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AUTHOR Blackburn, Robert T.; Fox, Thomas G.
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ABSTRACT

This paper reports the recruitment, socialization, and retention of a faculty of medicine. The study shows the process of M.D. and Ph.D. conversion to academic medicine through socialization and the factors which affect retention and attrition of a medical faculty. The research utilizes Sherlock and Morris' professional development paradigm. As for the recruitment, socialization, and retention of a medical school faculty, the principal findings include the greater importance of latent over manifest variables (and of on-the-job socialization), the lateness of the M.D. recruitment, the extraordinary solidarity resulting from M.D. inbreeding, the greater adoption of university professoriate norms by the Ph.D.'s, and the high goal agreement which exists between basic scientists and clinical faculty. (Author/MJM)

THE SOCIALIZATION OF A MEDICAL SCHOOL FACULTY

Robert T. Blackburn, Ph.D.
Professor of Higher Education
Center for the Study of Higher Education
The University of Michigan
Ann Arbor, Michigan

Thomas G. Fox, Ph.D.
Assistant Dean
College of Medicine & Dentistry of New Jersey
Rutgers Medical School
Piscataway, New Jersey

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INTRODUCTION

Unlike the general situation in higher education where unemployed Ph.D.s seek nonexistent positions in colleges and universities, a medical school must continue to search out the individuals it desires and convert them to careers in academic medicine. Few physicians in training desire full time faculty appointments and even fewer already in practice will move to a fixed salary position. Nor is recruitment an easy task when accessability to M.D.s other than those in its own residency program is curtailed and when the sought after individual has spent the past dozen years preparing for a career of private medical practice, not academic medicine. Even after recruitment, the lure of increased income outside of the university affects retention.

In addition, the nature of a medical school faculty is a matter of societal concern. Health care and delivery problems and the shortage of physicians embarrass the nation. More facilities are needed and costs approach the prohibitive. Therefore, it is important to know how people become professors in a medical school, i.e., how medical school appointments are socialized into academic roles.

While appreciable research has dealt with the medical profession, no systematic study explores medical school faculty (1). This research reports the recruitment, socialization, and retention of a faculty of medicine. The study shows the process of M.D. and Ph.D. conversion to academic medicine through socialization and the factors which affect retention and attrition of a medical faculty. The research utilizes Sherlock and Morris' (2) professional development paradigm. Implications and recommendations follow the presentation of the findings.

THE SETTING AND POPULATION

The study data come from institutional records and from a questionnaire of the medical school faculty at a large, prestigious, midwest university. The medical complex is but one of eighteen schools and colleges on the home campus. Dentistry, Nursing, Business, Law, Engineering -- nearly the full roster go to make up a multi-university of over 35,000. Arts and science is the largest single unit. While it is a public university, it nonetheless has a selective enrollment, a heavy graduate and professional school component (about 40%, with about 900 Ph.D.s granted each year), over $60,000,000 annually in research, and a substantial out-of-state constituency. It thinks of itself as a national university and enjoys an international reputation.

An 81% questionnaire response rate gives an N of 350 from the 431 faculty meeting the criteria of a regular appointment. (Incomplete responses to some items reduced the usable N in some analyses.) Of the 431 full-time faculty, 110 are in basic science departments (anatomy, physiology, etc.) and 321 in clinical sciences, which, in turn, divides into about three fourths in medical departments (neurology, pediatrics, etc.) and one-fourth in surgical units (obstetrics, opthamology, etc.). The ratio of Ph.D.s to M.D.s is about 4 to 1 in the basic sciences and just the reverse proportion in the medical and surgical divisions of the clinical sciences (3).

The questionnaire measured priorities toward sixteen within school issues (from expanding resources and curriculum reform to recruiting from minority groups), preferences for organizational goals as developed by Gross and Grambsch (4), and perceived and preferred organizational characteristics and managerial styles as developed by Likert (5). A

fourth part of the instrument collected information on faculty social identities (e.g., professional commitment) and a fifth generated demographic data (name, curricular group, age, years in rank). (An extended discussion of the matters relating to issues, goals, and organization and their implications for management are in Fox and Blackburn (6).)

Like other career studies reporting historical and case data, these medical school professors offer unverified accounts of parental support, career plans while in high school, and the like. Faculty memory introduces possible errors, for example, rationalization to justify a present role. However, questionnaire items were neither of a threatening kind nor did they deeply probe personal matters. Hence, with the allowance for accuracy just noted, the self reports are believed to possess high validity. Additionally, the principal interests of this study are more the differences between groups -- Ph.D. and M.D., Basic Sciences and Clinical Sciences, Medical School and Arts & Science faculty -- than they are precise moments in time and psychological reasons for career decisions. Since there is no a priori reason to suspect consistent differential reporting of subgroups, observed similarities and differences can be treated with a high level of confidence.

