

Division of Research  
Graduate School of Business Administration  
The University of Michigan

July 1979

THE POLLYANNA HYPOTHESIS AND  
COMMUNICATION IN THE  
ANNUAL REPORT

Working Paper No. 186

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The Pollyanna Hypothesis and Communication in  
the Annual Report

Herbert W. Hildebrandt and Richard D. Snyder

A recent booklet, The Reluctant Marriage, includes this statement: "a simple, concise and factual explanation of both good and bad news is precisely what the individual (shareholder) desires and needs from the corporation."<sup>1</sup>

The authors of the booklet reached this conclusion after surveying the tenuous relationship between individual investors and the corporation, specifically the public's reaction to the annual parade of corporate financial news and events. Predictably, earnings are the first concern, with truth second. Indeed, four key words suggest the semantic desire of business communication readers: truth, future, clarity, brevity.

In the following study we will analyze one aspect of the annual report: the letter of the President or Chairman of the Board to shareholders. Specifically, we are concerned with four hypotheses dealing with communication theory. The main hypothesis is that positive words occur more frequently than negative words in annual letters to stockholders regardless of whether the corporation had a financially good or bad year. Two ancillary hypotheses are: positive words occur more frequently in a financially good year than a bad year, and

negative words occur less frequently in a good year than a bad year. Finally, there is a related hypothesis which asserts that two alternative methods of classifying positive and negative words are independent of each other.

Stated another way, we are interested in these over-all questions: is there any kind of linguistic correlation between a year of profit and a year of loss as expressed in the annual letter to shareholders? What does the Pollyanna hypothesis mean to writers of business communications? To respond to the above queries, a brief review of selected studies would, initially, be relevant.

#### PREVIOUS STUDIES

It began with Pollyanna. This heroine in Eleanor Porter's novel of 1913 refused to see anything but positive, no matter how negative or disconcerting. Thus a person who consistently opts for the brighter side, even under duress, is chastized for being Pollyannish. Briefly, the Pollyanna Hypothesis is the apparent tendency to communicate about life--positively, no matter what. A seminal scholarly definition was offered in 1969 by Boucher and Osgood: "The Pollyanna Hypothesis asserts that there is a universal human tendency to use evaluatively positive words (E+) more frequently and directly than evaluatively negative words (E-) in communicating."<sup>2</sup>

Further evidence that the Pollyanna Set, or the use of positive affirmative words is greater than negative words, is offered by Postman<sup>3</sup>, similarly supported by Jenkins, Russell, and Suci.<sup>4</sup>

Central to many of the studies cited here and some to follow is the Thorndike-Lorge<sup>5</sup> word count of four and one-half million words. Our study also makes use of this count.

Johnson, Thomson and Frincke<sup>6</sup> suggest that the value of a word affects word frequency; that with an increase in the goodness of words there is a corresponding increase in their usage. Noble<sup>7</sup> matched pleasant and unpleasant words in equal frequency and discovered that words rated as good were higher in meaningfulness than words rated negatively. Johnson and Lim<sup>8</sup> point out that even recall of pleasant events over the unpleasant was in the majority. A sample of 378 words by Johnson<sup>9</sup> concluded that "the goodness-frequency relation is present in all word classes and across the entire affective range. There is a substantial bias within the English language in favor of words that are positive in affective tone." Anisfeld and Lambert,<sup>10</sup> found that positive words are learned faster than negative nonsense syllable words.

A comprehensive review of all the literature was presented in a monograph by R.B. Zajonc<sup>11</sup> who raised a counter hypothesis that frequency of usage affects word value correlation, further restated by him in the article "Brainwash:

Familiarity Breeds Comfort"<sup>12</sup> and later in a statement with Harrison.<sup>13</sup> Boucher and Osgood<sup>14</sup> demonstrated that across 13 different cultures the (E+) terms were used more frequently than their opposites. Subsequent research continues to review and elaborate on the hypothesis that exposure leads to liking, for example Grush<sup>15</sup> and Harrison.<sup>16</sup>

Just recently most of the above selected studies have been superbly summarized, grouped, and analyzed in the book The Pollyanna Principle. Selectivity in Language, Meaning, and Thought.<sup>17</sup> Herein the authors summarize over one thousand direct and ancillary studies, in addition to including mini-studies of their own.

