Relationships Between Psychological Test Scores and Sales Production of Life Insurance Salesmen

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RELATIONSHIPS BETWEEN PSYCHOLOGICAL TEST SCORES AND SALES PRODUCTION OF LIFE INSURANCE SALESemen

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Master of Arts

by
Lester Eugene Murray
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CHAPTER I

THE PROBLEM AND ITS SCOPE

In the past forty years there have been numerous studies of various defined occupational groups in which the authors attempted to determine relationships between job success and psychological test scores. Studies of life insurance salesmen, in which psychological tests were used, have occupied a prominent position in the sales research field. Life insurance companies have been very instrumental both individually and collectively in the promotion of this research. In spite of the vast amount of research that has been conducted, only a few psychological tests have proved to be statistically valid for predicting success in life insurance selling. Types of psychological tests used in previous studies have been confined primarily to intelligence, general interest, and personality measurement.

I. THE PROBLEM

Statement of the Problem. The purpose of this study was to determine what contribution psychological tests could make to the personnel procurement problems in recruiting life insurance salesmen. Specifically, the problem was to determine whether any relationship exists between sales production of life insurance salesmen and their sales motivation, as measured by the Sales Motivation Inventory, and sales comprehension, as
measured by Sales Comprehension Test Form M.

Need for the Study. The Study was prompted by a need existing in the problem of predicting success in life insurance selling. Since similar studies have been primarily concerned with intelligence, general interest, personality, and/or combinations of these factors, a need to study life insurance salesmen in relation to other factors is apparent. Few studies of life insurance salesmen have been conducted using tests that have been developed since World War II.

Because sales motivation and sales comprehension are characteristics needed in sales occupations, it appeared logical to study life insurance salesmen to determine whether sales motivation and sales comprehension instruments could be used to differentiate superior from inferior life insurance salesmen.

Definitions. The "ordinary" life insurance salesman was selected for this study. Distinct differences exist between the "ordinary" and "industrial" life insurance salesman. The "ordinary" life insurance salesman sells policies of $1,000 and up, does not collect policy premiums, and can solicit business any place within a broad geographical territory. On the contrary, the "industrial" life insurance salesman sells policies up to $1,000, collects weekly and monthly premiums on policies, and is assigned a route territory.

"Sales motivation" as used in this study means sales interest or sales drive, as measured by the Sales Motivation Inventory.
"Sales comprehension" as used in this study means a basic understanding of sales situations, as measured by the Sales Comprehension Test Form M.
CHAPTER II

REVIEW OF THE LITERATURE

A brief summary of previous investigations closely related to the problem of this study will be presented here. The review of literature on life insurance salesmen was reported by Austin in "Selection of Sales Personnel: A Review of Research." 1

I. LITERATURE ON LIFE INSURANCE SALES STUDIES USING INTEREST TESTS

In 1924 Ream reported in Ability to Sell 2 the use of the Carnegie Interest Inventory to differentiate superior from inferior life insurance salesmen. The interest inventory along with other tests was administered to forty-eight life insurance sales trainees of the "Autumn School" and seventy-five members of the "Winter School" during the year 1920-1921 in the school of life insurance salesmanship at Carnegie Institute of Technology. The Carnegie Interest Inventory failed to differentiate the high from the low producers during the eleven week session. The author stated that the school situation was artificial, the samples were small, and the criterion was based solely on production.

2 Merrill Jay Ream, Williams & Wilkins Co., Baltimore, 1924, p. 64.
Decker attempted to discriminate between seventy insurance salesmen at various income levels by means of the Strong Vocational Interest Blank, and the Allport-Vernon Study of Values, along with two other psychological tests. By comparison on the Strong Test, 82 per cent of the successful salesmen, 14 per cent of the doubtful salesmen, and 4 per cent of the poor salesmen scored above a cut-off score. The combination which produced the best results was the Strong Test and the political scale of the Allport-Vernon Study whereby 94 per cent of the successful salesmen, 6 per cent of the doubtful, and none of the poor salesmen scored above a cut-off score. Strong reworked Decker's raw score data and found that the Vocational Interest Blank differentiated significantly between mean scores of salesmen earning over $3,000 per year and those earning under $2,000 per year. Strong concluded that interest scores varied directly with income of salesmen, as shown below.

<table>
<thead>
<tr>
<th>Number of Salesmen</th>
<th>Annual Income</th>
<th>Mean Interest Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Below $1,500</td>
<td>113</td>
</tr>
<tr>
<td>13</td>
<td>$1,500 to 1,999</td>
<td>203</td>
</tr>
<tr>
<td>20</td>
<td>2,000 to 2,999</td>
<td>254</td>
</tr>
<tr>
<td>37</td>
<td>3,000 and up</td>
<td>264</td>
</tr>
</tbody>
</table>


Strong indicated that it would be possible to develop a series of scales based upon differing amounts of production that would differentiate agents on the basis of sales production.

In 1943 Strong reported in *Vocational Interests of Men and Women* his study of more than 200 salesmen from a number of different insurance companies who had taken the Strong Vocational Interest Blank. The insurance key used in the scoring of the tests was developed with a criterion group of 288 salesmen. The majority of the successful life insurance salesmen rated A or B+ in life insurance interest. Men with low insurance interest ratings wrote too little insurance to earn a fair living. As a whole there was a definite increase in average production as the interest ratings increased. Men with A ratings earned nearly three times as much as those with C ratings; whereas, men with B+ ratings earned twice as much as those with C ratings. The correlation between interest scores and sales production was .37. The relatively low correlation in view of the evident relation between interest ratings and sales production was explained by: (1) interest test score distribution and production records were narrower than would be true of general population, (2) complete records of life insurance salesmen were not available, (3) income or production was inadequate as a criterion of success, (4) factors other than interest contributed to success.

---

Bills conducted a study in which the Strong Vocational Interest Blank, Berurenter Personality Inventory, and Kornhauser’s Personal Inventory Blank were administered to 220 life insurance salesmen. The Strong Test alone gave a fair indication of whether a salesman would remain in the life insurance business and some differentiation among the salesmen. Bills concluded that the combination of the Strong Test and Kornhauser’s Personal Inventory Blank gave a much better prediction of production if the salesman remained with the company.

