

   When data are widely separated, their logical relationship is masked and the reader is unlikely to make the connection.

What do you want? What do your readers want?

I frequently ask non-professional writers what they are thinking when they sit down at the keyboard to compose their text. The answer is usually something like, "How do I want to present my material?" "What tone and style should I use?" "In what order should I put my key ideas?" And so on.

However, if you start with the correct attitude, i.e. no one wants to read what you write, your first task is none of these. Ahead of anything else, you must ***find reasons why people should spend their time to read what you write***.

In general, you cannot force people to read what they don't want to, even if they are being paid to do so.

For example, you produce a report defining opportunities for increased sales and profits. However, if it is not well written, even people who must read it as part of their job are unlikely to give it their full attention. On the other hand, if they immediately see their own self-interest in reading what you have written, they will do so gladly and with full attention. In fact, you probably couldn't stop them from reading it!

There are various methods to generate such a strong desire to read, depending on the type of readers and the type of information. Whatever the most appropriate device, the crucial thing is to recognise the imperative need to use it. Until this need is met, nothing else is of any importance.

Editor's note: Reading is an isolated activity and listening to a speech is a social one. Therefore, whilst the underlying principles of good writing and good speaking are constant, the way they are applied can be markedly different. ***In the 'I' of the Storm: the Simple Secrets of Writing & Speaking (Almost) like a Professional****, Mr. Yaffe's recently published book, clearly explains these differences. It also offers several appendices with cogent examples and pertinent, effective exercises.*

Philip Yaffe is a former reporter/feature writer with The Wall Street Journal and a marketing communication consultant. He currently teaches a course in good writing and good public speaking in Brussels, Belgium. ***In the 'I' of the Storm*** *is available either in a print version or electronic version from Story Publishers in Ghent, Belgium (****www.Storypublishers.be****) and Amazon (www.amazon.com).*

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Source: <http://www.acm.org/ubiquity Ubiquity Volume 8, Issue 28
(July 17 2007 - July 24, 2007)