#### METHODOLOGY

It is not our intent to judge the merits or demerits of the frequency of usage affect on word values. Rather, our approach has been to employ a content-analysis system which analyzes the positive-negative words in context, not in isolation. We are thus led to a discussion of procedure.

There are two aspects of our main hypothesis which make it unique from the Pollyanna concept. First, it specifically examines one facet of business communication under different conditions, i.e., in financially good and bad years. Assuming the ratio of positive to negative words affects the tone of annual letters (ratio-affects-tone assumption), the acceptance

of the main hypothesis can lead to insight into corporate communication.

Intuitively, it would seem reasonable that the ratio of positive to negative words has an important affect upon a corporate letter. Consider the differences in tone a reader perceives in a letter emphasizing words as good, strong, and important versus bad, weak and unimportant.

Combining the ratio-affects-tone assumption and the main hypothesis's contention that positive words predominate in both good and bad years, it would seem reasonable to infer that corporations try to present a favorable tone regardless of financial results.

Second, positive and negative words are analyzed according to the context in which they are used. Thus our procedure significantly differs from previous studies. There, under one Pollyanna analysis, positive and negative words are defined from certain well-known antonym pairs. The more pleasant word of the pair is considered the positive, while the less pleasant word is negative. Then, written material is counted for appearances of each type of word.

The methodology used to test our main hypothesis consisted of three major parts: 1) sample selection, 2) determination of positive and negative words and 3) data summary and analysis.

### Sample Selection

The sample in this study consisted of the annual letters to stockholders of twelve corporations in two financially different years: a good year, 1977, and a bad year, 1975. The selection process began on a broad level and narrowed to twelve companies in three steps.

First, the issue of what business communication should be examined had to be resolved. Corporate annual reports were chosen as the study sample. These reports had certain advantages over most other business communication in that they were printed statements of the involved corporations; issued on an annual basis; addressed to a corporation's most important audience, its stockholders; and appeared accessible to the public. Unfortunately, most of the annual reports were not suitable for analyzing written statements since there were large sections consisting of financial statements, and other statistical data.

However, within these reports were annual letters to stockholders which were quite suitable for analysis. These letters were generally one-to-four page statements in which management summarized yearly corporate results. They possessed all the annual report advantages plus the additional asset of being an area where management actively attempted to influence stockholders.

Second, financially good and bad years were selected. Common good and bad years for the entire study were sought in order to hold time as a constant. Due to the need for common periods, overall economic conditions were used to determine the two years. After restricting the time period to 1968-1977, we chose 1975 as the financially bad year since a severe recession occurred then; and 1977 as the good year since therein many companies reported record earnings.

Finally, the precise corporations had to be selected. The Dow Jones' 30 Industrials were used as the pool of candidate corporations since they are often viewed as being representative of business in general.<sup>18</sup> Also, the effect of bias present in certain industries would be reduced since these companies are involved in a wide range of business activities. Each company was examined to determine if it met the criteria of having a financially bad year in 1975, and a good one in 1977. On this level, a positive or negative change in net income from the previous year was used in determining whether a corporation had a financially good or bad year. Twelve corporations fit the criteria and<sup>19</sup> became the sample for this study. The actual changes in net income for each company are presented in Exhibit 1.

