

Student Perceptions of Occupational Characteristics

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On a utilisé l'échelle différentielle sémantique (ds) pour étudier la nature des caractéristiques d'activités, telles qu'elles sont perçues par les élèves de 9^e année. L'objectif était de voir si les facteurs décrivant ces caractéristiques pouvaient être identifiés en utilisant la différentielle sémantique. On a utilisé 41 échelles ds avec deux listes différentes de 21 types d'activités. Une analyse où le facteur était considéré comme élément principal a permis de dégager six facteurs. On a sélectionné 19 des 41 échelles ds comme mesures de ces six facteurs.

It has been suggested (Garbin, 1967; Irvine, 1969; Terwilliger, 1963) that an individual's perception of an occupation is a complex multi-dimensional combination of several perceived occupational attributes. Some of these attributes can be objectively defined, as in the case of training requirements for certification or average income of present incumbents. Other attributes are more subjective and depend to some extent on the interpretation of the viewer (e.g. prestige, power, autonomy, working conditions). Each occupation may be perceived by individuals and groups as possessing a certain rank with respect to each of these underlying attributes or characteristics. Of course, the number of possible characteristics may be very large and there may be a great deal of overlap amongst them. Consequently, it would be useful to group the characteristics into a set of relatively independent factors. Then when students are trying to reach an occupational decision, it would be possible for a vocational counsellor to assist them in explicating their own values by encouraging them to rate occupations in terms of the various factors.

A number of studies have been conducted on the perceptions of occupational characteristics. However, in most of these studies (Clark & Seals, 1975; Medvene & Collins, 1974; Tiryakian, 1957; Tseng & Rhodes, 1973) subjects

were asked to rate or rank occupations with respect to a single criterion which was of a summary or general nature (e.g. general status, general reputation, social status, etc.). Consequently, it is not possible to state how these occupations would be rated on more specific factors, nor is it at all clear why the particular occupations had been assigned the general status accorded them. Some studies used the multidimensional concept of occupational characteristics (Beardslee & O'Dowd, 1961; Dickinson, 1954; Dipboye & Anderson, 1959; Garbin, 1967; Hicks, 1966; Osgood & Stagner, 1941; Osipow, 1962; Rossi & Inkles, 1957; Thompson, 1966; Triandis, 1959). However, these studies used sets of predetermined factors and were directed toward finding relationships with other traits or variables. A few studies (Gonyea, 1961; Irvine, 1969; Terwilliger, 1963) focused upon the fundamental problem of identifying the underlying characteristics of occupations. A review of the latter group of studies revealed that the occupational factors identified differed between the studies and that the occupational factors did not conform to the concept of occupational characteristics. The identified structure of occupational characteristics was rather a system of occupational classification, with the factors regarded as occupational groupings. This problem likely resulted from differences both in the approach to and in the scope of these studies. This indicated that further study of the problem was needed.

PURPOSE OF THE STUDY

The general purpose of this study was to examine students' perceptions of occupational characteristics. In the present educational system, students usually encounter the task of vocational choice just prior to entering high school. At that time, the individual must choose subject areas that reflect his/her abilities and/or interests. Because of these two important factors it was decided the study should concentrate on students in grade 9.

The specific purposes of the study were: (1) to suggest a set of verbal labels which could be used to describe occupational characteristics, as perceived by grade 9 students, and to group these labels into parsimonious clusters or factors; (2) to obtain a set of bipolar-adjective scales for use in measuring perceptions of occupational characteristics.

METHOD

Subjects

The subjects were 267 grade 9 students from 10 classrooms in a junior high school in Edmonton, Alberta. The students in each classroom were assigned to one of two subgroups. Independent analyses were carried out on the two subgroups as a check on the stability of the factor structure over differences in samples of occupations and samples of students. The classroom teachers administered the questionnaires to the students. The 10 classrooms provided a cross-section of students in the same grade of Edmonton.

Instrument

Because this study focused upon structuring and measuring the subjects' domain of interest, data were collected using the Osgood et al. (1965) *Semantic Differential Technique* (SD) in an exploratory mode (Maguire, 1973). The procedure originally used by Osgood to reveal the three factors (evaluation, potency, and activity) was applied in an effort to identify the underlying dimensions of occupations. In the present study, the concepts were occupational titles and the scales were bipolar-adjective pairs that described the characteristics of an occupation.

