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The Changing Role of Pharmacists as Evidenced by the Strong Vocational Interest Blank

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The Strong Vocational Interest Blank/Strong Campbell Interest Inventory-Merged Form, or simply Strong Vocational Interest Blank (SVIB), is widely used to determine the suitability of a student's interests to a particular field. In the process of norming the instrument, data concerning the satisfaction of practitioners of a field and their responses on the instrument are gathered. Such data lend themselves to analysis of trends in the characteristics of those practitioners both over time and over the satisfaction spectrum. Hence changes in the field and characteristics lending themselves to satisfaction can be ascertained.

One field is pharmacy, according to the literature. Twenty-five years ago and, in fact, even 10 years ago, it would have been appropriate to think of the pharmacist as the corner druggist in his shop, selling, displaying, window trimming, dusting and perhaps performing some professional referral and health-care services. He recommended products in the times before everyone knew about them from television viewing; he removed particles from eyes, changed bandages, tended insect bites, served as an active member of the school board and the church. Everyone knew "Doc" and he knew them all individually by name.¹

Pharmacy education was (and, some might argue, still remains) a narrow technical educational track. There is little room in the curriculum for electives in the social sciences, where exposure to hypotheses about such "unorthodox" topics as human relations, communication skills, alternative life styles, etc., might be faced by the pharmacy student. The immediate milieu may be all the pharmacist knows.

A recent report investigated the appropriate form and content that pharmacy education should adopt in the coming years(1). Several changes were noted in the practice of pharmacy over the past 20 years. The emphasis on the dispensing function in pharmacy has decreased while the need to interact with patients more effectively has increased tremendously. Certainly, the ever-increasing importance of clinical pharmacy is evidence of this trend. This means that pharmacy education must change also in order to provide the best training possible for its graduates. It also means that the type of student being accepted to pharmacy school might also have to have different skills.

It seems reasonable to assume that as the nature and scope of the pharmacy profession changes that those social and behavioral qualities needed by the successful pharmacist would change. In fact, the degree of job satisfaction depends upon the degree to which both the training and predisposition of the pharmacist have prepared him/her for the job. To this end, it is

important to identify those qualities that best coincide with the role of the pharmacist and those that will best predict good job satisfaction and good performance.

However, the results presented here suggest a social component to the pharmacist's work which has been traditionally overlooked, and has only recently been considered as a possible subject of didactic instruction for pharmacists(2). At the University of Minnesota College of Pharmacy, a radical experiment in pharmacy education is attempting to produce measurable improvement in patient-oriented behavior by instructing students in communication skills and by giving them alternative role models.

INSTRUMENT: THE STRONG VOCATIONAL INTEREST BLANK (SVIB)

People do not enter a field or profession by accident. Much of the decision making is affected by secondary school guidance or career counselors based upon their perception of the work, requirements and the other characteristics of a profession or occupation. Those impressions are long-formed, based upon their personal experiences with people in that calling as well as with the results of standard tests and the literature concerning them.

The Strong Vocational Interest Blank (SVIB) is an instrument widely used by vocational guidance counselors to determine the interest and aptitude of students for a particular occupation. The SVIB is scored in such a way as to generate six General Occupational Theme (GOT) scales, 23 Basic Interest (BI) scales, and 124 Occupational scales(3). For the purpose of this paper, only the GOT and BI scales are relevant. These are listed by name in Tables IV and VI. Table IV lists the six GOT scales and Table VI lists the 23 BI scales.

Since the characteristics of a profession such as pharmacy change over time, it is necessary to periodically "recalibrate" or "renorm" the occupational scales on a currently practicing group.

THE STUDY: RENORMING THE SVIB

The renorming of the SVIB instrument for pharmacists was undertaken by Dr. Jo-Ida Hanson of the University of Minnesota in 1976 in cooperation with the College of Pharmacy. This renorming is the first since 1968 for male pharmacists and since 1971 for females. The study assessed the satisfaction of pharmacists as it relates to the SVIB. SVIB, job satisfaction

¹ For a good example of the druggist's role in the 1950s, see Chapter 5 of Koos, E.L., *The Health of Regionville*, Hafner Publishing Company, New York NY (1954).