#### Determination of Positive and Negative Words

The determination of positive and negative words was complex inasmuch as the words were to be analyzed according



## EXHIBIT 1

## PERCENTAGE CHANGE IN NET INCOME

<u>COMPANY</u>	<u>1975</u>	<u>1977</u>
A	(19.4%)	15.4%
B	(62.9)	35.7
C	(18.6)	13.0
D	(0.8)	18.7
E	(32.7)	18.7
F	( 4.4)	16.9
G	(16.8)	17.9
H	(36.0)	17.7
I	(46.6)	92.1
J	(13.3)	21.8
K	(20.4)	15.5
L	(46.2)	7.0

$$\% \text{ Change} = \frac{\text{Current Year's Net Income}}{\text{Previous Year's Net Income}}$$

to contextual usage. There were three parts to the word classification process.

First, a list of base antonym pairs totaling 356 words was selected for determining positive and negative words in context. This list came from two sources. Zajonc<sup>20</sup> created the majority (148) of our antonym pairs consisting of words commonly found in everyday communication.

The additional 30 antonymic pairs were drawn primarily from the business world.<sup>21</sup> Beginning with a large pool of business terms, we gave a single term of each pair to 12 business professors, asking them for the antonym. Meanwhile, twelve other business professors supplied the antonyms to the other member of each pair. The additional 30 antonym pairs had to receive 100% agreement before being added to the original 148 antonym pair list of Zajonc. Terms not meeting unanimous agreement were discarded.

Following the additions, we gave the entire list, occasionally rearranged, to over 100 students in the Graduate School of Business at The University of Michigan. They were asked to circle the preferred word in each pair. Thus students determined the preferred word in isolation.

Our results were not dissimilar from that of Zajonc's original list of antonyms; our intent was to position the added business terms into a preferred-nonpreferred category. Exhibit 2 suggests the percentage of persons choosing the

## EXHIBIT 2

## Preference And Frequency For Business Terms

% Agreement	Preferred (a)	Non-preferred (6)	Frequency (a)	Frequency (6)
100	useful	useless	215	129
100	assets	liabilities	55	47
100	solvent	insolvent	10	—
100	redeemable	nonredeemable	—	—
100	developed	underdeveloped	576	—
100	gain	loss	352	352
100	insurable	uninsurable	—	—
100	business assets	business liabilities	—	—
100	best	worst	1850	450
100	balanced	unbalanced	287	9
98	negotiable	nonnegotiable	—	—
98	upturn	downturn	—	—
98	payment	nonpayment	179	—
98	expansion	contraction	44	13
96	uptrend	downtrend	—	—
95	deposit	withdrawal	119	7
93	profit	nonprofit	366	—
91	parent	subsidiary	797	6
90	management	labor	189	628
89	noninflationary	inflationary	—	—
81	even	odd	4198	250
79	bull	bear	165	605
77	lender	borrower	7	4
71	save	spend	872	680
70	deflation	inflation	14	19
67	debit balance	credit balance	—	—
61	export	import	88	86
61	mortgagor	mortgagee	—	—
59	oversubscribed	undersubscribed	—	—
57	debit	credit	2	294

preferred word, the nonpreferred alternative, and the frequency data as compiled in the Thorndike-Lorge L-count.

Second, we read the twenty-four annual letters to stockholders and recorded occurrences of each word on the base list.

Third, and importantly, we placed each occurrence of a word into one of three possible classifications according to contextual usage. The three different classifications were: positive, negative, and neutral. The key factor in determining the classification of a word was whether its occurrence exhibited a favorable, unfavorable or neutral reflection on corporate goals. Corporate goals were usually financial or political/social. Examples of financial goals are increases in: net income, sales, dividends, or return on investment. Examples of political/social goals are: less government regulation, lower energy consumption, or a cleaner environment.

Words which reflected favorably on corporate goals were classified as positive. Examples of positive words (underlined) according to context are the following statements taken from annual letters:

#### EXHIBIT A

1. The demand for our products is very high.

2. The combined effect of increased shipments and higher prices was improved earnings.
3. We expect costs to rise further, but at rates below those of the past two years.

