

THE JOB-PROFESSION CONTINUUM

Bronwen A. Lewis and Charles K. Warriner
University of Kansas

Professions, occupations, and jobs are classified on the basis of particular attributes of each category, rather than by the usual labeling process adopted from popular usage. The theoretical criterion is the location of decisions concerning the allocation of work activities, i.e., whether within the local work organization or externally controlled. The degree of local determination functions inversely with a general consensus as to the level of skills and amount of knowledge required to perform the work. Ten varieties are selected to measure the degree of consensus on task determination of a sample of 86 occupations. Gamma and chi square scores are used to measure association between the variates and preliminary Guttman and numerical scales are constructed to demonstrate the job-profession continuum. Modal characteristics of profession, occupations, and jobs are derived.

Sociologists have long classified occupations as professional or non-professional on the assumption that, as kinds of work position, professions are intrinsically different from non-professions in important and systematic ways.¹ However, in recent years it has become apparent that popular usage of these terms has been our classificatory criterion. That is, "professions" has included those occupations which are popularly called professions and excluded those which, in popular usage, have not been called professions. The suspicion has arisen, therefore, that what we are dealing with is categories of occupations defined by the labelling process rather than by characteristics of the work. Thus professions have in fact been those occupations whose strength has been sufficient to effectively claim the prestige of the name "profession" (Friedson, 1970).

On the other hand, it can be argued that regardless of popular usage, there are systematic differences in occupations involving differences in characteristics intrinsic to the structure of the unit of labor rather than in the naming of that unit. Regardless of whether or not an occupation is called a profession or non-profession in popular usage there are kinds of occupations that have certain attributes in common which are intrinsic to the task allocation. Classification by such criteria would give us a category, professions, generally, but not exhaustively or exclusively including what are popularly called professions.

The classical idea of professions as a kind of unit in the division of labor has emphasized the presence of an elaborate body of knowledge and a set of complex skills generally shared within a "professional establishment." These are taught to each practitioner who will then use this knowledge and skill in designing the particular program of work that will most effectively solve the client's problems. The ideas of professional autonomy and professional authority emphasize the notion that the skilled and knowledgeable practitioner must have the freedom to make decisions about his program of work in order to most effectively accomplish the work to be done. On the other hand, the ideas of professional ethics and a professional culture emphasize the fact that this work structuring and the application of the work skills in particular instances is not a function of the whims of the worker as a person, but must reflect collective professional judgements and standards and especially, that his work must remain within the limits of tasks for which he is trained.²

In contrast, extreme non-professional work, labor, is presumed to be under the control of the employer or customer who can determine the organization and application of work to be done and when and for whom it will be done. The worker, has no control over the variety of tasks assigned nor their program of performance.

The most fundamental distinction between these two extreme types of work lies in the location of the division of labor decisions - that is the location of the decisions as to what work activities are to go together in one job position.

In some cases the tasks which are the distinguishing mark of a particular unit in the division of labor are entirely determined by the local work organization. A boss or other administrative agency defines the specific allocation of tasks and their particular character for that organization without reference to any external considerations. In other cases, the local work organization is unable to control the allocation of tasks or their specific performance characteristics and must use social positions as they are defined by the environment of the organization. Thus, a local work organization such as a construction firm, must accept the allocation of tasks to carpenters, electricians, plumbers, etc. that are defined by external facts - union rules, training programs, etc. The external definition of and control over the job content of task positions is not always so formally and explicitly controlled, but is often just as coercive as in these cases.

The ability or freedom of the local work organization to autonomously determine what is to be done by whom is in part a function of the level of skills used and amount of knowledge necessary to perform the work, the uniqueness of the goals and technology used, and the mobility of employees. Where a company is using a unique and new technology, where the amount of training required is low and where workers stay in the organization a long time, then it need not and cannot rely on getting employees "trained for" its jobs. On the other hand where an organization uses skills requiring a high level of training prior to employment, where the technology is the same as used by other firms and where workers are mobile then it has a much smaller freedom to autonomously define task sets and task allocations.

