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## A Longitudinal Study of the Interests of Veterinarians

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*Abstract.* The newly-revised SVIB was restandardized on 362 members of the Iowa Veterinary Medical Association. Ninety-eight of these veterinarians in this 1966 criterion group were also members of the 1949 criterion groups when the SVIB veterinarian scale was first established.

The answer sheets from both the 1949 and the 1966 criterion groups were scored by the newly devised scoring key and a comparison made of score changes over this period. In addition the response-choice frequencies to the items common to both the old and the new SVIB by the longitudinal group were determined and significant shifts were noted and reported in detail. In general, the longitudinal group displayed a lessening of interest in scientific activities and an increase of interest in managerial, business, and financial activities over the 17 year period.

In 1949, Hannum (1949) standardized the Strong Vocational Interest Blank for Men (SVIB) on veterinarians. The SVIB was revised in late 1965. The new version of the SVIB was standardized on veterinarians by Alsip (1966).

Since several of the veterinarians in the present standardization group were also included in the 1949 standardization group, this afforded the opportunity for a longitudinal study of the interests of veterinarians over a 17 year period. The purpose of this study was to examine these changes with age.

### METHOD

*Longitudinal Group.* 98 veterinarians who had participated in both the 1949 and 1966 standardizations were identified. The sample for this longitudinal study of veterinary interests consisted of this group. The mean age of this group in 1966 was 52. All were in general practice.

*Scoring.* The scoring keys for the new SVIB were used to score both the 1949 and 1966 SVIB's.

Only 288 items were common to the old and the newly revised SVIB. The longitudinal comparison of scores and item responses were therefore, of necessity, based on these 288 items.

*Comparison of the 1949 and 1966 Scores.* For each of the 62 SVIB scales, the 1949 (test) mean and the 1966 (retest) mean was computed.

*Comparison of 1949 and 1966 Item Response Frequencies.* Response choice frequencies for the 1949 and 1966 testing were determined for each of the 288 items common to both forms. Four Chi

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square analyses for each of the 288 items were computed by a technique suggested in private communication by Dr. Leroy Wolins, Iowa State University, 1966.

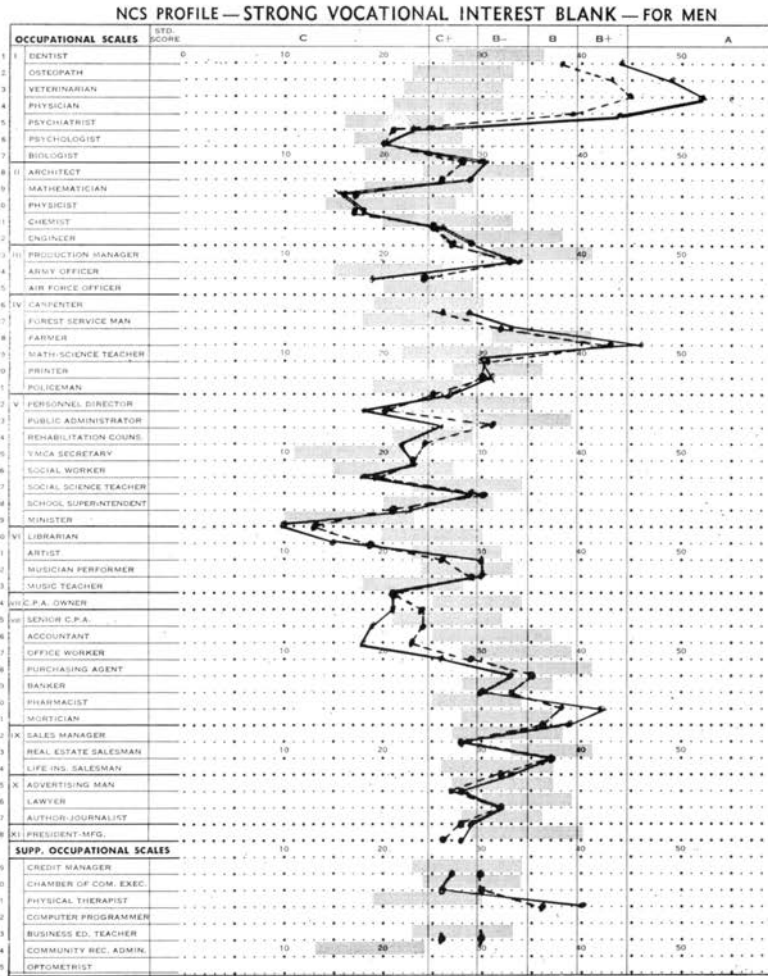


Figure 1. Test-retest mean standard scores and profiles for 98 veterinarians over a 17 year period.