THEORETICAL FRAMEWORK

Sherlock and Morris (2) provide a theoretical and organizational framework. Their three stage professional development model links recruitment to socialization processes and then to professional outcomes. Recruitment depends upon such factors as occupational status, exposure to the profession, and expectancy of access.

Several institutional processes than act to socialize the recruit. Didactic and apprentice instruction, sequestration, sanctioning, and certification are examples of observable socializing processes. Sherlock and Morris focus particularly on four socialization cycles -- commitment, professionalization, solidarity, and occupational identity. These are described below with the findings.

Professional outcomes resulting from socialization processes include the acquisition of a professional ethic, career plans, and the extent of intrinsic motivation. (Acquiring knowledge and skills as well as the culture of the profession are other outcomes but are not used in this study.)

The social-psychological nature of their model is free from the objections Levinson (7) found in prior studies in medical education. Also, its focus on socialization is in accord with Bucher and Strauss' (8) paradigm.

FINDINGS

Recruitment to the Professoriate

Many young children respond to adult questioning with firm conviction about "being a doctor" when they grow up. They do so for other occupations, too -- engineers, and lawyers, for example. But few youths or even young adults in their undergraduate years aspire to become professors. One "drifts" into the professoriate, as the studies on career decisions of college faculty have documented (9). Medical school faculty also are late deciders for their current careers, but for this professional school there are some basic differences from the studies just cited on faculty in liberal arts departments. And there are within school differences, especially between the Ph.D.s in the basic sciences and the M.D.s in the clinical areas.

In high school, just over half of this total faculty had as a career goal being a medical doctor, but only 7% aspired to be teachers. (Rogoff (10) found similar early M.D. decision choices.) By curricular subgroups, the surgical specialty faculty percentages were 64 and zero percents, the medical specialty percentages were 54 and 8, and the basic science faculty were 31% and 11%, respectively, for practicing medicine versus academic life. When there was family disagreement with career intentions at this stage, and only about 15% recalled parents not sharing their goals, the two main parental choices were business and medicine (obviously for those then not already headed that way).

By undergraduate days, about two-thirds of the faculty were either pre-med, natural, or physical science majors, as Snyder (11) found at another institution. Those who changed majors in college did so toward

the same three programs, with psychology (future psychiatrists and clinical psychologists) being the only significant new alternative.

By graduate and medical school time, the career plans of future Ph.D.s have markedly crystallized while work goals of about-to-be M.D.s are much less certain. Table 1 dramatizes the differences in the two groups by showing the high commitment to a faculty position at the very outset of Ph.D. study (87 and 75%) and the much lower expectations of M.D.s for academic life even at the very end of their formal schooling (48%), the exception being the comparatively small group (N=20) of M.D.s who went into bio-medical disciplines in basic science. (See Table 1.) This special group, unlike the clinical faculty, knew where they were going.

[Insert Table 1 about here.]

The lateness of the M.D. decision for the professoriate can also be seen in other ways. For example, 45% were undecided with respect to their medical specialty when entering medical school, 52% changed their selected specialty during the four year period, and 15% had chosen no specialty when they started their internships and residencies. Additionally, less than 1% (2 of 185) of the M.D.s in clinical science disciplines had research as their primary goal when they started medical school (12). Yet as faculty they have become productive scholars. They publish three scientific articles per year, on the average.

Recruitment to the faculty role, then, is different for medical school faculty than for their counterparts in the liberal arts departments. And there are differences between the Ph.D.s (who dominate the basic science area) and the M.D.s (who are in the majority in the clinical

TABLE 1

PH.D. AND M.D. CAREER CHOICES IN GRADUATE AND PROFESSIONAL SCHOOL

	PH.D.s Percent Planning Career in Education at Time of Starting Doctoral Study (Numbers in parenthesis)	M.D.s Percent Planning Career in Academic Medicine at Time of Medical School Graduation (Numbers in parenthesis)
Basic Science	86.8 (59)	90.9 (20)
Clinical Science	75.4 (43)	47.8 (89)
(Medical)	73.3 (33)	48.8 (63)
(Surgical)	83.3 (10)	45.6 (26)
Total School	81.6 (102)	52.4 (109)
TOTALS (Ns)	(125)	(208)

area). Many of the Ph.D.s are aborted M.D.s (13) and/or persons with an early and high commitment to medicine. The professor of genetics in the medical school differs from the professor of genetics in the biology department in the arts and science college across the campus. As contrasted with the 50% of natural science Ph.D.s who take positions outside of higher education, and hence did not desire an academic career, this medical school Ph.D. basic science faculty group decided on academic careers very early in their formal training. Most Ph.D. scientist professors in other units in universities chose academic life very late in their schooling. They typically back into the role as graduation approaches. (See above (9)).