A composite inventory and examination, including a vocational interest in selling inventory was developed by Steward. A clear relationship was shown between scores on the composite test and earnings. Salesmen who scored between 81 and 100 averaged $6,176 in annual income; those between 71-80 averaged $4,548; those between 61-70, $2,685; and this trend continued down to those salesmen scoring under 30, who averaged $299 in annual income.

Eighty-four life insurance salesmen who had attended the Purdue Course in Life Insurance Marketing were investigated.


4Ibid.
by Kahn. The Kuder Preference Record, along with other tests, was used in an attempt to discriminate between high and low producing salesmen. The high group scored significantly lower on the clerical scale (critical ratio, 2.81) and higher on the persuasive scale (critical ratio, 1.92). Kahn concluded that the Kuder Preference Record may identify life insurance salesmen, but does not differentiate successful from unsuccessful salesmen.

II. LITERATURE ON SALES STUDIES USING
SALES COMPREHENSION TEST, FORM M

Bruce reported a study of seventy-seven salesmen and nine sales managers of a nationwide electronics company. The Sales Comprehension Test, included in a battery of six tests, correlated (r .32) higher with the rating criterion than the other tests. Also, the mean scores for the seventy-seven salesmen and nine sales managers were compared by computing t. The resultant of 2.4 was significant at the 2 per cent level.

Data on the Kuder Preference Record and the Sales Comprehension Test was obtained for fifty-four salesmen and 146 non-


salesmen. A positive linear relationship between Kuder's persuasive scale and sales comprehension was shown by an r of .39, significant at the 1 per cent level.
Sixty ordinary life insurance salesmen, taken from the population of all life insurance salesmen located in Eastern Nebraska, were the subjects selected for this study. They represented seventeen life insurance companies. Fifty-two of the salesmen sold life insurance in Omaha and Lincoln, Nebraska, whereas, eight resided in small towns. These salesmen met the following arbitrary standards:

1. Devoted full time to the life insurance business.
2. Sold life insurance as an ordinary life insurance salesman with limited or no supervisory activities.
3. Entered life insurance business prior to October 1, 1955.

The life insurance production records ranged from a low of $168,000 to a high of $2,479,000.

**Methods used in Collecting Sample.** A definite attempt was made to secure at least one salesman from every life insurance company, which was licensed to transact business in the State of Nebraska. Unfortunately, this wasn’t possible, because many life insurance companies had no salesman who qualified for the study. This was especially true of companies who have a small agency force in Nebraska. By recruiting
salesmen from many companies it was possible to obtain a more representative sample of life insurance salesmen than would be true of a number of salesmen from only a few life insurance companies.

Every life insurance manager in Omaha, Nebraska, was contacted by a telephone call in order to enlist his cooperation by encouraging his salesmen to voluntarily participate in the study. The investigator followed up the telephone call by making a personal visit to every manager in order: (1) to explain the purpose of the study, (2) to give specific test administration instructions to the manager who would in turn so instruct his salesmen, and (3) to obtain production records and other pertinent information about each salesman. The instructions to each participating salesman were:

1. Please complete these tests and return as soon as possible.
2. This study is being conducted by a graduate student.
3. Your test scores will be kept absolutely confidential.

The Criterion. The criterion used in the study was paid-for life insurance production for the calendar year of 1956. In recent years a number of life insurance companies have entered the accident and health insurance field. Consequently, many life insurance salesmen do sell some accident and health insurance. Since the success criterion was production, it appeared both logical and desirable to include the accident and
health insurance sold by each salesman as part of the total accountable sales production. The individual life insurance companies applied a conversion factor to the accident and health premium income in arriving at an equivalent life insurance figure. Group insurance production was not included in the salesmen's sales volume, since it entails selling one master contract to employers that provides temporary protection for their employees.

II. TESTS USED

The Sales Motivation Inventory and the Sales Comprehension Test Form M were used in this study.

SALES MOTIVATION INVENTORY

The Sales Motivation Inventory is a self-administering inventory consisting of seventy-five multiple choice questions, containing four interest activities, weighted -1, 0 or 1 for each question. The raw score is obtained by algebraically adding the weights. The Inventory requires 25 to 30 minutes to complete.

The validity was established by the ability of the inventory to differentiate between salesmen and non-sales personnel. Distributions formed by the scores of 210 salesmen and 521 non-salesmen were compared by the Chi square technique and the means were compared by computing Fisher's t. The Chi square was 161 and the t, 12.4, which suggests that there was less
than one chance in 100 that the distributions and the means were not significantly different. Bruce also reported that scores for eighty-three salesmen and non-salesmen were obtained on the life insurance sales key of the Strong Vocational Interest Blank. The \( r \) between these scores and scores on the Sales Motivation Inventory was \( .71. \)

"Reliability computed by the split-half method for 731 cases was \( .90 \pm .007. \)"

SALES COMPREHENSION TEST FORM M

Bruce states:

"The Sales Comprehension Test is designed to aid in the appraisal of sales ability and potentiality. It provides an objective measure of one important aspect of what might be labeled "sales aptitude," namely, understanding and appreciation of basic principles of selling."

The Sales Comprehension Test is a self-administering test consisting of thirty multiple choice questions. Each question attempts to present a live sales situation to the testee where each answer is related to the making of a sale. However, one answer is considered better than the other three answers and they are weighted accordingly.

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1 Martin M. Bruce, "Examiners manual for The Sales Motivation Inventory," 71 Hanson Lane, New Rochelle, New York, p. 3.

2 Ibid., p. 3.

3 Martin M. Bruce, "Examiners manual for The Sales Comprehension Test Form M," 71 Hanson Lane, New Rochelle, New York.
The validity was established by the ability of the test to
differentiate salesmen from non-selling personnel. Test scores
from groups of 397 salesmen and 1007 non-salesmen were compared
through use of the critical ratio. The resultant t of 13.1 in-
dicated that there was less than one chance out of 100 that the
means of the two samples were not significantly different. Ad-
ditional samples of 334 salesmen and 661 non-salesmen yielded
a t of 5.8 which is significant at the 1 per cent level.¹

The test-retest reliability co-efficient for a restricted
group of 103 college students was .71. When corrected for
homogeneity the estimated reliability for the general popula-
tion is .79.²

III. TECHNIQUES USED

Group comparisons of Sales Motivation test scores, Sales
Comprehension test scores, and the combination of Sales Moti-
vation and Sales Comprehension test scores were made to deter-
mine whether there were significant differences between the
"More Successful" and "Less Successful" groups of life insur-
ance salesmen.