1949 ————— 1966 - - - - -

### RESULTS

*Comparison of 1949 and 1966 Mean Scores.* Included in Figure 1 are the mean test and retest SVIB standard scores and profiles for the longitudinal sample of veterinarians.

*Comparison of 1949-1966 Item Response Frequencies.* Eighty

of the 288 items common to the old and new editions of the SVIB were found to have statistically significant shifts in response frequencies over the 17 year period. Tables 1 through 5 list these items.

Table 1 lists 32 items in which a statistically significant shift in response frequency from 1949 to 1966 was noted. For these items

Table 1. ITEMS SHOWING A STATISTICALLY SIGNIFICANT SHIFT, (TOWARD LIKE), WITH GREATEST SHIFT BEING FROM THE THIRD RESPONSE CHOICE TO THE SECOND RESPONSE CHOICE, RANKED BY CHI-SQUARE VALUE.

Item number	Chi-square value (McNemar Test)	Rank	Item
92	50.9	1	Stock broker
65	16.8	2	Office manager
77	15.2	3	Real estate salesman
21	14.5	4	Cashier in bank
84	12.9	5	Sculptor
52	12.0	6	Lawyer, corporation
54	10.7	7	Life insurance salesman
9	10.5	8	Author of novel
31	10.2	9½	Editor
233	10.2	9½	Looking at a collection of antique furniture
53	10.0	11	Librarian
107	9.5	12	Calculus
47	8.9	13	Judge
85	8.5	14	Manager, Chamber of Commerce
82	8.0	15	School teacher
61	7.7	16½	Mining superintendent
81	7.7	16½	Sales manager
15	7.3	18½	Bank teller
90	7.3	18½	Specialty salesman
33	6.9	20	Employment manager
91	6.7	21	Statistician
6	6.0	22	Astronomer
223	5.8	23	Methodical work
74	5.4	24	Private secretary
72	5.1	25	Politician
338	5.0	26	Work in a large corporation with little chance of becoming president until age 55 . . . Work for self in small business
5	4.9	27½	Artist
24	4.9	27½	Civil engineer
78	4.7	29	Reporter, general
112	4.6	30	English composition
322	4.5	31	Policeman . . . Fireman (fights fire)
44	3.9	32	Interpreter

Table 2. ITEMS SHOWING A STATISTICALLY SIGNIFICANT SHIFT, (TOWARD LIKE), WITH GREATEST SHIFT BEING FROM THE SECOND RESPONSE CHOICE TO THE FIRST RESPONSE CHOICE, RANKED BY CHI-SQUARE VALUE.

Item number	Chi-square value (McNemar Test)	Rank	Item
255	11.0	1	Foreigners
245	10.0	2	People who have made fortunes in business
125	8.7	3	Nature study
50	6.5	4	Landscape gardener
293	6.4	5	Opportunity for promotion
199	6.1	6	Making a speech
155	5.4	7	Sight-seeing trips
17	4.9	8½	Building contractor
142	4.9	8½	Hiking
316	4.7	10	Chairman, educational committee
134	4.3	11	Spelling
103	4.1	12	Arihmetic

this shift was primarily from the third response choice to the second response choice (Toward "Like").

Table 2 lists 12 items in which a statistically significant shift in response frequency was noted, primarily from the second response choice to the first response choice (Toward "Like").

Table 3 lists 7 items in which a statistically significant shift in response frequency was noted, primarily from the third response choice to the first response choice (Toward "Like").

Table 3. ITEMS SHOWING A STATISTICALLY SIGNIFICANT SHIFT, (TOWARD LIKE), WITH GREATEST SHIFT BEING FROM THE THIRD RESPONSE CHOICE TO THE FIRST RESPONSE CHOICE, RANKED BY CHI-SQUARE VALUE.