In contrast to the Ph.D. group, the M. D.s are exceptionally late deciders. Despite the many existing specialties, few of these faculty ever entertained the notion of academic medicine. Unlike the Ph.D.s whose (unconscious) socialization to the faculty role began early in their graduate studies, where desire to conduct research, for example, became a clear and an intrinsically rewarding goal, the M.D. professor did not begin being socialized until residency and, for some, not until the moment of taking the job at the completion of formal training. New values, academic ones, came late and had to come quickly, as the next section shows.

While starting academic careers later than more, the M.D.s are not the oldest group of professional school faculty in a university when they begin their academic career. The leading professors of schools of art and schools of music do not become faculty until their forties (14). They have first made their name outside the university and then are sought as professors. On the other hand, only 10% of this medical school

faculty was recruited from private practice. The route for the medical school professor is direct from the residency, selected on the basis of observed competency and predicted promise, not from a record of extended success in either medical practice, teaching, or research.

Socialization into the Professoriate

To being with, some well-known differences in socialization processes between Ph.D. professors and those preparing for medicine (or dentistry, law, ministry, say) are expected to have observable consequences. For example, unlike preparing for other professions, there is no licensing of the professor, except insofar as the possession of the Ph.D. serves as a proxy. Additionally, the graduate school has no sequestration. A cohort or "class" does not enter and proceed through reinforcing and monitoring appropriate behavior. Apprentice instruction occurs for some graduate students but with little didactic instruction or supervision. In fact, the apprentice experience is more for the sake of monetary support than for a systematic acquistion of pedagogical techniques. In no way does it approach the internship experience of the new M.D. Also, attrition of Ph.D. aspirants is extraordinarily high in comparison to medical school dropouts (15). These and other general actions can produce effects differentiating the Ph.D. from the M.D.

1. Professionalization Cycle

The professionalization cycle deals with an occupational group's need for normative control of its members, for a "professional" ethic to safe-guard the members from mistakes made on the job (16). Thus

learning the norms of the profession is highly important, takes place over a series of steps, and can be analyzed.

On the 38 goal statements adapted from Gross and Grambsch's (4) instrument, the goal of protecting the faculty's right to academic freedom was ranked higher by basic science faculty than by the clinical science faculty, although the difference was not statistically significant. In Caffrey's ( ) study, academic freedom ranked first for all populations -- trustees, administrators, students, and faculty, all of whom were primarily from a non-professional school orientation. In this study, the basic scientists ranked the goal of academic freedom second when responding to how they felt this goal was presently viewed by the medical school faculty and first when indicating how the goal should be viewed. The corresponding ranks from the mean scores for the clinical science faculty were five to two, respectively; they both perceive and feel academic freedom of less importance. The longer socialization in the traditional university academic departments has had the basic science faculty adopt the norms of the academic profession, an accomplishment which carries along 20% of the group who are M.D.s and who have gone the typical graduate school path in addition to the medical school experiences (18).

Other professionalization outcomes suggest an individual's personal traits and his faculty culture are more effective socializers than are the experiences received in didactic instruction or by sanctioning. Gouldner (19), following Merton, distinguished latent (unprescribed and/or irrelevant role characteristics, frequently <u>personal</u> attributes -- age, for example) from manifest (culturally prescribed role behaviors, relevant <u>professional</u> characteristics, like membership group) variables.

Hypotheses were tested with respect to medical school issues, goals, and organization characteristics as independent variables.

Table 2 shows the differentiating strengths of the personal and professional characteristics. The latent variables of age, rank, tenure (interconnected, or course), and governance preference (opposed or for a faculty union) produced significant differentiations between groups a number of times significantly beyon the number that would occur by chance along (RCSRP) given the number of F and t tests run. On the other hand, only one independent manifest variable, the professor's department, consistently yielded discriminations beyond a random chance success probability rate. Ph.D. alma mater had the least effect of all.

[Insert Table 2 about here.]

The strong predominance of the latent over the manifest variables supports the contention that professionalization is intimately related to factors outside the sources of advanced specialized training, the graduate school for the Ph.D. and the medical school for the M.D. Said another way, formal training for the medical school professorial role was not an effective socializer. But the faculty have shed the stethescope for the microscope. Hence their socialization to the academic role has taken place on the job.