Table I. Mean percent of time spent in activities by sex of the pharmacist^a

Activity	Mean percent	
	Female	Male
Administration	15.5	21.1
Information	20.4	14.3
Drug distribution	52.2	44.8
Non-health items	5.6	8.3
Compounding	13.2	7.4
Packaging	14.1	10.1
Labeling	17.2	14.2
Sales promotion	1.3	5.7
Research	2.8	3.6
Education	6.0	6.9
Purchasing	7.3	12.1
Inventory control	7.6	12.8
Pricing	9.3	9.3
Clerical	11.8	9.4
Pickup and delivery	0.7	2.1
Date of first licensure	1961	1959

^a These represent the figures given by respondents unadjusted for total of 100 percent.

and job activities measures were collected *via* a questionnaire mailed in 1976 to 2,400 pharmacists, representing a 5 percent systematic sampling of the current mailing list of Business Mailers Inc. That mailing list was compiled, in turn, from the registration rolls of the National Association of Boards of Pharmacy's constituent state licensing bodies and the American Pharmaceutical Association.

RESULTS

Usable responses were obtained from 693 respondents. The Strong Vocational Interest Blank was scored and analyzed by the University of Minnesota Center for Interest Measurement Research to determine new norms for pharmacists and to prepare individual profiles. Males and females were treated separately, since SVIB scales are normed separately. The differences between sample scale means for the old (males 1968, females 1971) norm groups and the new (1976) norm groups were tested using the *t*-test program in SPSS (4). Analyses of the questionnaire data were performed using the University of Minnesota Computer Center's CDC CYBER 74 computer.

Table I displays the average percent of time spent in each of several pharmacy activities by male and female pharmacists, and the average year of first licensure. Both sexes spent the bulk of their time in "distribution of drugs and other health-care items," followed by "providing information" for women and "administration" for men — an indication of traditional sex roles wherein men are more likely to be found engaged in

Table II. Frequency of different occupations among norming groups for male and female pharmacists

	Male		Female	
	N	Percent	N	Percent
Independent retail owner	151	28.5	9	8.9
Independent retail staff	95	17.9	31	30.7
Chain pharmacy manager	42	7.9	2	2.0
Chain pharmacy staff	42	7.9	13	12.9
Hospital pharmacy chief	35	6.6	9	8.4
Hospital pharmacy staff	32	6.0	18	17.8
Other pharmacist role	42	7.9	2	2.0
Other profession	89	16.8	17	16.8
Total	530		101	
No response	49		13	

Table III. Self-reported satisfaction of male and female pharmacists

	Male		Female	
	N	Percent	N	Percent
"Couldn't be more satisfied"	89	16.8	19	18.8
"I like it"	350	66.0	69	68.3
"Uncertain," "dislike it," "indifferent"	91	17.2	13	12.9

administration activities and women in service activities. The men have, on the average, been practicing two years longer.

Table II presents the numbers and percentages of males and females in the various occupations listed in the questionnaire. Nearly a third of the male pharmacists were owners of independent pharmacies. Only nine percent of the female pharmacists were owners; over a third of them were staff pharmacists for independent retail stores.

In Table III, the responses of the male and female pharmacists to the question "How do you feel about your present work?" are tabulated. Most indicated that they "like(d) it," both among males and females, with fewer numbers saying that they "couldn't be more satisfied," or that they were "uncertain," "indifferent" or "dislike(d)" it. These last two groups were about equal for both males and females.

From Table IV, it is apparent that male pharmacists² seem to have decreased in investigativeness, social orientation, enterprise, and conventionality relative to their counterparts in 1968.³ On the Social, Enterprising and Conventional scales, the change was from "moderately high" to "average." The change in the Investigative scale was within the "average" range (3). Scores on the Introversion-Extroversion scale showed a positive increase. Whereas the 1968 sample was slightly extroverted, the new sample seems to be slightly introverted. Academic Orientation showed no change since the last norming.

A positive change was shown for females between 1971 and 1976, on the artistic scale. Both scores were, however, in the "moderately low" category relative to the reference sample. Decreases relative to the 1971 sample were shown by the 1976 sample on the Realistic and the Investigative scales. Both ranges were from the "moderately high" to the "average" category relative to the reference sample. The Academic Orientation remained high and unchanged, as did the Introversion-Extroversion score.

Table V displays the six General Occupation Theme (GOT) scales, their estimated means and standard deviations, and the observed differences between those who indicated that they "could not be more satisfied" or "liked it" about their work ($N = 554$), and those who felt "uncertain," "indifferent to it" or "disliked it" ($N = 107$). Differences were determined by contrasts in one-way analysis of variance using SPSS (4). Only differences with a $P < 0.005$ are considered statistically significant; the others are merely suggestive or informative. This Type I error rate was arrived at as a compromise between calling too many differences significant and having no power to detect differences(5).