Item number	Chi-square value (McNemar Test)	Rank	Item
343	25.7	1	Work in which you move from place to place . . . Work where you stay in one place
373	14.4	2	Am always on time with my work
355	8.6	3	A few close friends . . . Many acquaintances
221	7.0	4	Expressing opinions openly, regardless of what others say
361	6.5	5	Usually start activities of my group
335	4.4	6	Definite salary . . . Commission on what is done
311	3.9	7	President of a society or club

Table 4. ITEMS SHOWING A STATISTICALLY SIGNIFICANT SHIFT, (TOWARD DISLIKE), WITH GREATEST SHIFT BEING FROM THE SECOND RESPONSE CHOICE TO THE SECOND RESPONSE CHOICE, RANKED BY CHI-SQUARE VALUE.

Item number	Chi-square value (McNemar Test)	Rank	Item
399	24.3	1	Make bets . . . Often . . . Sometimes . . . Rarely
395	14.3	2	Complaints annoy me . . . Rarely . . . Sometimes . . . Quite a bit
320	13.2	3	Chairman, publicity committee
167	6.7	4	Symphony concerts
246	4.3	5	Emotional people
97	4.0	6	Funeral director

Table 5. ITEMS SHOWING A STATISTICALLY SIGNIFICANT SHIFT, (TOWARD DISLIKE), WITH GREATEST SHIFT BEING FROM THE FIRST RESPONSE CHOICE TO THE SECOND RESPONSE CHOICE, RANKED BY CHI-SQUARE VALUE.

Item number	Chi-square value (McNemar Test)	Rank	Item
121	32.9	1	Industrial arts
127	13.3	2	Physical education
198	12.7	3	Interviewing clients
192	9.8	4	Giving "first-aid" assistance
158	8.3	5	Conventions
349	8.1	6	Listening to a story . . . Telling a story
182	7.1	7	Educational movies or TV
324	6.8	8½	Head waiter . . . Lighthouse keeper
388	6.8	8½	Discuss my ideals with others
184	6.7	10½	Social problem movies
299	6.7	10½	Freedom in working out one's own methods of doing the work
143	6.2	12	Boxing
190	6.0	13	Operating machinery
148	5.8	14	Solving mechanical puzzles
226	5.5	15	Developing business systems
153	5.1	16	Amusement parks
291	4.9	17	Salary received for work
130	4.8	18	Physiology
147	4.7	19½	Bird watching
102	4.7	19½	Agriculture
132	4.2	21	Shop work
209	3.9	22	Adjusting difficulties of others
227	3.8	23	Saving money

Table 4 lists 6 items in which a statistically significant shift in response frequency was noted, primarily from the second response choice to the third response choice (Toward "Dislike").

Table 5 lists 23 items in which a statistically significant shift in response frequency was noted, primarily from the first response choice to the second response choice (Toward "Dislike").

Only one item (#350) was found to have a statistically significant shift in response frequency primarily from the first response choice to the third response choice. This is a preference item; the 1966 group shifted significantly from liking to *play* baseball to liking to *watch* baseball.

#### DISCUSSION

Seven scale means decreased four or more standard score points from 1949 to 1966 and included: physical therapist, dentist, osteopath, veterinarian, physician, artist, and pharmacist. Except for the artist scale, these scales have a great deal in common, for they are the general medical, scientific, helping or "healing arts" professions. In spite of the decreased scores on these scales, they continue to be the highest scales for this group of veterinarians, with the artist scale being an exception. Much of the decrease can probably be explained by regression toward the mean rather than a true lessening of these professional interests. The decrease in the artist scale is of particular interest, since the standard score on that scale was low to begin with. Thus the decrease in this scale cannot be explained by regression toward the mean.

The occupational scales with the highest mean standard scores in 1949 decreased the following number of points by 1966: veterinarian—7 points; osteopath—6 points; farmer—3 points; dentist—6 points; physician—5 points; pharmacist—4 points; and physical therapist—4 points. The above scales are arranged in decreasing order according to their 1949 (est) mean standard scores. Except for the farmer scale, the scales decreased in a manner that is related to the magnitude of the test score, i.e., those with the highest standard scores decreased the most. Again, these decreases can probably be most easily explained in terms of regression toward the mean, although it is quite possible that these veterinarians really are not as interested in these areas as they were 17 years previously.

The ranking of the above-mentioned scales according to the magnitude of their standard scores changed very little from 1949 to 1966, and the slight changes are of little practical significance.

Seven scales had means which increased four or more standard score points and included: army officer, public administrator,

senior CPA, accountant, chamber of commerce executive, business education teacher, and the specialization level scale.