Additional evidence strengthens the conclusion that the professionalization cycle of socialization occurs on the job rather than during the training period. A statistically significant correlation of .39 between age of faculty and publication rate and .37 between academic rank and publication rate shows that a goal M.D.s had not aspired to at the beginning of their faculty career has been acquired. Additionally,

the professorial role of being a scholar has become an intrinsic reward. Those who published the most face the least pressure to do so for full professors have nothing to be promoted to. This university norm has been learned on the job. The professionalization cycle by faculty colleagues has been particularly strong.

2. Solidarity Cycle

Solidarity guarantees unity of purpose and practice. Selection -- in this case, recruitment to the faculty -- sorts out deviants, ensures group consensus, the acquisition of desired norms, and an agreed upon ethic. Faculty inbreeding, usually asserted to be deleterious, nonetheless makes a solidarity cycle extremely effective. With both expanding and new medical schools and with high turnover in the clinical disciplines, inbreeding becomes extraordinarily high by necessity. There is no ready source of faculty except for the local pool of doctors in the school's residency training programs.

The degree of agreement a faculty has on such matters as the goals of the school and how it is organized is a measure of the solidarity of the group and the strength of socialization processes. Table 3 collects faculty perceived and preferred goal importance in seven areas and the perceived and preferred organizational characteristics in six areas. (A seventh score, the total, is also reported.) A few differences exist between basic and clinical science faculty on their current perceptions, but they are not pronounced. With respect to preferences, the unanimity between the two groups is more striking. Solidarity, that is, degree of agreement, is very high for such a large collection of professionals. On both measures there is perfect agreement on the first three most important matters.

TABLE 2

RCSRP[a] DIFFERENTIATING STRENGTH OF LATENT AND MANIFEST VARIABLES

Latent (Personal, Unprescribed) Variables	Issues	Goals	Organizational Characteristics
Age	.01[b]	.01	.01[b]
Seniority (years on staff)	.37	—	.01[b]
Academic Rank	.01	.01[b]	.01[b]
Tenure	.04	.01[b]	.06
Years in Rank	—	.36	.06
Research Productivity (amount)	.04	.22	—
Governance Preference (for or against collective bargaining)	.04	.02	.01[b]
Appointment Type (full, geographic full, part-time)	—	.22	.06
Career Commitment of M.D.s (leaving or staying)	.37	.09	.01[b]
Career Commitment of Ph.D.s (leaving or staying)	.37	.22	.01[b]
Manifest Variables (Professional)			
Curricular Group (basic, clinical)	.04	—	—
Curricular subgroup (medicn, surgical)	.01[b]	—	.02
Department (anatomy, dermatology, gynecology,...)	.01[b]	.02	.01[b]
Intra-department specialty (hemotology, nuclear medicine,...)	—	—	.01[b]
Doctorate Type (M.D., Ph.D.)	.01	.09	.06
Degree Type (M.D. only, Ph.D. only, M.D.-Ph.D., Ph.D.-M.D., D.D.S.,...)	.01[b]	.01[b]	—
M.D. Alma Mater (private, public, foreign, this university)	.04	.09	.38
Ph.D. Alma Mater (private, public foreign, this university)	—	—	.20
Residency Alma Mater (private, public, foreign, this university)	.37	—	.06

[a]RCSRP = Random Chance Success Rate Probability at .05

b = .001

[Insert Table 3 about here.]

Inbreeding is one device for ensuring such high solidarity. When a faculty recruits and selects its own products it can guarantee uniformity of values. The Ph.D. and M.D. degree processes are long, as is the residency period, the principal pool for the vast majority of this school's clinical science faculty. Inbreeding in the clinical area is greater than in basic sciences, which, in fact do not differ appreciably in percent inbred from the university's arts and science departments (20).

However, there is a critical difference in the two career routes leading to the inbred professor. The typical path in arts and science is out from the university after the Ph.D. Those who succeed elsewhere then are called back, the "push them out of the nest" philosophy to discover which can fly on their own. The M.D., however, never leaves home. M.D., internship, residency, first faculty appointment, are all at the university. When an examination is made of inbreeding of M.D. faculty from the physician's place of residency training (figure 1), the figures reach extraordinary proportions. Excluding M.D.s from foreign universities, inbreeding in the clinical-surgical area reaches 80%.

[Insert Figure 1 about here.]