Two lists of 21 occupational titles each were prepared for the study (table 1). The two lists were stratified random samples from Safran's list of occupational titles (Safran, 1969). Safran's list was chosen primarily because it was prepared for use with Canadian students in grades 9 through 12. This was a relevant consideration in the study. It should be noted that as a result of a pilot study some adjustments and replacements were made to the original randomized list of occupations to compensate for titles which would be unfamiliar to some grade 9 students. These judgments were made by two experienced ninth-grade teachers. No attempt was made to "de-sex" titles such as "Policeman" or "Stewardess" since it was feared that the more appropriate appellations (Police Officer, Flight Attendant) were not sufficiently in common use to be familiar to all students in grade 9.

Table 1 / Occupational Titles

No.	Group 1	Group 2
1.	Airplane Pilot	Watchmaker
2.	Botanist	Cattle Inspector
3.	Cook	Telephone Operator
4.	Salesman	Personnel Clerk
5.	Cartoonist	Advertising Man
6.	Economist	Zoologist
7.	Tree Surgeon	Fisherman
8.	Janitor	Bus Driver
9.	Service Station Attendant	Repairman
10.	Tailor	Toolmaker
11.	Electronics Worker	Optometrist
12.	Policeman	Soldier
13.	Athletic Coach	Travelling Guide
14.	Sports Announcer	Floral Designer
15.	Veterinarian	Chemist
16.	Mailman	Airline Stewardess
17.	Librarian	Beautician
18.	Pharmacist	Astronomer
19.	Dressmaker	Actor
20.	Sociologist	Nurse
21.	Architect	Engineer

Table 2 / Bipolar-Adjective Pairs

creative – uncreative	weak – strong
taking – giving	stable – unstable
necessary – unnecessary	dark – bright
perfect – imperfect	easy – difficult
reliable – unreliable	happy – sad
skilled – unskilled	masculine – feminine
sociable – unsociable	pleasant – unpleasant
well paid – poorly paid	rich – poor
safe – dangerous	simple – complex
successful – unsuccessful	selfish – unselfish
rough – smooth	valuable – worthless
powerful – powerless	secure – insecure
new – old	superior – inferior
meaningful – meaningless	tense – relaxed
interesting – uninteresting	temporary – permanent
enjoyable – boring	dependent – independent
good – bad	honest – dishonest
important – unimportant	exciting – dull
kind – cruel	demanding – undemanding
nice – awful	clean – dirty
serving – receiving	

Note: The order of pairs here is the same as that used in the questionnaire booklet but the polar directions in the booklet were random.

The bipolar-adjective pairs were screened through several successive steps, including a pilot study with a group of university students and a group of grade 9 students. A final list of 41 adjective pairs was retained (see table 2).

Administration of the Instrument

The questionnaire booklets were composed of seven pages: an instruction page, a personal information page, and five sd pages. Each page contained an occupational title at the top of the page, followed by 41 adjective pairs. There were two subgroups of booklets. Each subgroup contained titles only from one of the two groups of occupational titles listed in table 1. Because of limited testing time, each student rated only 5 of the 21 titles in the subgroup. The titles were rotated within each subgroup resulting in approximately equal numbers of students per occupation. A bundle of booklets was given to each of the classroom teachers. The booklets in each bundle were arranged in alternate order (i.e. g1,g2,g1,g2, . . .) and were distributed by row to all students in each classroom. In the 10 classrooms, the number of students in each subgroup and the proportion of boys and girls between subgroups were comparable (subgroup 1: 68 males, 67 females; subgroup 2: 66 males, 66 females).

ANALYSIS

Because of the limitations imposed by restricted testing time and because it was necessary to measure the students' perceptions of a large variety of occupations, it was decided to draw two samples of occupations and carry out the analyses independently. In this way a check could be made on the stability of the factor structure over different samples of occupations.

Initially, each group was analyzed separately. The data were "strung out" (Maguire, 1973) and the (41×41) interscale correlation matrices were factored and rotated.

As a result of the subgroup analysis, there were 16 scales found to be common across the two groups. In addition, there were 4 scales in the common factor space that occurred only in subgroup 1 (strong-weak, secure-insecure, powerful-powerless, creative-uncreative) and 2 scales that occurred only in subgroup 2 (happy-sad, simple-complex). Examination of the resulting factor structures, and in particular examination of the factor composition of the 16 common scales, revealed a strong similarity between subgroups. Differences caused by the six "non-common" scales did not appear to have a strong effect upon the interpretation and could be accounted for on the basis of sampling differences between the two sets of occupations. It was concluded that the factor structure was sufficiently stable across the two sets of occupations to proceed with analysis of the total group using the 22 scales.