The t technique was used to determine the significance
of the difference between group mean scores. Since the means

¹Martin M. Bruce, "Examiners manual for The Sales
Comprehension Test Form M," 71 Hanson Lane, New Rochelle,
New York, p. 3.

²Ibid., p. 4.
were not correlated and sample sizes were unequal, the following formula was used to determine t values. \(^1\)

\[
t = \frac{M_1 - M_2}{\sqrt{\left(\frac{\sum x_1^2 + \sum x_2^2}{N_1+N_2-2}\right)\left(\frac{N_1+N_2}{N_1N_2}\right)}}
\]

- \(M_1\) and \(M_2\) = means of the two samples
- \(\sum x_1^2\) and \(\sum x_2^2\) = sums of the squared deviations from the means in the two samples
- \(N_1\) and \(N_2\) = number of cases in the two samples

To determine whether there was a common population variance of the "More Successful" and "Less Successful" groups on the traits measured, the F test for heterogeneity of variance was applied. \(^2\)

\[
F = \frac{S_1^2}{S_2^2} \text{ or } \frac{S_2^2}{S_1^2}
\]

- \(F\) = ratio of the variances of the two samples
- \(S_1^2\) and \(S_2^2\) = sum of the squares divided by the degrees of freedom of the two samples

The larger Square Value is always used as the numerator.

To obtain the value of \(t\) which will be regarded as significant when there was evidence that the variances in the two sample populations differed significantly, the following


The formula was used:

\[ t_{.05} = \frac{(S_{X_1}^2)(t_1) + (S_{X_2}^2)(t_2)}{S_{X_1}^2 + S_{X_2}^2} \]

- \( t_{.05} \) = t value required for significance at .05 level
- \( S_{X_1}^2 \) and \( S_{X_2}^2 \) = sum of the squares divided by the degrees of freedom of the two samples
- \( t_1 \) and \( t_2 \) = t values required for significance at .05 level listed in tabled values of \( t \)

To compute the required \( t \) value at the .01 level of significance, substitute the \( t \) values listed in tabled values of \( t \) at the .01 level in place of the .05 values.

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CHAPTER IV

RESULTS

The problem in this study was to determine whether any relationship exists between sales production of life insurance salesmen and their sales motivation and sales comprehension. The method of solution involved separating the salesmen into two groups by placing salesmen with sales production of $400,000 and up into a "More Successful" group and salesmen with less than $400,000 into a "Less Successful" group. Various methods of comparison were applied to the groups to determine their relationships and differences.

The mean average salesman of the "More Successful" group was 33.8 years old, sold $696,000 of life insurance, and had been selling life insurance for 7.3 years. The mean average salesman of the "Less Successful" group was 42 years old, had sold $306,000 of life insurance in the year 1956, and had been selling life insurance for 9.6 years.

The differences between the groups on Sales Motivation, Sales Comprehension, and the composite Sales Motivation and Sales Comprehension will be discussed in this chapter.

SALES MOTIVATION

This section presents a comparison of the Sales Motivation of the "More Successful" and the "Less Successful" life insurance salesmen. The Sales Motivation Inventory was
used to measure Sales Motivation.

The "More Successful" salesmen's scores ranged from 12 to 61, as compared with the "Less Successful" salesmen's scores from 13 to 57. (see appendix). As shown in Table II (p. 19), there was a greater percentage of the "More Successful" salesmen scoring in the higher score ranges; 64 per cent scored 31 or over, as compared to 47 per cent of the "Less Successful" salesmen. At the lower score ranges 13 per cent of the "More Successful" and 38 per cent of the "Less Successful" salesmen scored under 20. These results indicated that the "More Successful" salesmen, as a group, scored higher than the "Less Successful" salesmen.

According to Table I, mean raw scores for the two groups were 35.54 and 25.20, which correspond to a percentile ranking of 48 for the "More Successful" and 30 for the "Less Successful" when compared to a general sales group.

**TABLE I**

**MEANS, STANDARD DEVIATIONS, F's AND t's FOR THE SALES MOTIVATION INVENTORY**

<table>
<thead>
<tr>
<th>&quot;More Successful&quot;</th>
<th>&quot;Less Successful&quot;</th>
<th>F</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Sd</td>
<td>Mean</td>
<td>Sd</td>
</tr>
<tr>
<td>35.54</td>
<td>11.70</td>
<td>25.20</td>
<td>18.10</td>
</tr>
</tbody>
</table>

* Value of F required for significance at .02 level
+ Value of t required for significance at .05 level
TABLE II

RELATION OF SALES MOTIVATION TO LIFE INSURANCE SALES PRODUCTION

<table>
<thead>
<tr>
<th>Raw Scores</th>
<th>CLASS GROUP</th>
<th>More Successful</th>
<th>Less Successful</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of 39 Agents</td>
<td>% of 21 Agents</td>
<td></td>
</tr>
<tr>
<td>On Test</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>53 - 63</td>
<td>5.1</td>
<td>4.8</td>
<td></td>
</tr>
<tr>
<td>42 - 52</td>
<td>30.8</td>
<td>14.3</td>
<td></td>
</tr>
<tr>
<td>31 - 41</td>
<td>28.2</td>
<td>28.5</td>
<td></td>
</tr>
<tr>
<td>20 - 30</td>
<td>23.1</td>
<td>14.3</td>
<td></td>
</tr>
<tr>
<td>9 - 19</td>
<td>12.8</td>
<td>23.8</td>
<td></td>
</tr>
<tr>
<td>(-2) - 8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(-13) - (-3)</td>
<td></td>
<td>14.3</td>
<td></td>
</tr>
</tbody>
</table>
The difference between a standard deviation of 11.70 for the "More Successful" and 18.10 for the "Less Successful" suggests that the two sample populations differ in variance. The F test for heterogeneity was applied to the two groups. Since the computed F value of 2.39 is very close to the required F value of 2.40 needed for significance at the .02 level, there is good evidence that the variances of the "More Successful" and "Less Successful" groups of salesmen differed significantly. A correction formula, which takes into account heterogeneity of variance, was used to determine the t required for significant differences at the .05 level. Because the t value of 2.627 was greater than the required t of 2.074, the null hypothesis of no difference between the groups was rejected. The results indicate that significant or real differences exist between the "More Successful" and "Less Successful" life insurance salesmen on sales motivation, as measured by the Sales Motivation Inventory.