Words which reflected unfavorably on corporate goals were classified as negative. Examples of negative words (underlined) according to context are the following:

#### EXHIBIT B

1. Net income decreased 46.2%, compared with \$1,544,745.00, or \$5.68 a share in 1974.
2. Total worldwide demand remained a little below 1974, and well below the peak of 1973.
3. The OPEC nations, because of their consolidated position, were able to increase crude oil prices about \$1 per barrel in October.

Words which reflected neither favorably or unfavorably on corporate goals were classified as neutral. Examples of neutral words (underlined) according to context are the following:

#### EXHIBIT C

1. In this Annual Report, we have set down another such statement of policy.
2. This is evident in the chart below that shows the comparative price movements of (our products) and competing materials since 1970.
3. Research projects now under way at (our laboratories) are focused both on improving the energy efficiency of existing facilities and on new processes and equipment.

A careful examination of Exhibits A,B and C leads to two interesting observations. First, the method of definition, context versus isolated pair, can lead to different classifications. In Exhibit A, sentence #3, below is positive in context since costs will be rising at lower rates. In an isolated pair, below is a negative word when paired with above.

The difference in classifications is also found in Exhibit B, sentence #3. Able and increase are negative in context since higher oil prices imply higher costs, a negative in business. When choosing the more preferred, positive term in isolation as able-unable and increase-decrease, the terms able and increase are positive words.

Second, the neutral classification implies that certain antonymic words sometimes have no affect on tone. Down, below, and under (all negative alternatives) in Exhibit C appear to have neither a favorable or unfavorable impact on corporate goals.

The majority of the classification was done by one coder who examined all twenty-four corporate letters. All neutral occurrences and a number of other observations which were troublesome were placed before an additional coder who verified the original classification. Those occurrences not agreed to were eliminated.

During the coding process, twenty-one pairs of the original list were eliminated from the study. Word pairs were eliminated if they were found to be predominately neutral since this study was primarily directed at the relationship

between positive and negative words. An example of a pair eliminated under the above rule is first-last. First and last were usually used as follows: in the first (last) half of 1975, sales were \$xxx million. These situations dealt strictly with time and not corporate goals in most instances.

#### Data Summary and Analysis

The third part of the methodology was data summary and analysis.<sup>22</sup> Four different exhibits were created and then subjected to a number of statistical tests. Exhibit 3 shows a breakdown of the percentage of positive, neutral, and negative words in each of the twenty-four letters. This breakdown allowed the main hypothesis to be tested. The main hypothesis asserts that positive words occur more frequently than negative in annual letters to stockholders regardless of whether the involved corporation had had a financially good or bad year. T-tests for the difference between the positive and negative means were performed for both 1975 and 1977. The resulting t-statistics were 7.05 for 1975, and 17.0 for 1977. These statistics exceeded the t-value of 1.796 needed for acceptability at the 95% level of confidence.

Exhibit 4 shows the percentage point change in positive and negative words from 1975 to 1977 for each of the twelve corporations. These results were used to test the two ancillary hypotheses. One hypothesis was that positive words occur more frequently in a financially good year than a bad year.

## EXHIBIT 3

## CLASSIFICATION OF WORDS IN CONTEXT

COMPANY	1975			1977		
	POSITIVE	NEUTRAL	NEGATIVE	POSITIVE	NEUTRAL	NEGATIVE
A	68.9%	3.4%	27.5%	79.5%	%	20.5%
B	61.7	%	38.3	88.2	2.9	8.9
C	68.1	2.1	28.8	93.1	%	6.9
D	69.7	1.8	28.4	92.8	7.1	%
E	63.9	%	36.2	65.0	%	35.0
F	58.9	2.3	38.7	89.3	1.5	9.2
G	67.9	3.6	28.6	92.5	%	7.5
H	63.1	2.2	34.8	81.0	4.8	14.3
I	71.1	%	29.0	91.5	%	8.5
J	69.7	1.2	29.1	92.7	%	7.4
K	61.9	%	38.1	77.2	8.6	14.3
L	35.8	%	64.2	67.1	2.5	30.4
Mean	63.4%	1.4%	35.2%	84.2%	2.9%	13.6%
Std Dev	9.5	1.4	10.1	10.1	3.0	10.2