From another perspective the autonomous determination by an employer of the division of labor is an inverse function of the degree of consensus in the society concerning job positions, the set of tasks and the task definitions associated with them.

Where such a consensus exists it is possible to train persons in the particular skills and other attributes necessary to the performance of those tasks, and to do this quite independently of the local work organization where these positions exist. When such a consensus and training exist workers come to define themselves and their work expectations in terms of these particular sets of tasks allocated to the position. With such a consensus, and with a separation from the local work organization of the recruitment and training for the occupation it is then possible for conceptions of social type and of appropriate role relations to become attached to and a part of the training of the worker.

With the growth of consensus, organizations other than the local work organization get a stake in the maintenance of the consensus. Training organizations become structured in terms of the consensual task allocation, other work organizations get a stake because of the increased size of worker cohort and the mobility of workers involved.

In some cases this consensus may be organized and implemented by particular control organizations in various ways - laws, covenants, and agreements supported by and enforced by special interest or general control associations or agencies.

These differences in the capacity of particular organizations to control the definition and allocation of tasks (and the inversely correlated level of consensus) corresponds to those differences in task positions usually identified as "jobs" on the one hand, and on the other, "professions." As a result of these considerations we propose a continuum of occupations of work positions differentiated by the locus of control over the division of labor. That is, by the location of the determination as to what work is to be done by whom in what way for whom.

Thus, we can define a job as a task position for which there is no general consensus concerning the tasks to be allocated to it, and control over the allocation is completely in the decision processes of the local work organization or by the customer for "free" laborers. An occupation (in the restricted sense of the term) exists when there is general consensus as to the tasks to be allocated to the work position, but this consensus is not implemented by an integration of training or control agencies. A profession exists when a present (or past) consensus on the tasks to be allocated to the work position has been implemented (institutionalized) through particular control and training organizations which are interrelated and integrated in this respect. In this case the local work organization has very little control over the task allocation.

It is important to recognize that what we have identified are regions along a continuum, not absolutely and qualitatively distinct types.³ Jobs shade off into occupations as a consensus develops among work organizations drawing upon a common labor market or working in a common product or technological area. Occupations shade off into professions as occupational associations gain control over the division of labor, the structure of the work, and the recruitment and admission of work position occupants.

From this basic criterion for the continuum a number of consequences can be deduced. That is, using degree of implemented consensus and degree of local control as the independent variates, we can deduce a number of other variates which should be associated with it. Since we have no easy direct measure of the basic continuum we cannot at this time test these hypotheses. However we can make an indirect test by examining the interrelation of the several variates which are thought to be dependently associated with the basic dimension.

The Research Test

To carry out this test a number of variates were identified whose association with the degree of consensus on task determination could be argued. From these we selected eight for which data could be obtained for a larger number of task positions. These variates were: (1) type of training for the job, (2) length of training for the job, (3) length of schooling required before job training, (4) degree of selective recruitment for the task position, (5) location of control of admission to the worker group, (6) type of worker association, (7) number of job titles associated with the specific task position, and (8) worker control of work situation. In addition we included (9) degree of prestige of the work as defined by (a) Warner's occupational prestige scale and (b) the NORC occupational scale, because of the central role of prestige in many discussions of professions.

Eighty-six different task positions or occupations were finally selected for the study. These were selected to represent as nearly as possible equal proportions of task positions throughout the postulated range, and from the occupations for which data were available on each of the variates.

Data on each of these variates for the 86 occupations were obtained from a variety of published sources.⁴ For most variates the data were in the form of descriptions so that it was necessary to create rank order scales which represented relative degrees of the attribute. The coding scales are given in the Chart 1. Each of the 86 occupations was then scored on each of the variates in accordance with these scales.