A glance at Table V reveals that only the social scale demonstrates a significant difference by the above criterion. Satisfied pharmacists scored higher on this scale, indicating that they "are sociable, responsible, humanistic, and religious;

² A subset of the entire sample was used for norming the scales. Selection criteria had to do with length of time on the job, type of work, and age.

³ Data on the BI scales were not available for the last renorming.

Table IV. Changes over time in the General Occupational Theme scales for male and female pharmacists^{a,b}

	Male, means				Female, means			
	1968	1976	Change	Reference 1973	1971	1976	Change	Reference 1973
Realistic	54	54	0	54.5	52	47	-5 ^c	45.5
Investigative	56	54	-2 ^c	51.5	58	54	-4 ^c	48.5
Artistic	45	44	-1	46.8	46	49	3 ^c	53.2
Social	54	48	-6 ^c	48.7	47	48	1	51.3
Enterprising	59	54	-5 ^c	51.9	49	49	0	48.1
Conventional	55	51	-4 ^c	49.9	50	50	0	50.1
Academic orientation	47.8	46.7	-1.1		52.1	52.1	0	
Introversion/extroversion	48.8	52.9	4.1 ^c	50.2	55.3	56.7	1.4	50.5

^a Sample sizes: Males: 1968 = 205, 1976 = 285; females: 1971 = 646, 1976 = 79.

^b Technical note: For the purposes of statistical tests, estimates of variance were obtained from the new sample and projected to the old.

^c Statistically significant ($P < 0.05$)

... have verbal and interpersonal skills; ... perceive themselves as understanding, responsible, idealistic, and helpful''(3), more so than those that are not explicitly satisfied or happy with their work. Table V also suggests they might be higher on the Realistic and Enterprising scales — the former reflecting pragmatic, concrete orientation, the latter reflecting entrepreneurial orientation, with aggressiveness and self-confidence as predominant and valued traits.

Table VI presents data analogous to that in Table V for the BI scales. The BI scales reflect an orientation toward the nominal subjects. Satisfied pharmacists differ from those who were not on three scales: Medical Science, Religious Activities, and Sales. These results indicate that the more satisfied pharmacists show a greater interest in medical science, religion and sales. The data also suggest that satisfied pharmacists are disinterested in agriculture, that social service is a positive goal and that merchandising is of interest. The last finding is consistent with the sales orientation of satisfied pharmacists, and the tendency towards social service is consistent with the Social GOT scale. However, it is curious that the Medical Services scale does not demonstrate a difference.

It is possible that some or all of the differences between the more and less-satisfied groups may have been mediated by sex and marital status. In order to investigate this possibility, a three-way cross-classification multivariate analysis of variance(6) was performed with satisfaction, marital status, and sex as the cross-classifications.

With the GOT scales as dependent variables, none of the interaction terms was significant. Hence, differences between satisfied and unsatisfied pharmacists on the six GOT scales were not dependent on marital status or sex.

Satisfaction remained a significant factor in the Social and Enterprising scales, but not in the Realistic scale ($P < 0.005$) after controlling for sex and marital status. Satisfied pharmacists scored 6.2 points higher on the Social scale and 4.4 points higher in the Enterprising scale.

There was a main effect for sex ($P < 0.001$) on two GOT

Table V. Differences between satisfied and unsatisfied pharmacists on General Occupational Theme scales

Scale name	Mean ± SD	Difference
Realistic	52.5 ± 11.19	- 2.6 ^a
Investigative	53.3 ± 8.50	0.2
Artistic	44.7 ± 10.06	0.0
Social	46.6 ± 10.14	3.5 ^b
Enterprising	52.1 ± 9.33	2.6 ^a
Conventional	50.2 ± 9.28	1.4

^a $P < 0.05$.

^b $P < 0.001$.

scales: males were 5.0 points higher on the Realistic scale and females were 4.8 points higher on the Artistic scale. Marital status was not a factor in any of the scales.

When the same multivariate analysis was applied to the Basic Interests scales (BI), the main effects for satisfaction and sex were significant ($P < 0.001$, for both), but not for marriage. No significant interactions were observed, again supporting an additive model. Significantly higher ($P < 0.05$) scores for satisfied pharmacists were found on the Medical Science (3.5), Social Service (4.4), Religious Activities (3.9), and Merchandising (3.9) scales — but not Sales. This corresponds closely to what was found in the one-way analysis of variance, with the exceptions that Agriculture and Sales did not emerge as significant when controlled for sex and marriage.