## EXHIBIT 4

PERCENTAGE POINT CHANGE IN CLASSIFICATIONS  
from 1975 to 1977

COMPANY	POSITIVE	NEUTRAL	NEGATIVE
A	10.6	(3.4)	(7.0)
B	26.5	2.9	(29.4)
C	25.0	(2.1)	(22.9)
D	23.1	5.3	(28.4)
E	1.1	---	(1.2)
F	30.4	(.8)	(29.5)
G	24.6	(3.6)	(21.1)
H	17.9	2.6	(20.5)
I	20.4	---	(20.5)
J	23.0	(1.2)	(21.7)
K	15.3	8.6	(23.8)
L	31.3	2.5	(33.8)
Mean	20.8	.9	(21.7)
Std Dev	8.6	3.6	9.3

Change = 1977 Percentage - 1975 Percentage

Employing a t-test for paired observations, a t-statistic of 2.42 resulted which exceeded the value of 1.796 needed for acceptability at the 95% confidence level. The other hypothesis was that negative words occur less frequently in a good year than a bad one. Using the same statistical test, a t-statistic of 2.32 resulted which also exceeded the minimum level of acceptability at the 95% confidence level.

Exhibit 5 contains matrix representations of the differences between the context and isolated pair results for 1975, 1977 and the total study. The positive, neutral and negative columns show the percentage occurrences of each classification according to context. The positive and negative rows show the percentage occurrences of each classification according to isolated pairs.

Interesting differences in results between the two methods of definition can be found by examining the cross-tabulations. First, negative words in context are often positive in isolated pairs. In Exhibit 5 - 1975 Results, 47.5% (16.6%/34.9%) of negative words in context are positive in isolated pairs. Also, negative words in context appear to occur more frequently than negative words in isolated pairs. In Exhibit 5 - Total Results, 25.1% of all words in the study are negative according to context, while 18.7% of all words are negative according to isolated pairs.

## EXHIBIT 5

## DIFFERENCES DUE TO METHOD OF DEFINITION (IN %)

		1975 Results	Context		
		Positive	Neutral	Negative	
Isolated Pair	Positive	58.1%	.6	16.6	75.3
	Negative	5.7	.6	18.3	24.7
		63.8	1.3	34.9	100%
n=616					
		1977 Results	Context		
		Positive	Neutral	Negative	
Isolated Pair	Positive	79.2%	1.2	7.1	87.4
	Negative	3.8	.8	7.9	12.6
		83.0	2.0	15.0	100%
n=605					
		Total Results	Context		
		Positive	Neutral	Negative	
Isolated Pair	Positive	68.6%	.9	11.9	81.3
	Negative	4.8	.7	13.2	18.7
		73.3	1.6	25.1	100%
n=1221					

Finally, Exhibit 6 uses context versus isolated pair matrix representations to test another hypothesis. This hypothesis is that a word's classification in context is independent of its classification in isolated pairs. Chi square statistics were computed for 1975, 1977 and the total count. In all three instances, the resulting statistics did not fall within the range of acceptability at the 95% level of confidence.

#### CONCLUSIONS

Four major conclusions can be drawn from the survey of letters to stockholders. First, the main hypothesis is valid. Positive words do occur more frequently than negative words in annual letters to stockholders regardless of the corporation's financial position. The data showed that positive words had mean occurrences of 63.4 and 84.2% in 1975 and 1977, respectively. Both percentages are significantly greater than the negative word percentages in those years.

Second, positive words are more frequent in a financially good year than a bad year. There is a statistically significant difference between the 1977 positive word level of 84.2% and the 1975 level of 63.4%, which justifies this conclusion.