Chart 1. The Variates

Type of Training	Length of Explicit Training
(1) On the job (2) Apprenticeship (3) Technical, trade, vocational schools (4) College, university, post graduate schools	(1) 1 month or less (2) Over 1 month thru 6 months (3) Over 6 mo. thru 1 yr. (4) Over 1 yr. thru 3 yrs. (5) Over 2 yrs. thru 3 yrs. (6) Over 3 yrs. thru 4 yrs. (7) Over 4 yrs.
Length of Schooling	Selective Recruitment
(0) No formal schooling requirements (1) Grade school 1-6 yrs. (2) Junior high 7-9 (3) High School 10-12 (4) College 13-16	(1) Adulthood - age requirements (2) Physical Prowess & Aptitude - health, weight, height, physical dexterity, mechanical aptitude, basic I.Q. (3) Social Origin - Social History - educational requirements, police records, citizenship, drivers license (4) Knowledge, Information, Skills - clearly identified with occupation as reflected by texts, academic performance or work experience (5) Character - investigation into the personal character of the trainee, interviews, reference, recommendations
Control of Admission into Occupation	Type of Worker Association
(1) Local work organization (2) Workers' union (3) Training institution	(0) None (1) Industrial (2) Trade or Craft (3) Association of Professionals
Number of Job Titles	Amount of Control Worker Has Over Work Situation
(1) 1 (2) 2 (3) 3 (4) 4 (5) 5	(1) Work involves doing things only under specific instructions from supervisor or employer with little or no room for independent action or judgment by the worker about the tasks to be performed. (2) Work situation involves the performance of repetitive or

Chart 1 cont.

- short cycle operations according to set procedures. The worker may make some very minor mechanical like decisions during the performance of his task.
- (3) Work involves the attainment of precise standards, tolerances or limits. The worker is allowed to make decisions on the basis of his skilled training.
 - (4) Work involves the direction, control, or planning of activities of other workers or people. Evaluations and decisions are made primarily on the basis of judgmental criteria (i.e., experience, personal evaluations, "common sense").
 - (5) Work involves making evaluations and decisions about people, data, or things on the basis of abstract or theoretical knowledge against measurable or verifiable criteria.

Findings

Since these are ranked ordered scales we used the gamma technique along with chi square to determine the degree of association of each variate with each of the others. Table 1 presents the matrix of gamma values for these ten variates. All associations are in the direction predicted⁵ by the theoretical considerations, all are significant at the .025 level, many are quite high with values of .90 or better, and only for one variate, "number of job titles," are the gammas systematically low.