Males and females differed on Adventure (males 6.8 points higher), Military (males 5.2 points higher), Medical Service (males 13.8 points higher), Music/Drama (females 5.0 points higher), Art (females 7.0 points higher), Writing (females 5.9 points higher), Athletics (males 5.7 points higher), Domestic Arts (females 11.4 points higher), Public Speaking (males 4.1 points higher), Sales (males 4.9 points higher), and Business Management (males 4.0 points higher).

Table VI. Differences between satisfied and unsatisfied pharmacists on the Basic Interest scales

Scale name	Mean ± SD	Difference
Agriculture	51.2 ± 9.85	- 2.4 ^a
Nature	50.9 ± 10.72	- 0.9
Adventure	49.6 ± 10.00	- 2.0
Military activities	53.1 ± 10.53	- 1.6
Mechanical activities	52.6 ± 10.89	- 2.0
Science	54.4 ± 8.22	- 0.3
Mathematics	52.3 ± 9.10	0.2
Medical science	58.9 ± 7.60	3.8 ^d
Medical services	50.2 ± 13.30	2.3
Music/dramatics	45.1 ± 10.31	1.3
Art	44.0 ± 10.23	0.1
Writing	44.5 ± 9.77	- 0.2
Teaching	45.0 ± 10.14	1.4
Social service	44.5 ± 9.12	2.8 ^b
Athletics	52.3 ± 10.00	0.3
Domestic arts	44.5 ± 10.64	1.8
Religious activities	48.3 ± 9.60	3.0 ^c
Public speaking	47.9 ± 9.40	0.9
Law/politics	48.7 ± 9.19	- 0.3
Merchandising	51.8 ± 9.00	2.8 ^b
Sales	52.6 ± 9.09	2.8 ^c
Business management	50.6 ± 9.52	1.7
Office practice	47.9 ± 8.48	1.1

^a $P < 0.05$; ^b $P < 0.01$; ^c $P < 0.005$; ^d $P < 0.001$.

DISCUSSION

The GOT scale results imply that satisfied pharmacists are enterprising and gregarious people. The BI scales show them to be mercantile, but also religious and service-oriented, with a bent for medical science. Although there might have been some response bias in that the willingness to cooperate could be related to the Social and Social Service scales, these biases would be in the opposite direction of the changes over time seen in the sample. That is, the population would be less social- and service-oriented than our sample, hence less than the reference sample for both male and female pharmacists in 1976. Of course, if a similar bias is found in both satisfied and dissatisfied respondents, such a bias would not affect the conclusions about the differences.

Surely, a desire to help people motivates some people to go into pharmacy and this may be thought of as requiring a one-to-one relationship. The pharmacist has to like people and be gregarious to have a successful practice.

In the past, we may have seen a self-selection process of socially oriented, gregarious persons of a conservative bent going into the field of community pharmacy practice. One could have his own store with a minimum of investment and be an entrepreneur. Community practice pharmacies rarely failed so very little relative risk was perceived.

Today, meeting the educational requirements of the profession demands that as the socially interactive aspects of pharmacy become more emphasized, so the curriculum must evolve to encompass these skills. In this way, pharmacists may hold their position as practitioners of the healing art, as much as they are now enterprising, community-minded merchants. Brodie, *et al.*(7), see five roles for pharmacists: (i) as a manager of resources, (ii) as an educator, (iii) as a consultant, (iv) in a health maintenance role for the chronically ill, and (v) in a primary-care role. This last has become more formalized than in the past, and the last three especially demand a clinical- or

patient-orientation(7).

That the practitioners of pharmacy with traits which support these last three roles are more satisfied as a group has been shown by the present study. It has also shown that in the past pharmacists were more ready to assume these roles than the population at large, although this is no longer true. Therefore, it may be necessary to more strongly emphasize them when encouraging young people to go into the profession.

Finally, the implication that the selection criteria for admission to pharmacy schools ought to include consideration of the applicant's ability to relate to and communicate with fellow health professionals, patients, and other clients is clear. Such screening might be either by administration of questionnaires or by personal interview. In light of the slight changes necessary in present admissions procedures, the inclusion of patient-oriented factors in admissions procedures seems warranted. Hopefully, this will reverse the trend toward less socially-oriented pharmacists.

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