The primary source of clinical faculty is the physician doing his residency in the school's hospital. There the faculty select their future colleagues. They have an extended time to observe them at work and interact with them at the practicing physician level. Estimates of the resident's teaching effectiveness are made at this time. Few mistakes will be made in selection. Deviants will be easily screened

TABLE 3

Basic Science and Clinical Science Faculty Perceived and Preferred Goals and Organizational Characteristics for Their Medical School

	PERCEIVED[a]		PREFERRED[a]	
	Basic Science	Clinical	Basic Science	Clinical
GOALS	RANK ORDER		RANK ORDER	
Position (Standing) among Medical Schools	1	1	5	4
Adaptability to Changing Pressures	2	2	2	2
Good Management of the School	3	4	1	1
Motivation (Pride)	4	5	4	6
Research Output	5	3	6	5
Concern for Students	6	6	3	3
Service to Society	7	7	7	7
ORGANIZATIONAL CHARACTERISTICS[b]				
Goal Establishment and Achievement	1[c](C)	2(C)	5(C)	4(C)
Communication between Levels	1[c](C)	1(C)	1(PG)	1(PG)
Control Mechanisms (E.g., Review Functions)	3(c)	3(c)	6(c)	6(c)
Leadership	4[c](BA)	4(BA)	2(PG)	2(PG)
Decision Making	4[c](BA)	5(BA)	3[c](C)	3(C)
Responsibility for Motivation	6(BA)	6(BA)	3[c](C)	5(C)
(Total)	(C)	(BA)	(C)	(C)

a = On individual basis, not weighted by numbers per department. A few changes occur in the

b = Likert Style Systems where BA = Benevolent Authoritative

Leadership	4[c](BA)	4(BA)	2(PG)	2(PG)
Decision Making	4[c](BA)	5(BA)	3[c](C)	3(C)
Responsibility for Motivation	6(BA)	6(BA)	3[c](C)	5(C)
(Total)	(C)	(BA)	(C)	(C)

a = On individual basis, not weighted by numbers per department. A few changes occur in the ranks by the weighted motion, and they are not significant.

b = Likert Style Systems where

BA = Benevolent Authoritative

C = Consultative

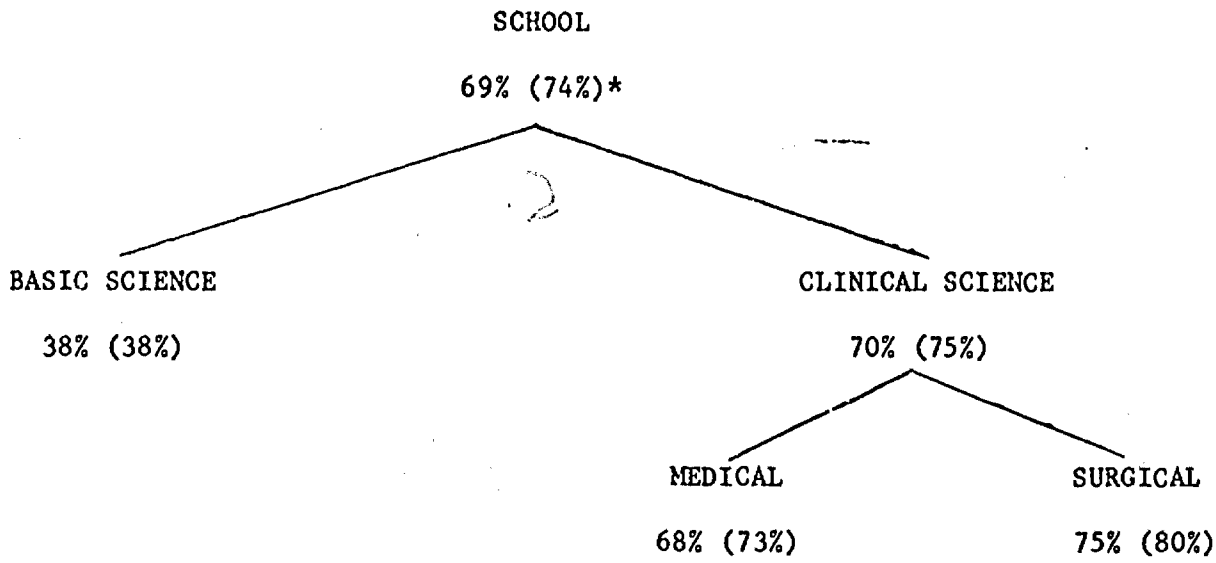
PA = Participative Group

EA = Exploitive Authoritative

c = Ties

FIGURE 1

INBREEDING: PERCENT OF M.D. FACULTY WHO HAD RESIDENCY TRAINING AT THE STUDIED MEDICAL SCHOOL.