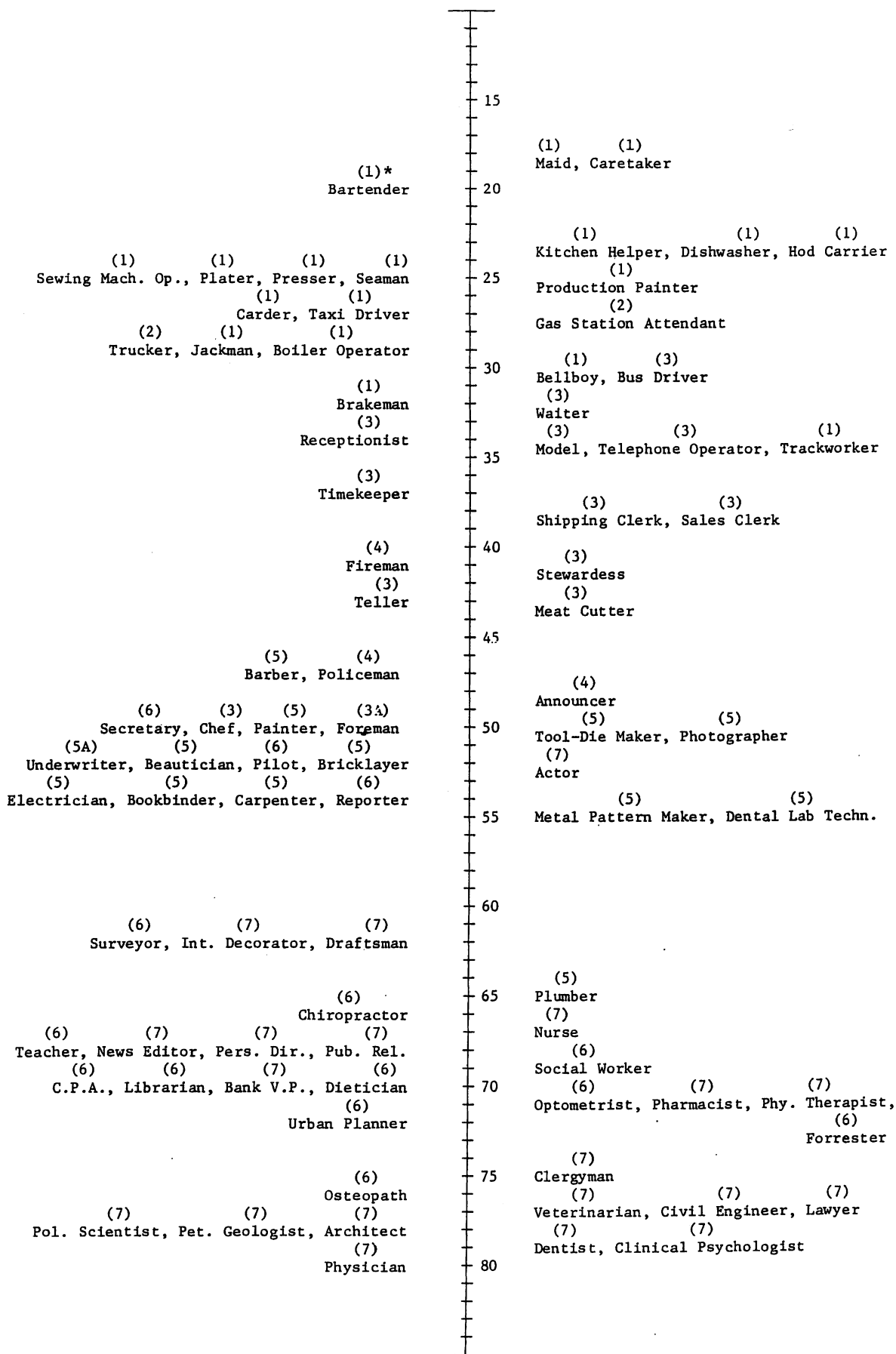
Since the variates showed relatively high correlations it seemed appropriate to construct a scale of the job-profession continuum using eight of the variates (number of job titles and Warner prestige scale excluded). Two scaling techniques were used: (a) Guttman scale of the dichotomized variates and (b) a numerical scale. The numerical scale was constructed by transforming each of the variates to a ten-point scale (in order that they would have equal weight) and summing the scores. This gave a scale with a possible range of 16 to 80.

Figure 1 shows the results of this numerical scale for the 86 occupations in this sample while Figure 2 shows the Guttman scale. The Guttman scale positions for each occupation are shown as parenthetical numbers in Figure 1.

The Guttman scale is technically quite an acceptable scale with a C.R. of .92 and a C.S. of .79. There are no internal standards for evaluating the numerical scale other than the interrelationships of the items shown in Table 1. The Guttman is itself a measure of association since the scale is a function of the empirical relationships among the variates for this sample.

Although it is clear that the scales give similar results they do not provide identical orderings of the 86 cases. Some of the anomalies may be instructive. "Actor" for instance is in the highest category (7) in the Guttman scale, but is in

Figure 1. Scale of Jobs, Occupations, and Professions



*The number appearing in parenthesis indicates the Guttman Scale Type for that case.

Table 1. Gamma Correlation Matrix*

		TYPE OF TRAINING (1)	LGTH. OF TRAINING (2)	LGTH. OF SCHOOLING (3)	SEL. RECRUITMENT (4)	CONTRL. ADMISSION (5)	TYPE OF WORKER ASSN. (6)	NO. JOB TITLES (7)	CONTRL. WORK SITUATION (8)	PRESTIGE (WARNER) (9)	PRESTIGE (NORC) (10)
TYPE OF TRAINING	(1)		.60	.91	.87	.85	.87	-.33	.91	-.90	-.92
LENGTH OF TRAINING	(2)	.60		.58	.56	.54	.59	-.22	.71	-.63	-.74
LENGTH OF SCHOOL	(3)	.91	.58		.95	.75	.85	-.36	.87	-.94	-.96
SEL. RECRUITMENT	(4)	.87	.56	.95		.83	.90	-.27	.88	-.90	-.93
CONTRL. ADMISSION	(5)	.85	.54	.75	.83		.87	-.40	.83	-.80	-.84
TYPE OF WORKER ASSN.	(6)	.87	.59	.85	.90	.87		-.29	.88	-.85	-.93
NO. OF JOB TITLES	(7)	-.33	-.22	-.36	-.27	-.40	-.29		-.29	.27	.36
CONTRL. WORK SIT.	(8)	.91	.71	.87	.88	.83	.88	-.29		-.87	-.96
PRESTIGE (WARNER)	(9)	-.91	-.63	-.94	-.90	-.80	-.85	.27	-.87		.97
PRESTIGE (NORC)	(10)	-.92	-.74	-.96	-.93	-.84	-.93	.36	-.96	.97	