Third, negative words are less frequent in a financially good year than a bad year. There is a statisti-

## EXHIBIT 6

CHI SQUARE TEST FOR INDEPENDENCE  
BETWEEN CONTEXT AND ISOLATED PAIR RESULTS

Expected: ( ) Actual:

1975		Context			
		Positive	Neutral	Negative	
Isolated Pair	Positive	(296) 358	(6) 4	(162) 102	464
	Negative	(97) 35	(2) 4	(53) 113	152
		393	8	215	616
					n=616
1977		Context			
		Positive	Neutral	Negative	
Isolated Pair	Positive	(439) 479	(10) 7	(80) 43	529
	Negative	(63) 23	(2) 5	(11) 48	76
		502	12	91	605
					n=605
TOTAL		Context			
		Positive	Neutral	Negative	
Isolated Pair	Positive	(728) 837	(16) 11	(249) 145	993
	Negative	(167) 58	(4) 9	(57) 161	228
		895	20	306	1221
					n=1221

## EXHIBIT 6 (CONT'D)

$$\chi^2 = \frac{(f_o - f_t)^2}{f_t}$$

$f_o$  = actual frequency of occurrence

$f_t$  = expected frequency of occurrence

CELL:	1975	1977	TOTAL
1	12.99	3.64	16.32
2	.67	.90	1.56
3	22.22	17.11	43.44
4	39.63	25.40	71.14
5	2.00	4.50	6.25
6	<u>67.92</u>	<u>124.45</u>	<u>189.75</u>
TOTAL	145.43	176.00	328.46

$$\chi^2_{.05} = 5.991$$

$$df = 2$$

cally significant difference between the 1977 negative word level of 13.6% and the 1975 level of 35.2%, which justifies this conclusion.

Fourth, the two alternative methods of word definition, context versus isolated pair, are not independent of each other. Even though interesting differences occur, there is a relationship between how a word is classified when it is used in an isolated pair and when the word is used in a passage.

#### SUGGESTIONS

What does the above information portend for the annual report? We began with the impetus that stockholders desire to hear both sides of the financial coin, i.e., they wish to hear negative as well as positive news, truthfully. The hiding of negative information through excessive positive words suggests a contradiction between the financial figures and the prose treatment by management.

The following suggestions should be considered for the annual report, and other publications of business:

First, parallelism should occur between prose statements and objective statistical data.

Second, in a financially bad year, a direct statement of that fact, devoid of puffery, would meet reader desire for clarity and truthfulness.

Third, the letter of the President or Chairman of the

Board is usually first in a report, in a position of primacy, so placed to immediately capture the attention of the reader. That letter, above all, should convey a correctness of interpretation.

Fourth, while recognizing the Pollyanna attitude in most of us, more negative words would suggest a conscious attempt at objectivity, again meeting reader desire for truthfulness and brevity.

Fifth, an analysis of corporate reports, indeed, even intercompany publications, could be semantically analyzed to determine their degree of variance between either positive or negative reality.

Sixth, is there a need to go beyond the annual report? A company, for example, could invite selected stockholders to informal meetings with representatives of the company. Oral feedback would supplement the written word.

Seventh, two letters could be written: one for the technical financial experts, the other for the stockholders.

Eighth, research could be carried out into stockholders' reactions to letters of varying positive to negative ratios.



## Notes

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19. Corporations used in the study were the following:
  - Allied Chemical
  - Aluminum Company of America
  - American Can
  - American Telephone and Telegraph
  - DuPont
  - General Electric
  - General Foods
  - International Harvester
  - Johns-Manville
  - Minnesota Mining and Manufacturing
  - Standard Oil of California
  - Texaco
20. Zajonc (1968).
21. Additional words supplied by the authors in addition to Zajonc's list is included in Exhibit 2.
22. The authors express their appreciation to Craig Roush for assistance with the statistical data and Tom Cragg for computer assistance.