Combined Group Analysis

The data matrices for the 22 scales from the two subgroups were combined and the resulting interscale correlation matrix broken into six factors. It was found that three scales did not load on these six factors. The three scales (secure-insecure, sad-happy, and good-bad) were among the six scales that were not common in the subgroup analysis. Thus, they were dropped from subsequent analyses.

The correlation matrix of the remaining 19 scales was factored. The resulting rotated structure is shown in table 3. By using loadings greater than .400 as a criterion, it was found that no scale belonged to more than one factor. All scales, except one (creative-uncreative), had communalities greater than 0.540. Only one scale, successful-unsuccessful, had a substantial loading lower than 0.550.

FACTORS

Since Factor I was concerned with the intrinsic nature of an occupation (boring-enjoyable, uninteresting-interesting, etc.) it was termed "Personal Satisfaction." Factor II was concerned with evaluation regarding the general benefits to society (unimportant-important, worthless-valuable, etc.) and was labelled "Values to Society." Factor III (poor-rich, simple-complex, etc.) focused upon the material position of the occupation and

Table 3 / Final Varimax Rotated Factors (Combined Group)

Scale	I	II	III	IV	V	VI	h^2_j
boring-enjoyable	.820*	.209	.145	-.132	.001	.178	.786
uninteresting-interesting	-.787*	-.237	-.196	.175	.028	-.134	.763
dull-exciting	-.724*	-.173	-.188	.162	.116	-.167	.657
unpleasant-pleasant	.566*	.180	.186	-.308	.220	.195	.569
uncreative-creative	.552*	.060	.309	-.075	.114	-.058	.426
unimportant-important	.214	.778*	.127	-.155	-.041	-.210	.737
unnecessary-necessary	.035	.769*	.103	-.082	-.087	.127	.633
worthless-valuable	.262	.671*	.280	-.166	-.053	.142	.647
meaningless-meaningful	.294	.657*	.218	-.126	.024	.084	.598
poor-rich	-.257	-.149	-.730*	.117	-.142	-.203	.696
poor/lay paid - well paid	.184	.188	-.688*	-.078	.136	.181	.601
simple-complex	.234	.224	.584*	-.040	-.297	-.084	.543
cruel-kind	-.188	-.171	-.106	.825*	-.139	.001	.776
awful-nice	-.353	-.241	-.105	.710*	-.151	-.129	.737
dangerous-safe	.011	-.040	.007	-.087	.738*	-.136	.573
rough-smooth	.067	-.058	.107	-.126	.714*	-.100	.556
powerless-powerful	-.208	-.224	-.255	.013	.182	-.648*	.611
weak-strong	.191	.316	.094	-.112	-.237	.603*	.578
successful-unsuccessful	-.386	-.272	-.489*	.112	-.167	-.211	.548
Total Variance	16.799%	14.036%	10.903%	7.915%	7.530%	6.112%	63.294%
Common Variance	26.541%	22.175%	17.226%	12.505%	11.896%	9.656%	

*Substantial loadings of the heading factor.

the level of spiritual tolerance one would encounter in it; the label “Life Security” seemed to fit well. Factor IV (cruel–kind, awful–nice) appeared to be a general impression of occupations along a humanitarian dimension; it was labelled “Human Value.” Factor V (dangerous–safe, rough–smooth) seemed to be another aspect of personal security and was termed “Physical Security.” The last factor, Factor VI (powerful–powerless, strong–weak), was concerned with the influence or strength of an occupation and was labelled “Power.”

DISCUSSION

Two groups of studies have followed the multidimensional approach in examining occupational characteristics, one group which used predetermined factors and another which tried to identify the factors. Since the results from the second group of studies of Gonyea (1961), Irvine (1969), and Terwilliger (1963) were systems of occupational classification rather than factors of occupational characteristics, they were not compared with the results from this study. However, the predetermined sets of factors from the studies of Dickinson (1954), Dipboye and Anderson (1959), Garbin (1967), Hicks (1966), Osgood and Stagner (1941), Rossi and Inkeles (1957), Thomas (1961), and Thompson (1966) conformed to the concept of occupational characteristics and were compared with the results of this study. Table 4 shows the comparison of the factors from the present study and a summary of the factors used in the eight studies using predetermined factors. Five of six factors found in this study had counterparts in the previous studies. The “Human Values” factor did not have a direct counter-

Table 4 / Factors Matched with Those from Other Studies

Present Study	Studies with Predetermined Factors
<i>Corresponding Factors</i>	
Personal Satisfaction	Personal Satisfaction
Values to Society	Helping Others or Service Values
Life Security	Financial Conditions Advancement Benefits
Human Values	
Physical Security	Security, and Working Conditions
Power	Power

Note: Noncorresponding factors (from previous studies) included: Human Relationships, Independence, Level of Education and Intelligence, Responsibility, Crucial Roles, Mental-Physical or White Collar vs. Blue Collar, Prestige.

part in the other studies, although Thompson's (1966) "Helping Others" is related to it. This indicated a confirmation of some of the matched factors from the previous studies and supported the validity of the factors found in this study.