SALES COMPREHENSION

A comparison of the sales comprehension of the "More Successful" and the "Less Successful" life insurance salesmen is discussed in this section. The Sales Comprehension Test Form M was used to measure sales comprehension.

Raw scores ranged from 6 to 57 for the "More Successful" life insurance salesmen and 7 to 52 for the "Less Successful" life insurance salesmen. Additional information on the rela-
tionship of sales comprehension test scores of the two groups of life insurance salesmen is illustrated in Table IV(p. 22). A greater percentage of the "More Successful" salesmen scored in the higher ranges over a raw score of 40. A greater percentage of the "Less Successful" salesmen scored in the lower ranges under a raw score of 20. However, there was a heavy concentration of test scores of the "Less Successful" salesmen in the middle score range of 30 to 39.

The means, standard deviations, F's and t's are given in Table III. Mean raw scores of 32.23 for the "More Successful" salesmen and 28.34 for the "Less Successful" salesmen correspond to percentile rankings of: (1) 50 and 40 respectively when compared with salesmen in general, (2) 38 and 32 respectively when compared with the top 7 per cent of life insurance salesmen of a Mid-Western life insurance company.

**TABLE III**

MEANS, STANDARD DEVIATIONS, F'S AND T'S FOR THE SALES COMPREHENSION TEST

<table>
<thead>
<tr>
<th>&quot;More Successful&quot;</th>
<th>&quot;Less Successful&quot;</th>
<th>F Required</th>
<th>t Required</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean</td>
<td>Sd</td>
<td>Mean</td>
<td>Sd</td>
</tr>
<tr>
<td>32.23</td>
<td>11.15</td>
<td>28.34</td>
<td>13.5</td>
</tr>
</tbody>
</table>

* Value of F required for significance at .10 level
+ Value of t required for significance at .05 level

Since there is little difference between the standard deviation of 11.15 for the "More Successful" and 13.5 for the


TABLE IV

RELATION OF SALES COMPREHENSION TO LIFE INSURANCE SALES PRODUCTION

<table>
<thead>
<tr>
<th>Raw Scores</th>
<th>CLASS GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>On Test</td>
<td>More Successful</td>
</tr>
<tr>
<td></td>
<td>% of 39 Agents</td>
</tr>
<tr>
<td>50 - 59</td>
<td>10.2</td>
</tr>
<tr>
<td>40 - 49</td>
<td>12.8</td>
</tr>
<tr>
<td>30 - 39</td>
<td>33.4</td>
</tr>
<tr>
<td>20 - 29</td>
<td>28.2</td>
</tr>
<tr>
<td>10 - 19</td>
<td>12.8</td>
</tr>
<tr>
<td>0 - 9</td>
<td>2.6</td>
</tr>
<tr>
<td>(-10) - (-1)</td>
<td>4.8</td>
</tr>
</tbody>
</table>
"Less Successful" groups, no real or significant difference appears to exist in variance of the two sample populations. This was confirmed through use of the F test for heterogeneity. The computed F value of 1.466 wasn't close to the required value of 1.86 for significance in variance of the groups at the .10 level. The required $t$ for significant difference between the mean raw scores of the two groups at the .05 level is 2.002. Since the computed $t$ value was 1.141, the null hypothesis of no real difference was accepted. The "More Successful" and "Less Successful" salesmen do not differ significantly on sales comprehension, as measured by the Sales Comprehension Test Form M.

SALES MOTIVATION AND SALES COMPREHENSION COMBINED

Since sales motivation and sales comprehension are important factors in life insurance selling, the raw scores of the Sales Motivation Inventory and the Sales Comprehension Test Form M were combined. The decision to combine the raw scores of these two tests was made before the study was started. The composite was obtained by weighting the Sales Motivation Inventory and the Sales Comprehension Test Form M equally. A weight, inversely proportional to its standard deviation, was applied to each test. With the standard deviations of 21.42 for the Sales Motivation Inventory and 13.83 for the Sales Comprehension Test Form M, the respective ratios of 1.0 and 1.5
were computed for the two tests.¹,²

The difference of the composite between the "More Successful" and "Less Successful" life insurance salesmen is covered in this section.

The composite raw scores ranged from 38 to 130 for the "More Successful" salesmen and 15 to 111 for the "Less Successful" salesmen. Additional information about the relationship between the two groups on the total raw scores is shown in Table V(p. 25). A much greater percentage of the "More Successful" salesmen scored in the higher ranges of 90 and up; 38.5 per cent compared with 19.1 per cent for the "Less Successful" salesmen. Conversely, only 15.4 per cent of the "More Successful" scored lower than 60, while 23.8 per cent of the "Less Successful" salesmen scored below 60. These results indicate that the "More Successful" salesmen possess more sales motivation and sales comprehension in combination than the "Less Successful" salesmen.

The results of the statistical comparisons between the "More Successful" and "Less Successful" salesmen are given in

¹Martin M. Bruce, "Examiners manual for The Sales Motivation Inventory," 71 Hanson Lane, New Rochelle, New York, p. 4.

²Martin M. Bruce, "Examiners manual for The Sales Comprehension Test Form M," 71 Hanson Lane, New Rochelle, New York, p. 6.
TABLE V

RELATION OF SALES MOTIVATION AND SALES COMPREHENSION COMBINED TO LIFE INSURANCE SALES PRODUCTION

<table>
<thead>
<tr>
<th>Raw Scores</th>
<th>C L A S S G R O U P</th>
</tr>
</thead>
<tbody>
<tr>
<td>On The Tests</td>
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<tr>
<td>Combined</td>
<td>% of 39 Agents</td>
</tr>
<tr>
<td>120 - 134</td>
<td>10.3</td>
</tr>
<tr>
<td>105 - 119</td>
<td>7.7</td>
</tr>
<tr>
<td>90 - 104</td>
<td>20.5</td>
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<tr>
<td>75 - 89</td>
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<td>60 - 74</td>
<td>25.6</td>
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<td>7.7</td>
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<td>30 - 44</td>
<td>7.7</td>
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<tr>
<td>15 - 29</td>
<td>4.8</td>
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Table VI. The mean raw score and standard deviation were 83.7 and 22.16 for the "More Successful" salesmen, 67.6 and 20.17 for the "Less Successful" salesmen.

