

## LONGITUDINAL CHANGES IN VOCATIONAL INTERESTS OF CANADIAN MILITARY COLLEGE CADETS\*

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### Abstract

Interest patterns of Canadian military college cadets were acquired by administering the Strong Vocational Interest Blank to three consecutive entry classes (N = 400) at the beginning, middle and end of their 4-year baccalaureate programs. Complete data were gathered on 136 of the 168 cadets who graduated. Significant changes occurred on 16 of 22 Basic Interest Scales, 38 of 54 Occupational Scales, and 4 of 8 Non-Occupational Scales. The bulk of these changes were accomplished in the first two years. They reflected the cadets' movement from an initially masculine position rooted in the physical sciences and technical and skilled trades to a more aesthetic-cultural, articulate and humanistic orientation. This was accompanied by increased dispersion and heterogeneity on all but one of the SVIB scales.

### Résumé

On a obtenu un éventail des intérêts d'officiers cadets étudiant dans les collèges militaires canadiens à l'aide du "Strong Vocational Interest Blank" administré à trois groupes consécutifs de première année (N=400). Cet inventaire d'intérêts fut mené au début, au milieu et à la fin des quatre années requises pour l'obtention du baccalauréat. On a obtenu des données complètes sur 136 des 168 officiers gradués. On a relevé des changements significatifs dans 16 des 22 échelles d'intérêts fondamentaux, dans 38 des 54 échelles sur les professions, et dans 4 des 8 échelles autres que professionnelles. La majorité de ces changements eurent lieu durant les deux premières années. Ils reflètent l'évolution des officiers cadets à partir d'une optique initiale masculine enracinée dans les sciences physiques et techniques, ainsi que dans les métiers spécialisés vers une orientation plus culturelle-esthétique, articulée et humaniste. A l'exception d'une seule échelle, ce phénomène était accompagné par une dispersion accrue et une hétérogénéité sur toutes les échelles du "Strong Vocational Interest Blank".

The measurement of college impact on students has accumulated rich literature over the past half-century. Studies have been conducted to explore the influence of colleges and universities on the personalities of students of both sexes, classified into a variety of academic majors. The methodological problems in these studies are complex and have been amply elaborated by Feldman and Newcomb (1969) in their two-volume summary of 40 years of such research.

Close inspection of their survey revealed that no longitudinal study of changes in vocational

interests as measured by the Strong Vocational Interest Blank was included. Moreover, no prior study of students in a military college was reported.

This paper will report the changes in the measured interests of cadets successfully completing the four-year university curriculum of the Canadian military colleges. The questions addressed herein are: (a) As measured by the Strong Vocational Interest Blank (SVIB), what is the initial interest pattern of cadets who ultimately graduate? (b) How does this pattern change over their four-year experience? (c) When do the changes that do occur first appear? (d) Is the initial heterogeneity among the cadets decreased or increased?

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## METHOD

Three successive classes enrolling at Royal Roads Military College in Victoria, B.C., were administered the Strong Vocational Interest Blank as the start of the freshman year (pretest) and junior year (midtest) and at the time of graduation (posttest). Changes were computed and tested for significance for each SVIB scale for the two and four-year intervals. The use of three classes served as a check on the possibility that any one class might have been different in some way from those that preceded or followed it. It also made possible the combination of the three classes into one large sample ( $N = 400$ ) for which the results would be more reliable and representative.

Royal Roads Military College is one of three military universities in Canada. It was a small, residential, two-year college in the years covered by this study. Entry classes typically ranged from 125-150 students and, on average, approximately 35% dropped out in the first year for academic, motivational and other reasons. Therefore, the total student body was about 225 at the start of each year and gradually declined as the year progressed. The school day started with reveille at 6 a.m., and the academic schedule consisted of classes from 8 to 4, with no open study hours. Athletics and military requirements were the other major claimants on the cadets' energies and each weekday ended with a mandatory three hour study period. The cadets who completed the two-year program at Royal Roads then finished their military college education at Royal Military College in Kingston, Ontario.

## RESULTS

Inspection of the mean scores on all SVIB scales for the three separate classes shows them to have been remarkably similar with respect to their interest pattern.<sup>1</sup> In the Basic Interest Scales, each class had Adventure, Military Activities, Mathematics and Science as the top four, and Office Practices, Nature, Merchandising, Business Management and Technical Supervision as their lowest five scales, with minor variations in placement. With regard to the Occupational Scales, each class ranked Computer Programmer first, Air Force Officer second, and Chemist third. Math Science Teacher was fourth in two classes and fifth in the other class. Occupational Families III (Technical Supervision) and II (Physical Science) dominated the top 14 places, while the Social Service Occupations (Family V), Business and Accounting Occupations (Families VII, VIII and XI), and Aesthetic-Cultural Occupations (Family VI) were clustered in the bottom 16 places.

1. SVIB scale means and standard deviations by administration and entry class are available from the authors.

The consensus is even greater for the eight Non-Occupational Scales, with only one-step variations at most in the separate class rank orders. The Masculinity-Femininity II Scale topped all three lists, and the Age-Related Scale was placed at the bottom for each class. The Diversity of Interests Scale was above average in each class, ranking second twice and third in the remaining class.

This initial similarity of interest scores made it feasible to group together the 136 cadets from all three classes who completed all three test administrations and also successfully finished the four-year curriculum. An additional thirty-two graduated cadets did not complete the final SVIB administration and were lost to the study.