It should be noted that several factors from the previous studies were not found in this study. Such factors may not be pertinent to the perceptions of grade 9 students.

The results of the study support the multidimensional assumption of occupational perception. The 19 scales identified in the study were appropriate for isolating six primary factors of perceptions of occupations. However, since this is one of the first studies to use the SD scale as a means of identifying the perceived factors of occupations, further validation of these scales is required. For the moment, it seems reasonable to use the six factors as a basis for discussing occupations in vocational counselling interviews. That is, as students explore the nature of the world of work, it would be useful to attend to all facets of the occupations. Students should be made aware that jobs may differ along these six dimensions and that their own personal orientations might put higher values on some dimensions than on others. In essence, the process of selecting an occupation should take into account these factors.

A second study, now in progress, should cast further light on the differentiation of occupations along these dimensions by ninth-grade students. This will be done by developing profiles for 30 representative occupations.

REFERENCES

- Beardslee, D. C., & O'Dowd, D. D. The college-student image of the scientist. *Science*, 1961, 133, 997-1001.
- Clark, A. J., & Seals, J. M. Student perceptions of the social status of careers for college graduates. *Journal of College Student Personnel*, 1975, 16(4), 293-298.
- Dickinson, C. Ratings of job factors by those choosing various occupational groups. *Journal of Counseling Psychology*, 1954, 1(3), 188-189.
- Dipboye, W. J., & Anderson, W. F. The ordering of occupational values by high school freshmen and seniors. *Personnel and Guidance Journal*, 1959, 38, 121-124.
- Garbin, A. P. Occupational choice and the multidimensional rankings of occupations. *Vocational Guidance Quarterly*, 1967, 16, 17-25.
- Gonyea, G. G. Dimensions of job perceptions. *Journal of Counseling Psychology*, 1961, 8(4), 305-313.
- Hicks, R. H. Occupational prestige and its factors. *African Social Research*, 1966, 1, 41-58.
- Irvine, S. H. The dimensions of vocational preference and prestige in an African elite group. *The World Year Book of Education*, 1969, pp. 319-332.
- Maguire, T. O. Semantic differential methodology for the structuring of attitudes. *American Educational Research Journal*, 1973, 10(4), 295-306.
- Medvene, A. M., & Collins, A. Occupational prestige and its relationship to traditional and nontraditional views of women's roles. *Journal of Counseling Psychology*, 1974, 21(2), 139-143.
- Mulaik, S. A. The foundations of factor analysis. New York: McGraw-Hill, 1972.
- Osgood, C. E., & Stagner, R. Analysis of prestige frame of reference by a gradient technique. *Journal of Applied Psychology*, 1941, 25, 275-289.

- Osgood, C. E.; Suci, G. J.; & Tannenbaum, P. H. *The measurement of meaning*. Urbana, Ill.: University of Illinois Press, 1965.
- Osipow, S. H. Perceptions of occupations as a function of titles and descriptions. *Journal of Counseling Psychology*, 1962, 9(2), 106-109.
- Rossi, P. H., & Inkeles, A. Multidimensional ratings of occupations. *Sociometry*, 1957, 20, 234-251.
- Safran, D. F. *Safran student's interest inventory: Counselor's manual*. Thomas Nelson & Son (Canada), 1969.
- Terwilliger, J. S. Dimensions of occupational preference. *Educational and Psychological Measurement*, 1963, 23(3), 525-542.
- Thomas, R. M. Reinspecting a structural position on occupational prestige. *American Journal of Sociology*, 1961, 67, 561-565.
- Thompson, O. E. Occupational values of high school students. *Personnel and Guidance Journal*, 1966, 44, 850-853.
- Tiryakian, E. A. The prestige evaluation of occupations in an underdeveloped country: The Philippines. *American Journal of Sociology*, 1957, 63, 390-399.
- Triandis, H. C. Differential perception of certain jobs and people by managers, clerks, and workers in industry. *Journal of Applied Psychology*, 1959, 43, 221-225.
- Tseng, M. S., & Rhodes, C. I. Correlates of the perception of occupational prestige. *Journal of Counseling Psychology*, 1973, 20(6), 522-527.

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