### Table VI

<table>
<thead>
<tr>
<th></th>
<th>&quot;More Successful&quot;</th>
<th>&quot;Less Successful&quot;</th>
<th>t</th>
<th>Required</th>
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<td>Mean</td>
<td>83.7</td>
<td>67.6</td>
<td>2.734</td>
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<td>Sd</td>
<td>22.16</td>
<td>20.17</td>
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</table>

+ Value of t required for significance at .01 level

The value of t required for significance at the .01 level is 2.664. Because the t value of 2.734 was greater than the required t of 2.664, the null hypothesis of no difference between the two groups of salesmen was rejected. The results indicate that a very significant difference existed between the "More Successful" and "Less Successful" life insurance salesmen on sales motivation and sales comprehension combined, as measured by the Sales Motivation Inventory and Sales Comprehension Test Form M.
CHAPTER V

SUMMARY AND CONCLUSIONS

SUMMARY

The problem of this study was to determine the relationship between sales production of life insurance salesmen and their sales motivation and sales comprehension. To accomplish this sixty life insurance salesmen from Eastern Nebraska, representing seventeen life insurance companies, were given the Sales Motivation Inventory and the Sales Comprehension Test Form M. Salesmen were separated according to their 1956 sales production by placing those with $400,000 and up into a "More Successful" group and those with less than $400,000 into a "Less Successful" group. The relationships between the "More Successful" salesmen and the "Less Successful" salesmen were established by utilizing the t technique.

The results of the study were, as follows:

1. The "More Successful" life insurance salesmen possessed more sales motivation than the "Less Successful" life insurance salesmen, as measured by the Sales Motivation Inventory (established at the .05 level of significance).

2. No significant difference was found between the "More Successful" life insurance salesmen and "Less Successful" salesmen on sales comprehension, as measured by the Sales Comprehension Test Form M.

3. The "More Successful" life insurance salesmen possessed
more combined sales motivation and sales comprehension. The
difference between the "More Successful" and "Less Successful"
life insurance salesmen became very significant when sales mo-
tivation and sales comprehension were considered as one combi-
nation characteristic (established beyond the .01 level of
significance).

CONCLUSIONS

The more successful life insurance salesmen can be dif-
ferentiated from the less successful life insurance salesmen
on the basis of sales motivation but not on sales comprehe-
sion. The combination of sales motivation and sales compre-
hension is more important in success in selling life insur-
ance than sales motivation and sales comprehension considered
individually.

The practical implications of this study indicate that
the Sales Motivation Inventory and Sales Comprehension Test
Form M, when used in combination, are valid instruments in
selecting life insurance salesmen.

The samples used in this study were small and were lo-
cated in one geographical area. Therefore, further study
of life insurance salesmen is necessary for conclusive evi-
dence of the value of the Sales Motivation Inventory and
Sales Comprehension Test Form M in predicting success in life
insurance selling.
Discussion and Limitations. Due to the geographical dispersion of the sample used in this study, it wasn't possible for the investigator or the salesman's insurance manager to personally administer the Sales Motivation Inventory and the Sales Comprehension Test Form M to all the life insurance salesmen. Consequently, the test conditions were not uniform for all the life insurance salesmen who participated in the study.

According to Page 17 the average salesman of the "More Successful" group was 8.2 years younger and had 2.6 less years of life insurance sales experience than the average salesman of the "Less Successful" group of life insurance salesmen. The results of the study are confounded. There may be a correlation between age and sales motivation, as measured by the Sales Motivation Inventory, of life insurance salesmen. There may be no positive correlation between life insurance sales experience and life insurance sales success after a certain amount of life insurance sales experience has been attained.

The present method of test validation was followed in this study. Time did not permit the use of the follow-up method which has an advantage over the present method. The follow-up method would have reduced the chances of life insurance sales experience influencing the results of the test. The Sales Motivation Inventory, since it is an interest type test, is more apt to be affected by life insurance sales experience than the Sales Comprehension Test Form M.
BIBLIOGRAPHY


Bruce, Martin M., "Examiners manual for The Sales Motivation Inventory," 71 Hanson Lane, New Rochelle, New York.

Bruce, Martin M., "Examiners manual for The Sales Comprehension Test Form M," 71 Hanson Lane, New Rochelle, New York.


Ream, Merrill Jay, Ability to Sell, Williams & Wilkins Co., Baltimore, 1924.


Strong, Edward K., Vocational Interests of Men and Women, Stanford University Press, Stanford University, California, 1943.
APPENDIX A
### Sales Motivation Inventory

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**Mean** 35.54  **Mean** 25.20

**Standard Deviation** 11.70  **Standard Deviation** 18.10

*F value = 2.39*

*t value = 2.627*
### SALES COMPREHENSION TEST

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#### Mean

| "More Successful" | 32.23 |
| "Less Successful" | 23.34 |

#### Standard Deviation

| "More Successful" | 11.15 |
| "Less Successful" | 13.50 |

#### F value

F value = 1.466

t value = 1.141
### SALES MOTIVATION INVENTORY AND
### SALES COMPREHENSION TEST COMBINED

**"More Successful"**

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**Mean**: 67.68  
**Standard Deviation**: 18.90

**"Less Successful"**

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**Mean**: 52.80  
**Standard Deviation**: 11.00

**t value** = 2.734
APPENDIX B
SALES MOTIVATION INVENTORY

Form A

Name ___________________________________________________________   Date ________________________________
                                             Last         First       Middle

Organization ____________________________________________________________________________________________________________
                                       Age ________________

Years of sales experience ________________________________________________

Types of selling you have done ____________________________________________

INSTRUCTIONS

On the following pages are various activities listed in groups of four. Select the ONE activity you prefer over the other three in the group. Mark an X next to that activity. Answer every question.