*The figures in parentheses are the percents which obtain when foreign educated M.D.s are removed from the sample, a legitimate operation for residency training normally is not possible for these individuals.

out. This late recruitment to a new career of academic medicine, however, has consequences in terms of professional commitment.

3. Commitment Cycle

The commitment cycle examines the changing relationship of an individual to a career, from first choice of the profession through entry decision and on to anticipated future plans. An appreciable investment of time, money, and personal status goals are involved in such a way that alternatives are not always an unconstrained "free" choice. Hence a reciprical commitment by the profession (here the medical school faculty) becomes an important validation of the individual's decision and is a second phase of the cycle. The third step is the focused commitment, a specification of plans.

When asked to indicate possible career changes, ten percent of the total faculty expressed plans to leave academic medicine. However, there are appreciable differences by degree type and by division of the school. The figures vary from 7% for the Ph.D.s in basic sciences to 23% of the M.D.s in the clinical-surgical area, a three to one difference, and in the expected direction. The Ph.D. has survived by natural selection from a much higher attrition situation, has made a greater investment of time to reach his current position, and has fewer career alternatives open to him than does the M.D. The Ph.D. sought the medical school and has better absorbed the university norms. (E.g., he publishes more research. The correlation of publication rate and degree type is .47.)

On the other hand, the M.D. has been sought by the school, and late in his training. He is persuaded to accept a faculty position with the carrot of intensifying and purifying his specialty. The expectation of even greater income a short time later is held before him if he chooses

to leave for private practice. It is not surprising that the commitment cycle has been weaker on the M.D. than on the Ph.D. even though the M.D. receives a validation of his decision. He is sure he is wanted on the faculty. The Ph.D. only can hope so.

Environmental forces affect commitment also. They transcend degree type and discipline area. For example, M.D. career commitment and governance preference had a moderate and significant correlation, 0.49. (So did degree type and governance preference, Ph.D.s more favorably disposed to unionization.) Individuals planning to leave academic medicine also favored a faculty union. These are the persons who expressed greatest unhappiness with their involvement level, particularly in decision-making. In fact, dissatisfaction with governance would seem to be the reason for favoring a union and/or planning to leave. (The correlation data, of course, do not permit causal inferences.)

Finally, two high correlation coefficients, .74 between M.D. career commitment and M.D. alma mater and .78 for Ph.D. career commitment and Ph.D. alma mater, reinforce the solidarity cycle from inbreeding and increase commitment. Alumni stay. As Hollingshead (21) learned at the University of Indiana, while inbred advanced more slowly, they more successfully progressed. The inbred percentages increased over career time and in the holding of key and influential positions.

4. Occupational Identity Cycle

Lastly, a cycle separates a new professor from an intended career outside of the university, eases him through a transition phase from practitioner to scholar, and incorporates within him some of the academic norms, like academic freedom. This is the occupational identity cycle.

Consistent with the observations just reported with respect to commitment, the M.D.s in this study (and especially those in the clinical sciences) seem to maintain as a major reference group the physicians in the community, not professors, not the professoriate, not the university. (They do, however, travel in a national and international orbit of medical school faculty (22) just as arts and science professors move in their discipline associations.) In response to an open question of what single factor could cause them to leave the university, the most frequent response of the basic science faculty was a loss of professional freedom. This reason ranked fifth for the clinical science faculty, behind money (which ranked first with 2 1/2 times as many responses as professional freedom) and three other factors.

Professional Outcomes

1. Career Plans

Planning to leave the professoriate and actually doing so are not necessarily identical. However, while the data show an identical mean chronological age (45 years) and time at the University (11 years) for basic and clinical science faculty, the age distribution of the clinical faculty is skewed. Whereas the modal age category for the basic science professors is 41-50, for the clinical science faculty, and especially for the surgical subgroup, the modal age category is 31-40. Hence, the skewness of lower percentages at the upper ages of the clinical science faculty suggests the more rapid turnover of the M.D.s and at an early age. That is, the data support the belief that those who plan to leave actually do so (23).

Inbreeding again seems a critical factor in staying or leaving. High correlations exist between M.D. career commitment and both M.D. alma mater (.74) and M.D. residency (.59) and between Ph.D. career commitment and alma mater (.78).

Opportunities also affect career plans. While the university and its hospital serve the state and a large industrial city 50 miles away as a referral center for selected diseases, its location is a university city. With a population around 100,000, there is a restricted private patient potential for this number of M.D.s. Most frequently, for the physician to leave for private practice (his first alternative) he must also leave the community, not something he may wish to do. A few, less than 15%, acquire the rare and lucrative privilege of having beds for private patients in the university hospital. These faculty combine whatever ideals young M.D.s may have to be professors with the even greater affluence of the man in private practice.