*All correlations significant at .025 level.

Figure 2. Guttman Scale of Job, Occupation, and Profession Characteristics

0 = Low Rating
X = High Rating

Task position	Characteristics								Possible Low Errors
	2	1	9	5	6	8	3	4	
1. Bartender	0	0	0	0	0	0	0	0	0
2. Caretaker	0	0	0	0	0	0	0	0	0
3. Dishwasher	0	0	0	0	0	0	0	0	0
4. Hod Carrier	0	0	0	0	0	0	0	0	0
5. Kitchen Helper	0	0	0	0	0	0	0	0	0
6. Maid	0	0	0	0	0	0	0	0	0
7. Marker	0	0	0	0	0	0	0	0	0
8. Presser	0	0	0	0	0	0	0	0	0
9. Production Painter	0	0	0	0	0	0	0	0	0
10. Plater	0	0	0	0	0	0	0	0	0
11. Seaman	0	0	0	0	0	0	0	0	0
12. Sewing Mach. Op.	0	0	0	0	0	0	0	0	0
13. Bellboy	0	0	0	0	0	0	X	0	1
14. Boiler Operator	0	0	0	0	0	X	0	0	1
15. Brakeman	X	0	0	0	0	0	0	0	1
16. Jackman	0	0	0	0	0	X	0	0	1
17. Trackworker	0	0	0	0	0	0	X	1	1
18. Trucker	0	0	0	0	0	0	0	X	1
19. Taxi Driver	0	0	0	0	0	0	0	X	1
20. Carder	0	0	0	0	0	0	0	X	1
21. Gas St. Attend.	0	0	0	0	0	0	2	0	1
22. Model	0	X	0	0	0	0	X	0	2
23. Bus Driver	0	0	0	0	0	0	X	X	2
24. Waiter	0	0	0	0	0	0	X	X	2
25. Receptionist	0	0	X	0	0	0	X	X	3
26. Shipping Clerk	0	0	X	0	0	X	0	X	3
27. Telephone Operator	0	0	0	0	X	0	X	X	3
28. Timekeeper	0	0	X	0	0	0	X	X	3
29. Teller	0	0	X	0	0	0	X	X	3
30. Stewardess	0	X	0	0	0	0	X	X	3
31. Chef	X	0	0	0	0	X	X	0	3
32. Meat Cutter	X	0	X	X	X	0	0	0	4
33. Sales Clerk	0	0	X	0	X	3	X	X	4
34. Foreman	X	0	0	0	3A	0	X	X	4
35. Fireman	0	0	0	0	X	X	X	X	4
36. Policeman	0	0	0	0	X	X	X	X	4
37. Announcer	0	X	0	0	X	X	X	X	3
38. Tool-Die Maker	X	0	0	4	X	0	X	X	3
39. Real Estate Sales	0	0	X	X	X	0	X	X	3
40. Photographer	X	0	0	0	X	X	X	X	3
41. Dental Lab. Techn.	X	0	0	X	0	X	X	X	3
42. Barber	0	X	0	X	X	X	0	X	3
43. Plumber	X	0	0	X	X	X	X	X	2
44. Painter	X	0	0	X	X	X	X	X	2
45. Metal Pat. Maker	X	0	0	X	X	X	X	X	2
46. Electrician	X	0	0	X	X	X	X	X	2
47. Carpenter	X	0	0	X	X	X	X	X	2

Figure 2 cont.