Score _______ Percentile _______ Group _______

Percentile _______ Group _______

PUBLISHED BY

MARTIN M. BRUCE

71 Hanson Lane       New Rochelle, N. Y.

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1. Work with politicians
   Work with doctors
   Work with decorators
   Work with librarians

2. Recite before a group
   Repair a clock
   Design clothes
   Watch a radio program

3. Talk to an advertising executive
   Talk to a famous musician
   Talk to a museum director
   Talk to a scientist

4. Analyze effectiveness of radio advertising
   Go hunting or fishing
   Care for a garden
   Collect stamps or coins

5. Invite people to a lecture
   Deliver a lecture
   Write a lecture
   Listen to a lecture

6. Write copy for advertising
   Place advertising cards in stores
   Edit advertising copy
   Run an advertising agency

7. Write a book about propaganda
   Write a book about skin diseases
   Write a book about divorce
   Write a book about dogs

8. Be a gentleman farmer
   Be a businessman
   Be a research chemist
   Be an airplane pilot

9. Study biology
   Study piano
   Study art
   Study advertising

10. Prepare a test in anatomy
    Take a test in public speaking
    Prepare a test in accounting
    Take a test in typing

11. Arrange a surprise party
    Write invitations to a party
    Order food for a party
    Hire entertainment for a party

12. Work as a lighting specialist
    Design sets
    Work as stage manager
    Conduct an orchestra

13. Collect money for charity
    Donate blood
    Drive an ambulance
    Do bookkeeping

14. Write promotional letters
    Write greeting card poems
    Write labor laws
    Write cooking recipes

15. Do radio engineering
    Do script writing
    Do radio announcing
    Do sound effects

16. Improve office procedures
    Improve teaching methods
    Improve interviewing techniques
    Improve writing techniques

17. Design television cabinets
    Act in a television show
    Work a television camera
    Watch a television show

18. Become a psychologist
    Become a doctor
    Become a stockbroker
    Become a statistician

19. Conduct a public opinion poll
    Tabulate results of a poll
    Design a public opinion poll
    Write up results of a poll

20. Supervise in a department store
    Supervise in a tobacco factory
    Supervise in a public school
    Supervise in a telephone company

21. Collect information by phone
    Collect information by letter
    Collect information in person
    Collect information from records

22. Attend a movie with a friend
    Play golf with a friend
    Read a recent novel
    Discuss business conditions in a small group

23. Work for Elmo Roper, the public opinion pollster
    Work for Dunlap, the psychologist
    Work for Einstein, the scientist
    Work for Williams, the playwright

24. Teach business subjects
    Teach biology
    Teach mathematics
    Teach chemistry

25. Attend West Point
    Attend a college of mines
    Attend Wharton Business School
    Attend a college of science

26. Write the questions for a quiz program
    Act as master of ceremonies on a quiz program
    Be part of the audience at a quiz program
    Direct a quiz program

27. Build a house yourself
    Sell a house
    Prepare the blueprints for a house
    Design a house
28. Handle the advertising for a new pen
    Be plant manager in a pen factory
    Work as controller for a pen company
    Invent a new type of pen point
29. Direct the research department in a soap company
    Supervise the electrical staff in a factory
    Run the accounting department for a manufacturing firm
    Manage the advertising department of a tobacco firm
30. Be dean of students at a university
    Be chairman of the engineering department
    Be a foreign language teacher at a university
    Be registrar of a university
31. Earn a living as a comedian
    Earn a living as a musician
    Earn a living as a stage designer
    Earn a living as a theater electrician
32. Be a school physician
    Be an athletic coach
    Be a school building custodian
    Be a school purchasing agent
33. Handle a firm's publicity
    Run a company's production department
    Direct a corporation's financial activities
    Supervise a business' distribution of products
34. Advise people on how to improve their farms
    Work as a farmer on your own land
    Do research to find better farm methods
    Deliver farm products to market
35. Retire as head bookkeeper of a bank
    Retire as research director of a brewery
    Retire as sales director of a tobacco firm
    Retire as chief engineer of a city
36. Work in the field of television
    Work in the field of science
    Work in the field of accounting
    Work in the field of agriculture
37. Be admired for your speaking ability
    Be admired for your inventive ability
    Be admired for your writing ability
    Be admired for your learning ability
38. Proofread in a publishing firm
    Do layout work for a magazine
    Be a member of an editorial staff
    Train copywriters in a publishing firm
39. Earn $5000 a year as a language professor
    Earn $6000 a year as a school principal
    Earn $8000 a year as head of a chemistry department
    Earn $10,000 a year as a market research man
40. Own a television station
    Own an advertising agency
    Own a publishing firm
    Own a furniture factory
41. Work for the Department of Agriculture
    Work for the Bureau of Internal Revenue
    Work for the State Department
    Work for the Treasury Department
42. Win a school medal for general academic achievement
    Win a school medal for athletic achievement
    Win a school medal for language achievement
    Win a school medal for mathematics achievement
43. Design tools
    Design furniture
    Design posters
    Design houses
44. Direct a poll before an election
    Write a report of the results of an election poll
    Run for political office
    Act as campaign manager for a politician
45. Call on doctors to sell them pharmaceuticals
    Work in a clinic as an X-ray technician
    Run a farm to raise plants for medical use
    Raise animals for laboratory experiments
46. Be the son of a lumber grower
    Be the son of a real estate broker
    Be the son of a sociologist
    Be the son of a concert violinist
47. Design household utensils to make them more efficient
    Paint watercolors to sell
    Build houses
    Interview housewives for a market research firm
48. Be a swimming coach in a boys' camp
    Own your own distributing business
    Study the effects of paint color on efficiency
    Be the road manager for an opera singer
49. Study medicine
    Study law
    Study art
    Study forestry
50. Be a code expert
    Run a foreign legation
    Own an insurance agency
    Be a famous chef
51. Design a jet transport plane
    Fly a jet transport plane
    Get people to finance an entirely new type of plane
    Work as a steward on an overseas plane
52. Develop new calculators
    Write books on office equipment
    Call on office managers to determine what office equipment is most needed
    Analyze market research data to find out what office equipment will sell best
53. Broadcast news events from overseas  
Supervise the engineering work of a radio station  
Write radio scripts for a commentator  
Supervise the clerical staff of a radio station  