2. Intrinsic Motivation and Ethics

As Sherlock and Morris (2) found with their about-to-be dentists, it looks as if health care is not the principal motivator of M.D.s. Intrinsic motivation does not dominate. The basic science Ph.D.s are a unique group. They subscribe to academic freedom as their highest value. They also have other "social awareness" traits that show them more like their arts and science counterparts than their clinical science colleagues. For example, on three issues dealing with achievement of medical school objectives, the basic science faculty ranked participating in national drives against pollution, alcoholism, drug abuse, and rigid abortion restrictions four places ahead of the clinical science faculty (10 vs. 14, out of 16) and recruitment and support of students and faculty from minority

groups three positions higher up (8 vs. 11). (Neither issue was near the top. Where they would have come out on a comparable set of issues in the arts and science faculty is not known.)

But when it comes to matters of governance of their organization, basic science professors differ not at all from the M. D.s in placing a secondary value on participation in decision-making, a preference that distinguishes them from their counterparts in arts and science. Their questionnaire response also differentiates them as the 81% return rate in this study differs significantly from the maximums most often obtained from arts and science faculty on shorter instruments and on ones which had higher self interest. Table 3, however, shows that both basic and clinical science faculty place a much higher value on leadership and decision-making than they view the school giving them (perceived vs. preferred are 4 and 2, 5 and 3, respectively). These preferences indicate a socialization into the university.

Hence both medical faculty broups, basic and clinical, Ph.D. and M.D., have some commitment to the ethics of professoriate, but not as highly a developed one as the liberal arts faculty hold.

SUMMARY, DISCUSSION, AND IMPLICATIONS

As for the recruitment, socialization, and retention of a medical school faculty, the principal findings include the greater importance of latent over manifest variables (and hence of on the job socialization), the lateness of the M.D. recruitment, the extraordinary solidarity resulting from M.D. inbreeding, the greater adoption of university professoriate normas by the Ph.D.s (academic freedom, for example), and the high goal agreement which exists between basic scientists and clinical faculty. Other results also have implications for medical school staffing needs and for more effectively dealing with the nation's health care problems.

First, a caution: The extent to which the findings can be generalized is unknown and needs testing. For those medical schools set in similar environments, the expectations are that outcomes would be highly similar. For example, whether they are private or public, or whether a community or university (teaching and research) hospital matter (24), but the basis of support distinction can mislead (25). For those medical schools unattached to the full multiversity and for those located in major metropolitan settings, some differences are to be expected. Recruitment to the profession, late decision choice to become a professor, high M.D. inbreeding from residencies and other factors would be similar. However, retention and career commitment, for example, might be quite different either in the absence of the general norms pervading a university environment or because of the more ready availability of a patient clientele for the clinical faculty.

Three implications merit brief attention. First, academic medicine is one of the few remaining expanding fields in higher education, especially at the advanced level. M.D. professor losses are doubly

troublesome right now. True, turnover introduces new ideas and brings fresh vigor, both important in an ever changing field. But faculty turnover has serious consequences when the cost of training is higher than in any other occupation and the principal faculty-student relationship is one-to-one. Perhaps adapting the reward system for clinical science faculty (by permitting private patients and hence better competing with the non-university setting) would reduce defection (26).

Second, the findings suggest the recruitment of a medical school faculty, especially of the M.D.s, might be more successful if the process began earlier, during the student's medical school period or at least during his internship instead of waiting until the end of a long period of training throughout which the student had a different goal in mind. The medical school admission stages, or at least during the four year training period, are places to institute recruiting techniques. Devices for admitting individuals who have a high and intrinsic research drive can be constructed. Data reported in some detail (3) show the faculty greatly influence the specialty the student selects. (Coker et al (27), however, found less faculty influence in 8 medical schools.) Recognizing this faculty power could be capitalized upon.

Also, curricular modifications that increase research experiences during schooling should help select those for whom a faculty career would have a high attraction. The Ph.D. not only does formal research for his dissertation but frequently is on a research grant that leads to articles for publication. The M.D. is also deeply involved in science, reading research, collecting and analyzing data. However, his training here is neither as systematized as it needs to be nor does it normally lead to the finished product, publication in a scholarly journal. The last act is crucial. Having curricular experiences which lead to the complete creative process could make a significant difference (28).