	2	1	9	5	6	8	3	3	Possible Low Errors
48. Bricklayer	X	0	0	X	X	X	X	X	2
49. Bookbinder	X	0	0	X	X	X	X	X	2
50. Beautician	0	X	5	0	X	X	X	X	2
51. Underwriter	X	5A	0	X	0	X	X	X	2
52. Reporter	0	X	X	0	X	X	X	X	2
53. Pilot	0	X	X	0	X	X	X	X	2
54. Surveyor	0	X	X	X	X	X	X	X	1
55. Secretary	0	X	X	X	X	X	X	X	1
56. Urban Planner	0	X	X	X	X	X	X	X	1
57. Social Worker	0	X	X	X	X	X	X	X	1
58. Osteopath	0	X	X	X	X	X	X	X	1
59. Optometrist	0	X	X	X	X	X	X	X	1
60. Medical Technologist	0	X	X	X	X	X	X	X	1
61. Librarian	0	X	X	X	X	X	X	X	1
62. Teacher	0	X	X	X	X	X	X	X	1
63. Dietician	0	X	X	X	X	X	X	X	1
64. Chiropractor	6	0	X	X	X	X	X	X	1
65. C. P. A.	7	0	X	X	X	X	X	X	1
66. Actor	X	X	X	0	X	X	X	X	1
67. Public Relations	X	X	X	0	X	X	X	X	1
68. Newspaper Editor	X	X	X	0	X	X	X	X	1
69. Bank Vice Pres.	X	X	X	0	X	X	X	X	1
70. Draftsman	X	X	X	X	X	X	X	X	0
71. Veterinarian	X	X	X	X	X	X	X	X	0
72. Clinical Psych.	X	X	X	X	X	X	X	X	0
73. Political Scientist	X	X	X	X	X	X	X	X	0
74. Physician	X	X	X	X	X	X	X	X	0
75. Physical Therapist	X	X	X	X	X	X	X	X	0
76. Pharmacist	X	X	X	X	X	X	X	X	0
77. Personnel Director	X	X	X	X	X	X	X	X	0
78. Nurse	X	X	X	X	X	X	X	X	0
79. Lawyer	X	X	X	X	X	X	X	X	0
80. Petroleum Geologist	X	X	X	X	X	X	X	X	0
81. Forrester	X	X	X	X	X	X	X	X	0
82. Dentist	X	X	X	X	X	X	X	X	0
83. Civil Engineer	X	X	X	X	X	X	X	X	0
84. Clergyman	X	X	X	X	X	X	X	X	0
85. Architect	X	X	X	X	X	X	X	X	0
86. Interior Decorator	X	X	X	X	X	X	X	X	0
Column Errors 54	.15	.5	.7	.9	.5	.5	.5	.3	112
Possible Errors	.35	.39	.42	.41	.33	.30	.22	.20	262
Percent X's	.41	.45	.49	.48	.62	.65	.74	.77	
Percent 0's	.59	.55	.51	.52	.38	.35	.26	.23	
CR = $1 - \frac{\text{pos. error}}{n}$	.83	.94	.92	.90	.94	.94	.94	.97	.92
MR = $1 - \frac{\text{pos. error}}{n}$	.95	.55	.51	.52	.62	.65	.74	.77	.62
PP = CR-MR	.24	.39	.41	.38	.32	.29	.20	.20	.30
PPR = $\frac{PP}{1-MR} = C.S.$	.59	.87	.83	.79	.84	.83	.77	.87	.7891

Figure 2 cont.

(a) The Coefficient of Scalability (C.S.) = the Total Plus Percentage Ratio (PPR) - .789. The C.S. for the columns is .789 and the C.S. for the rows is .964. The smaller C.S. is the preferred C.S. to use. Since the C.S. is as great or greater than .65 this is an indication that the 8 items are scalable.

(b) Coefficient of Reproducibility = $1 - \frac{\text{Total Errors}}{\text{Total number of responses}}$

$$\text{C.R.} = 1 - \frac{54}{688}$$

C.R. = .922 According to Guttman a C.R. greater than .90 is further indication that the items are scalable.