54. Sell brushes  
Sell microscopes  
Sell automobiles  
Sell magazine subscriptions  

55. Write a book on supersonic speed  
Write a review of a new play  
Write a series of articles on merchandising  
Write a daily movie review column  

56. Operate a steam shovel  
Work as a forest ranger  
Write songs  
Grind lenses  

57. Be an authority on the solar system  
Hold high public office  
Be medical supervisor of a territory  
Engage in atomic research for business  

58. Handle labor disputes  
Do job analysis work  
Take a course in time and motion study  
Paint watercolors  

59. Help people who have personal problems  
Teach swimming at a "Y"  
Attend a stag party  
Take a friend to a dramatic play  

60. Belong to a mutual aid society  
Belong to leisure time and hobby group  
Belong to club of well-known businessmen  
Belong to an animal cruelty prevention group  

61. Have a job that gives you full security  
Be employed in a position that gives you the chance to meet famous scientists  
Hold a position that gives you prestige and distinction  
Work in a job where you have a good deal of responsibility  

62. Manage the over-all plans for a social affair  
Act as master of ceremonies at a party  
Attend a party as a guest and do whatever you want  
Take care of refreshments at a social gathering  

63. Give part of an inheritance to charity  
Spend money on business acquaintances  
Invest a major portion of unexpected income in municipal bonds  
Use an inheritance to help gain prestige in the community  

64. Have a job where you work on your own  
Work in a job that you know is yours for life  
Be employed in a position that gives you a chance to help people  
Hold a position where you contribute to the creation of new labor saving devices  

65. Attend a lecture on hypnosis  
Attend a lecture on a religious theme  
Participate in a roundtable on how to develop a leadership personality  
Deliver a talk on how to build and maintain a budget  

66. Work on puzzles in spare time  
Repair a radio during the evening  
Tinker with an automobile engine  
Tell jokes at a house party  

67. Become a well-known actor  
Earn recognition as a magazine writer  
Author a best selling technical book  
Invent a new type of printing press  

68. Explore unknown places in South America  
Run a retail tobacco shop  
Manage a playground  
Hold a job as sports reporter  

69. Teach mining techniques  
Train locomotive engineers  
Teach hotel operations  
Train auto repairmen  

70. Work for a stockbroker  
Work for a typewriter repair firm  
Work for an accounting firm  
Work for a philatelic agency  

71. See a travelogue  
Chop down a tree  
Play tennis  
Read a detective story  

72. Work a crossword puzzle  
Read the sports pages  
Visit a zoo  
Attend an auction  

73. Make a bookcase  
Interview prospective employees  
Operate a lathe  
Help catch a criminal  

74. Be an artist  
Be a merchant  
Be a soldier  
Be an inventor  

75. Work outdoors  
Work behind a desk  
Work in a laboratory  
Work back stage
SALES COMPREHENSION TEST

Form M

Name ____________________________________________________ Date ______________________

                            Last   First   Middle

Organization ____________________________________________________ Age ______________

Years of sales experience ____________________________

Types of selling you have done.__________________________________________

INSTRUCTIONS

On the following pages there are a number of questions about selling. Each question is followed by four possible answers. You are to select the one answer which, in your opinion, is the best of the four. It may be that you will not agree completely with any of the answers offered, or more than one answer may appear to you to be correct. However, you are to select the ONE answer which you consider the BEST of those offered, and mark an X beside that answer. If you are not sure of an answer, guess. Do not leave any questions unanswered.

Score ________________ Percentile ________________ Group ________________

Percentile ________________ Group ________________

Percentile ________________ Group ________________

PUBLISHED BY

MARTIN M. BRUCE

71 Hanson Lane New Rochelle, N. Y.

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1. Which one of the following will best aid a salesman in making a sale?
   ___demonstrate and otherwise explain the full use of the product
   ___determine if his potential customers need his product
   ___offer the product on time payments
   ___allow the potential customers to use the product on trial

2. A salesman of heavy machinery has been told during the course of a conversation with the production manager that the company cannot afford to buy his product. The salesman’s best move is to
   ___point out to the manager that in the long run the cost of the machinery will be returned in new profits
   ___explain to the manager that time payments can be made on the machine
   ___explain to the manager that such a matter is worthy of more consideration than he has given it
   ___leave and later send him material illustrating the virtues of the product

3. A woman has requested a radiator cover firm to send one of their salesmen. Upon his arrival she says she has changed her mind. What is the best thing for the salesman to do?
   ___Politely explain that she is obligated to see the samples.
   ___Ask her, “Have you purchased some already?”
   ___Tell her she is making a serious mistake.
   ___Say to her, “As long as I am here, I may as well show you the samples.”

4. A job lot dealer has bought up a large number of second-hand cameras. He wishes to get rid of them quickly but at a decent profit. Which one of the following groups will probably be the best market?
   ___camera shops selling second-hand equipment
   ___schools offering art courses
   ___newspaper photography departments
   ___student camera clubs

5. Which one of the following items sells better in rural districts than in cities?
   ___overalls
   ___sporting goods
   ___books on animal husbandry
   ___building materials

6. A prospective customer comes to the stationery department of a store in search of desk accessories advertised in newspapers. After seeing the items as well as others not advertised, the man leaves without having purchased anything. What is the most probable reason for this?
   ___the salesman failed to make the items appear as attractive as the ad presented them
   ___the items were poorly displayed, making them unattractive
   ___the potential customer could not make up his mind as to just what he wanted
   ___he was not asked by the salesman to make a purchase

7. Most of the salesmen of a particular soap company are doing better than ever before but George is doing worse. He could probably improve MOST by
   ___finding out more about the product he is selling
   ___requesting a change in territory
   ___developing pleasant personality traits
   ___studying the methods of successful salesmen

8. The same book would sell best under which one of the following titles?
   ___“Sing for our Supper”
   ___“How to Sing for Money”
   ___“Dollar Serenade”
   ___“Manual of Voice Training”