*Basic Interest Scales*

Adventure and Military Activities were the highest ranked scales at admission and throughout the four-year program. After two years, ten variables showed significant increases and four had dropped significantly. At graduation, 11 scales were significantly higher and five were significantly lower. Among those scales increasing, Agriculture (11th) and Teaching (13th) moved most to reach third and fourth positions, respectively, in the final ranking. The greatest rank changes for those scales showing significant decreases were made by Science (from third to eighth), Social Service (from 4th to 12th) and Religious Activities (from 10th to 16th).

*Occupational Scales*

At the end of two years, 23 occupational scales showed a significant increase, and 12 were significantly lower. At graduation, there were still 23 occupations which were significantly higher with 15 significantly lower. The scales showing significant increases were primarily in the Social

TABLE I  
Significant Four-Year Changes in SVIB Occupational Scales

SVIB Occupational Family	No. of Occupations Significantly Higher	No. of Occupations Significantly Lower
V. Social Service	10	0
IX. Sales	4	0
VI. Aesthetic-Cultural	3	0
X. Verbal-Linguistic	2	0
XI. Pres-Mfg.	1	0
I. Biological Sciences	1	0
VII/VIII. Business & Accounting	0	1
IV. Technical & Skilled Trades	1	3
III. Technical Supervision	1	4
II. Physical Sciences	0	7
Totals	23	15

Service, Sales, Aesthetic-Cultural and Verbal-Linguistic occupational families. The significantly lower scales were concentrated in the Physical Science, Technical Supervision, and Technical and Skilled Trades occupational families. Table 1 summarizes the results, using the revised grouping of occupational families suggested by Navran and Posthuma (1970).

#### *Non-Occupational Scales*

After two years and at graduation, the AR and OL Scales were significantly higher, while the MFII and OIE Scales were significantly lower. In the last two years, the significance level of the changes which occurred in the first two years increased.

### DISCUSSION

The foregoing results allow the drawing of the following conclusions:

1. The Canadian *Armed Forces* cadet selection process produced three successive entry classes which were very similar in their interest patterns. The Basic Scale scores depict them at entry as collectively adventurous and oriented to military activities, with strong interests in the areas of Mathematics, Science, Recreation, Leadership, Law/Politics, Social Service and Public Speaking. Their aesthetic-cultural interests were lower in the rank order hierarchy, and even less favoured were their interests in business areas. The lowest basic scale for all classes combined was Technical Supervision.

By contrast, the cadets' Occupational Scales scores were highest in the Technical Supervision Occupational family. This appears to be a semantically based contradiction, for the occupations in this family are Computer Programmer, Air Force Officer, Math-Science Teacher, Army Officer and Production Manager. The first four on the list actually are in line with the high Basic Interest Scales of Military Activities, Mathematics and Science. The Production Manager is 13th in the occupational scale list and it is closest in content to the low-ranked Technical Supervision Basic Interest Scale.

Another important contributing factor to this seemingly contradictory result is the difference in the construction of the Basic Interest and Occupational Scales. The former consist of relatively few items which relate to a single content area, while the latter are comprised of items which discriminate a sample of people working successfully in the occupation from "men-in-general" (Campbell, 1969). The cadets seemingly disavowed the five items comprising the Technical Supervision Basic Interest Scale, but actually shared the interests of people in the

occupations labelled as the Technical Supervision family.

The Non-Occupational Scales scores indicated that the cadets viewed themselves as definitely masculine, with diverse interests, and with much in common with men accustomed to high earnings. They were slightly on the introverted side of the OIE mean of 50, close to the Academic Achievement mean score of people who earn B.A. degrees, but lacking the interests of people considered to be good managers in industry.

2. It is clear that the great bulk of the changes made over the four-year military college experience were accomplished in the first two years. This finding is consistent with the findings reported by Sanford (1966), Chickering (1969), and Dressel and Lehmann (1965) for attitudes and values and by Plant (1965) for ethnocentrism. Heath (1968), in his longitudinal studies at Haverford, also found that the latter years of the college experience served as a period of stabilization and integration of changes occurring in the first and second years.

3. The changes themselves show that the cadets have moved from their initially masculine, realistic, objective orientation grounded in the physical sciences and technical and skilled trades to a much more articulate and humanistic stance. In the final ranking of the Occupational Scales' family groups, the Verbal-Linguistic family moved from fifth place to second, the Social Service family went from ninth place to a tie for fifth, while the Physical Sciences dropped from second to fourth, the Technical and Skilled Trades from third to a tie for fifth and the Business Occupations from sixth to ninth.

The development of increased similarity of interests to people who use language in their work and those who serve others imply that the cadets have become more well-rounded individuals as a result of their exposure to a bilingual curriculum which gives great emphasis to leadership, an understanding of history and literature, and close interpersonal relations in the academic, athletic and military spheres.

4. Most importantly, these changes have not been accomplished by a machining of their initial heterogeneity into a homogeneous group of interchangeable "units". The standard deviations for the administration at graduation are greater for all 22 Basic Interest Scales, all 54 Occupational Scales and all but one (OL) of the eight Non-Occupational Scales! This suggests that the military educational system, though rigorous, demanding and disciplined, functions in a way that increases individual differences in vocational interests rather than narrowing them. Interestingly, only about one-half of prior studies of college

impact in civilian colleges have reported a similar increase in heterogeneity among seniors (Feldman & Newcomb, 1969), which indicates that such an effect is not inherent in the educational process, but is highly situational.

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