Again regression toward the mean may explain much of these increases rather than a true increase in interests in these occupations. These occupations, however, appear to be related in that they represent "managerial" or "business" type interests and it appears likely that these veterinarians are, in fact, more interested in these activities than they were 17 years ago.

The findings pertaining to specific item changes reported in Tables 1 through 5 indicate that the longitudinal group of veterinarians in 1966 is more interested in managerial work and other activities denoting leadership; business, particularly financial; sales work; travel; linguistic activities; and some cultural, artistic, and educational activities. It should be pointed out that the above partial "classification" is only one of many possible ways to group the SVIB items.

This group of veterinarians showed increased liking for many occupations and linguistic activities. Strong (1931), on the other hand, found that liking for most occupations and linguistic activities decreased with age. Most of the items of concern here showed a significant shift in response frequency in this study which was primarily from the third to the second response choice, that is, from "dislike" to "indifferent". The chi-square method of determining shift in response frequency is particularly sensitive to this kind of shift.

The results for this longitudinal group generally agree with the conclusion made by Strong that older men prefer, more than younger men, those amusements which are pursued largely alone in contrast to ones involving others, and older men are less interested in people being closely associated with them whether in business or in amusement. For instance, after a 17 year period these veterinarians were more interested in having a few close friends instead of many acquaintances; in addition, they were more interested in managerial and sales work, neither of which generally involves working side-by-side with peers.

Strong (1931) found that items suggesting physical skill and daring showed a change due to age, older men not liking such activities as well as younger men. The results of this study showed that after 17 years these veterinarians liked boxing less than when they were younger, but since many of the physical skill items have been eliminated from the SVIB, it is difficult to judge the applicability of Strong's conclusion to the data. However, three of the four school subjects which decreased in liking involved physical activity. These three school subjects included industrial arts, physical education, and shop work.



Strong (1931) found that his 55-year-old group had a more favorable interest in school subjects. However, in this study, the school subjects listed above decreased in liking with age. Only three school subjects, English composition, spelling, and arithmetic, were liked significantly better after 17 years.

The above comparison of results from this study and Strong's (1931) study was based upon conclusions drawn by Strong. In addition, an investigation of the items which showed a statistically significant shift in response frequency in both studies, regardless of the means used to group items, was made in order to find other changes with age that are unique to veterinarians. The following items increased significantly in liking in this study and decreased significantly in liking by the 55-year-old men in Strong's study: employment manager, mining superintendent, politician, sales manager, specialty salesman, stock broker, sight-seeing trips, and opportunity for promotion. These items seem to show that the increased interest which older veterinarians have in managerial and sales work and in changing activities is rather unique to the veterinary occupation.

The following two items decreased significantly in liking in this study and increased significantly in liking in Strong's study: adjusting difficulties of others, and educational movies or TV. The former item contributes to the impression that older veterinarians in the longitudinal group are less interested in "helping" others; the decrease in the latter item may merely be an emotional reaction to "TV".

Several items did show shifts in interests which were the same for the older veterinarians and Strong's (1931) cross-sectional sample of 55-year-old men. The older groups in both studies showed a statistically significant shift toward increased liking for the following items: librarian, English composition, nature study, and methodical work. Together these items seem to imply increased interest in quiet linguistic and aesthetic activity which does not require the presence of other people. The item "methodical work" may have an unusual meaning for older veterinarians which would account for its being better liked, since it does not agree with other items which showed increased liking for change.

The older groups in both studies showed a statistically significant shift in response frequency toward the third response choice for the following ten items: make bets . . . (often) . . . (sometimes) . . . (rarely), publicity committee chairman, emotional peopole, head waiter . . . light-house keeper, discuss my ideals with others, social problem movies, boxing, operating machinery, developing business systems, and amusement parks. These items show decreased liking for activities involving physical skill, and a general

desire for less closeness, both emotional and physical, with other people.

It must be pointed out that quite different methods were used in this study and in Strong's (1931) study. Strong compared the interests of 25 and 55-year old men from eight occupational groups, using the cross-sectional method; this study compared the interests of veterinarians whose mean age was 36 in 1949 and 52 in 1966, using the longitudinal method. Strong's (1931) study was done several years before this longitudinal study started, so changes may have occurred in the interests of wide groups of occupations which would have been apparent in a later cross-sectional study.

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