Third, proposals to separate the basic sciences from the medical school and/or to have the classical science portion of the medical student's education taken in arts and science departments rather than in the medical school seem ill-advised, either for the sake of cost or for the sake of instilling a different set of values into a future M.D. As for the latter, we have already seen the socializing effects of the school are small. The medical school professor becomes an academic after he starts his job, not before.

Also, as was seen, the basic science faculty have many of the norms of the professional school. To farm out the basic science education to arts and science introduces a culture whose values differ in significant ways from the professional school. The unity of purpose and agreement on organization and management within the medical school is a genuine strength for its effectiveness. To introduce alien values might be a heavy price, especially at this time when the pressures to increase M.D. output are great. At least at this moment in history, pragmatism overrides our idealism. Basic sciences should be taught as part of the medical school experience.

REFERENCES AND NOTES

1. R. Bucher [paper presented at First Annual Vanderbilt Sociological Conference, March, 1970] reports knowing of one unpublished study of medical school faculty. Also, she has written on social power within a medical school as faculty vie with one another for resources and status. In addition, Maloney [Sur., July, 1970] examined economic versus intellectual motivation in 94 faculty in 19 different medical schools.

2. B. J. Sherlock and R. T. Morris, Soc. I. 37 (No. 27), 27, 1967. B. J. Sherlock and R. T. Morris, Becoming a Dentist (C. C. Thomas, Springfield, Ill., 1972).

3. For full details of the School's organization and the degree holding of the faculty [see T. G. Fox, unpublished Ph.D. dissertation]. It should be pointed out that 15% of the clinical group have geographic full-time appointments. That is, this small number have the privilege of some private practice (about 25% of their time) in the university's hospital. All others are 100% university appointments. Only faculty engaged more than one-half time are in the study, the overwhelming majority of the staff. Anyone not 100% on the university payroll was called part-time.

4. E. Gross and P. V. Grambsch, University Goals and Academic Power (A.C.E., Washington, D. C., 1968).

5. R. Likert, The Human Organization (McGraw-Hill, New York, 1967).

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9. J. W. Gustad, The Career Decisions of College Teachers (Southern Regional Education Board, Research Monograph No. 2, Atlanta, Ga., 1960).

10. N. Rogoff, The Student-Physician, Merton et al (Harvard University Press, Cambridge, Mass., 1957).

11. D. S. Snyder, unpublished Ph.D. dissertation.

12. D. Caplovitz [unpublished Ph.D. dissertation] found that a medical student's opinion of an ideal doctor correlated lowest with research, highest with influence.

13. H. S. Becker and J. Carper [Am. Soc. Rev. 21, 341 (1956)] thought they found a similar pattern when interviewing graduate students in biology at the University of Kansas. Many of these students had hoped to enter medical school and some were applying again. At the same time biology department faculty were telling these unsuccessful medical school applicatns that to be an anatomy Ph.D. was really superior to being an M. D. To teach those who are really only over-paid mechanics is the more lofty calling, they were saying. Unknown is how many of the biology Ph.D. faculty had had the same career derailment.

14. M. Risenhoover, unpublished Ph.D. dissertation.

15. J. D. Mooney, J. Hum. Resour. 3, 47, (1968).

16. Personal background and dispositional differences might cause some of the observed variation between the two populations, as the next paragraphs indicate.

17. J. Caffrey, in J. Caffrey (ed.) The Future Academic Community (Washington, D.C., A.C.E., 1969).

18. E. C. Hughes, Men and Their Work, Glencoe, Ill., Free Press (1958).

19. A. W. Gouldner, Ad. Sci. Q., 2, 281, 1957 and Ad. Sci. Q., 2, 444, 1958.

20. Like its sister highly rated graduate departments, the university has over 85% of its faculty from the other top nine universities, the largest single contributor being itself. [See Berelson]

21. A. B. Hollingshead, Am. Soc. Rev., 3, 826 (1938).

22. E. C. Hughes, et al, (1973).

23. Institutional data on the limited number of practitioners who join the faculty also supports this inference.

24. F. J. Lyden, H. J. Geiger, and O. L. Peterson, The Training of Good Physicians: Critical Factors in Career Choices (Harvard University Press, Cambridge, Mass., 1968).

25. S. J. Miller, Prescriptions for Leadership: Training for the Medical Elite (Aldine-Atherton, New York, 1969).

26. E. Mumford, Interns: From Students to Physicians (Harvard University Press, Cambridge, Mass., 1970).

26. How research output would be affected under this plan is not known. There were no statistically significant differences between the part and full-time faculty on the research measure. However, research

could conceivably drop in the absence of a large cohort of high output full-time people setting norms. Also, see Maloney (5) for his views on the importance of economic incentives for medical school faculty.