Codes for characteristics appearing on the first page of the Guttman Scale:

2. Length of Training
1. Type of Training
9. Prestige
5. Control of Admission to Occupation
6. Type of Worker Association
8. Worker Control of Work Situation
3. Length of Schooling required for Entrance to Training
4. Selective Recruitment

the middle range (score 53) in the numerical scale. Similarly, "plumber" is a Guttman 5 but has a relatively high numerical scale score of 65, fifteen or more points above similar occupations such as "electrician," "carpenter" and "tool and die maker."

It is probable that some of these anomalies stem from inadequacies in the data sources on one or more variates. However, since the numerical scale is constructed by ranking categories of characteristics small differences in a variate may result in a much larger numerical difference on the scale. Similarly, the Guttman scale, using dichotomized variates may similarly magnify minor real differences. Thus, the problem may lie in the crudeness of the scale procedures.

Figure 3 summarizes the modal characteristics of "jobs," "occupations" and "professions" as these ranges on the continuum are identified by these scales.

Conclusions

The generally high level of interrelationships among these variates as shown by the Gamma values and by the successful Guttman scale lends credence to but does not directly support the hypothesis of an underlying dimension of variation defined by the degree to which the local work organization can control the division of labor, or alternately by the degree of consensus as to the division of labor in the society.

The somewhat inconsistent results of the two scaling procedures indicate that further work must be done before such scales are more than crude measures of the job-profession continuum. However, such consistency as there is suggests that the general procedures of identifying types of work positions by characteristics intrinsic to the source of control of aspects of the division of labor may provide us with a useful classification scheme which does not depend upon the social naming process.

Figure 3. Summary Table of
Associated Characteristics - Jobs, Occupations and Professions

Characteristic	Jobs	Occupation	Profession
1. Type of Training	On the job	Apprenticeship/trade or technical school	College/university
2. Length of Training	Less than 1 month	6 mo. - 3 yrs.	1-4 yrs.
3. Length of Schooling	Grade School	High School	College
4. Selective Recruitment Characteristics	Low - physical prowess aptitudes, dexterity	Moderate - Social History, Social Origins	High - Knowledge skills, character
5. Control of Admission to Job	Local Work Organization	Union	Training Institution
6. Type of Worker Association	Industrial	Trade or Craft	Association of Professionals
7. Number of Job Titles	High 4 or more	Moderate 2 - 3	Low 1 - 2
8. Control Over Work Situation	Low	Moderate	High
9. Prestige (Warner's Scale)	Low	Moderate	High
10. Prestige (NORC)	Low	Moderate	High

Footnotes

- ¹Cf. Greenwood, 1957; Caplow, 1954; Barber, 1965; Vollmer and Mills, 1966.
- ²Cf. "Professional Controls," in Vollmer and Mills, 1966.
- ³This point is made by Barber, 1965; Vollmer and Mills, 1966; and Greenwood, 1957.
- ⁴The data used in this research were taken from the following sources: Career Facts; Job Facts, Encyclopedia of Careers and Vocational Guidance; the Encyclopedia of Associations; The Dictionary of Occupational Titles; Occupational Outlook Handbook; Social Class in America; and the NORC Scale of Occupational Prestige.
- ⁵Except for the prestige variates a high number equals a high score. Because the prestige variates were scored in the reverse of this we obtain negative correlations with these variates.

References

- Barber, Bernard
1965 "The Sociology of the Professions." P. 17 in Kenneth Lynn (ed.), Professions in America. Boston: Houghton-Mifflin.
- Caplow, Theodore
1954 The Sociology of Work. Minneapolis: University of Minnesota Press.
- Friedson, Eliot
1970 The Profession of Medicine. New York: Dodd, Mead.
- Greenwood, Ernest
1957 "Attributes of a Profession." Social Work 2 (July): 45-55.
- Vollmer, Howard M. and Donald L. Mills (eds.)
1966 Professionalization. Englewood Cliffs, New Jersey: Prentice-Hall.