9. Which one of the following will best serve to improve a salesman’s business?
   ___invite prospective customers to dinner
   ___read recent publications relating to his field
   ___take courses in psychology
   ___read up on economic theories

10. During the discussion between a company’s buyer and a salesman, the buyer has to leave to meet a scheduled appointment. In this instance, which one of the following should the salesman do?
    ___tell the buyer he will wait for him to return
    ___leave and call later for an appointment
    ___ask to go along with the buyer so as to continue the talk
    ___request another interview
11. In trying to persuade a client to increase the fire insurance on his home which one of the following sales demonstrations would serve best?
   ___ show him that fire insurance today is cheaper than it ever was before
   ___ point out that his insurance does not cover the present value of the house
   ___ point out that millions of dollars were collected last year by fire victims
   ___ point out similar homes in the neighborhood that are insured for more

12. Illustrative material is frequently an aid in selling a product. At an initial interview it will best serve its intended purpose if used in which one of the following ways?
   ___ given to the client at the start of the interview
   ___ held by the salesman and shown to the buyer occasionally
   ___ relied on to clinch the sale
   ___ given to the buyer at the end of the interview to scan at his leisure

13. Which one of the following population selection methods best serves the door-to-door salesman of encyclopedias?
   ___ visit people listed in the telephone directory
   ___ visit “Book of the Month Club” members
   ___ visit homes indiscriminately
   ___ visit homes of college students

14. The salesman who takes orders from retailers usually has another task. Which one of the following is it?
   ___ familiarizing the retailer with discount policies
   ___ providing free samples for distribution to customers
   ___ rearranging stock to make it more presentable
   ___ setting up advertising displays

15. Which one of the following attributes is MOST important in selling brushes door-to-door?
   ___ congeniality
   ___ appearance
   ___ persistence
   ___ personality

16. The most frequent objection to purchasing life insurance is
   ___ “I don’t need it.”
   ___ “My work isn’t dangerous.”
   ___ “I need time to think it over.”
   ___ “I can’t afford it.”

17. The best group to canvas when selling office equipment is
   ___ offices with expanding credit ratings
   ___ all offices in an office building
   ___ previous purchasers
   ___ offices suggested by purchasers

18. Which one of the following is the best single sales argument in favor of purchasing a home?
   ___ it is a step towards financial independence
   ___ a good real estate value is better than a savings account
   ___ the home owner has a credit rating in the business world
   ___ a home is an investment

19. You are selling a service which, if adopted by your prospect, would mean a change in long established policies. A company executive is favorably impressed, but tells you he will have to talk it over with the other executives. What would be your next step?
   ___ Ask him to let you know what happens, then leave.
   ___ Press him for a commitment since his reaction has been favorable.
   ___ Go through your sales talk again briefly so he will know how to present it properly.
   ___ Ask to see his colleagues so that you can present the plan to them personally.

20. All of the following motivate men to enter the field of selling. Which one is the strongest?
   ___ opportunity to earn more money
   ___ desire to be one's own boss
   ___ desire to meet people
   ___ dislike of desk jobs

21. Your supervisor points out that your sales have been falling off. You should
   ___ convince him you are doing your best
   ___ point out that you have been given the poorest customers
   ___ ask him for some tips on how to improve
   ___ tell him you hadn’t been well but will do better soon

22. What is the sales engineer's most important requisite?
   ___ knowledge of his product
   ___ a pleasant personality
   ___ inventive ability
   ___ ability to solve industrial problems
23. Many factors are involved in the price of property. Which one of the following is the most important?
   - Closeness of recreational facilities
   - Availability of transportation facilities
   - Restrictions which offer protection
   - Number of people who want to buy the property

24. You are selling canned goods to grocers. Your manager has told you that the prices will go down within two weeks. Which one of the following would be your best move?
   - Make your regular calls and accept all orders without trying to increase sales.
   - Make your regular calls and try to sell as much as possible while the price is high.
   - Concentrate your calls on the biggest customers, and warn them to unload.
   - Warn all customers on your route of the coming price decrease, and suggest they order only what they can sell in two weeks.

25. Which one of the following approaches would be best for a salesman to use when seeing for the first time a purchasing agent who is known to be a tough customer?
   - Tell him some good jokes.
   - Discuss the product as if he were a good customer.
   - Tell him his services are available even if he doesn’t purchase.
   - Discuss the merits and faults of his competitor’s products.

26. Your firm makes all kinds of paper containers. Mr. Roberts, owner of a small soft drink plant, has asked for a representative of your company to call. What would you do when you enter his office?
   - Introduce yourself, and wait for him to tell you why he asked a representative to call.
   - Tell him that containers will cut his shipping costs because they weigh less and are more compact than bottles.
   - Say, “We make containers for all purposes. We have the type that will be perfect for your needs.”
   - Say, “Before we start, Mr. Roberts, I’d like to look over your plant. Then I will know how we can best serve you.”

27. You are visiting a prospect who voices strong views regarding labor unions. He then asks for your opinion. His views do not agree with yours. What would you do?
   - Agree with him, and give additional reasons for his viewpoint.
   - Tell him firmly but politely that you disagree; then change the subject.
   - Try to point out the flaws in his argument.
   - Tell him you hadn’t thought much about it.

28. You are trying to sell a public address system for use in a factory. After you have used all your sales arguments, the prospect is receptive but not quite convinced. What would you do?
   - Leave and send some literature on the product as soon as possible.
   - Leave and return as soon as possible with a “specialist” to try to further convince the prospect.
   - Remain and go over the arguments once again.
   - Remain and tell him you can’t understand why he is not convinced of the product’s value.

29. You are a new salesman having your first interview with Mr. Charles, a shrewd and experienced buyer. He asks a question about your product which you are totally unprepared to answer. What would you do?
   - Guess at an answer so that he will not think you do not know your product.
   - Evade the question by trying a new line of approach.
   - Say that you don’t know since you are a new man, but you can get the information by contacting the home office.
   - Tell him that it isn’t too important and continue on to some other information about the product.

30. Which one of the following BEST describes good salesmanship?
   - Calling on people who are logical prospects.
   - Persuading people to buy your product.
   - Knowing how to get along with people.
   - Convincing people they need your product.