Productivity of Full Professors Before and After Promotion: The Case of the University of Victoria*

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The whole issue of productivity is currently very topical in British Columbia. The general economic downturn together with the government's policy of restraint have forced public and private enterprises alike to become increasingly concerned with the relationship between what people do at work and how much they get paid for it. The clarion call has been to make British Columbians more competitive vis-à-vis their colleagues in the rest of Canada and the world. As a result, wage and salary increments are more frequently being tied to measurable productivity increases rather than to increases in the cost of living.

The universities in the province have not escaped demands to trim their excessive organizational fat and to eliminate unproductive programs (Pierre, 1985). These institutions in turn have countered with a proliferation of data which justifies their claims for increased funding. Much of the data assembled are productivity measures over time (e.g., student-faculty ratios, tuition costs per student, etc.). However, one measure of productivity, faculty research publication, has not been entered into the equation. How productive are faculty, and does their productivity vary as a function of the external system of rewards?

The problems involved in maintaining or increasing productivity in an economic recession are compounded with another issue which is currently affecting Canadian universities with particular force, and that is the phenomenon of the ageing of the faculty. The age structure of Canadian society in general and Canadian academe in particular is experiencing radical change (Gee, 1986: 226-229). One consequence of the expansion of Canadian post-secondary institutions in the late sixties and early seventies was that huge numbers of similarly young faculty were hired (Lennards, 1986: 459-461). These academics have subsequently aged in the system with the result that at my own institution — the University of

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Victoria — almost half the faculty are between the ages of 40 and 50, and the figures are similar throughout the country.

It is precisely this large group of academics which is now applying for promotion to full professor. With approximately thirteen to eighteen years of service since they were hired, they have progressed through the ranks from assistant to associate professors, and many are now being considered for full professorships. Given the fact that such extraordinarily large numbers are involved, the consequences could be disastrous if this cadre were motivated by nothing other than an interest in achieving this final external reward, for, once its members had achieved it, their productivity would decline immediately. Consequently, attempting to determine the motivational set of these faculty has enormous practical implications. Before presenting the data, let us consider the basic ways in which people are motivated.

Job Motivation

Katz and Kahn (1978: 405-25) note that there are three basic models of motivation, each with different behavioural outcomes. The first, rule enforcement, invokes compliance through the use of legitimately applied sanctions. Performance in this motivational system does not exceed the levels minimally acceptable, and there is little or no loyalty to the organization on the part of its members.

External rewards are the second type, and they are of two kinds — system-wide and individual. System-wide external rewards, such as pay raises according to seniority, pension plans, and other universal fringe benefits, also do not encourage performance to surpass minimally acceptable levels, but depending upon their relative attractiveness, they can instil organizational loyalty. On the other hand, individual external rewards, such as pay increases and promotion on the basis of individual merit, can stimulate organizational members to exceed the bare minimum and to be committed to the organization. In order for individual rewards to be effective, they must be important enough to warrant additional effort, they must be perceived as justly distributed, and there must be a clear relationship between increased productivity and reward.

Internalized motivation is the third type. In this case, individual members attain organizational goals because commitment to the job is part of their self-identity. Through socialization, the intrinsic aspects of the work become individually important to the worker. One who is internally motivated is unconcerned about minimal requirements, working instead to individual capacity. However, this same person is loyal to

the employing organization only to the extent that there are maximal opportunities for job performance and therefore self-expression.

While it is difficult to construct a research design that will rigorously test whether university professors are primarily externally or internally motivated, nevertheless measurement of their pre- and post-promotion performance does constitute at least a partial test. If productivity virtually ceases or drops off dramatically upon promotion, then it may be asserted that they are externally motivated. However, if productivity continues unabated, this is not a clear case of internalized motivation. Other individual external rewards may also be working. Two of these are salary merit increments and evaluation (approval) by one's relevant reference group. Hence, if there is no decline in productivity, professors could be motivated internally or externally, or a combination of both.

Data Collection

During 1982, all of the cv's of Full Professors in the Faculty of Arts and Science at the University of Victoria were examined (N=82). Of these, forty professors had been promoted at least five full years prior to when the research began, a necessary condition for this before and after research design. From each of these forty vitae, the following background information was collected: department, age, year of PhD, year of appointment to the university, and year of promotion to Full Professor. A Total Productivity Score (TPS) was computed for both five-year periods before and after promotion[1] from the number of publications listed by each professor. According to standard convention (Clemente and Webb, 1973; Glenn and Villamez, 1970), publications were weighted in the following manner:[2] refereed journal article = 1.0; monograph = 3.0; textbook = 1.5; edited work = 1.0; and book chapter = .75. Other writings, including non-refereed articles, book reviews, bibliographies, reprints, translations and unpublished reports, were excluded from the TPS. In addition, a count was made of the administrative duties of these scholars both before and after promotion.[3]

[1] Because of publication lags, all works published during the actual year of promotion were counted as part of the pre-promotion period. Thus, this period is the year of promotion plus the four years immediately preceding.

[2] Again following convention (Clemente and Webb, 1973; Glenn and Villamez, 1970), single and multi-authored publications were weighted equally.

[3] Administrative duties counted were chairman of department, dean, vice-president and president.

Results

The mean Total Productivity Score for Full Professors five years prior to their promotion was 10.1 or the equivalent of 2.0 journal articles per year. The "after" TPS reveals a modest decline (8.6). Although professors on average publish the equivalent of only 1.7 articles each year after their promotion, there is substantial variation in the pattern of productivity. Almost one-third actually increased their TPS, while a further 18 percent maintained their pre-promotion productivity levels.

TABLE 1

Relation of Total Productivity Scores Five Years Before Promotion to Activities Five Years After Promotion

Total Productivity Scores[1] *Five Years Before Promotion*	*(N)*	*Post Promotion Activities*	
		Mean Total Productivity Scores	*Mean Years Spent in Administration*[2]
Over 15	(8)	20.72	.88
7.01 - 15.00	(9)	9.28	2.00
7.00 (Median Score)	(5)	5.20	2.20
4.00 - 6.99	(10)	4.75	2.20
Less than 4	(8)	2.88	2.75
Totals	(40)	8.64	2.00

[1] Total Productivity Scores for the two five-year periods before and after promotion were computed in the following fashion: 1.00 for each refereed journal article; 3.00 for each research or theoretical monograph; 1.50 for each textbook (including revisions); 1.00 for each edited book; and .75 for each book chapter.

[2] The operational definition of administration is the number of years spent as head of department, dean, vice-president or president.

Upon closer examination, it appears that there are at least two quite different career patterns for these professors. Table 1 groups professors according to their pre-promotion levels of output, and then indicates their productivity after promotion, as well as their administrative duties. The initial low producers (TPS < 4) do not modify their output upon receiving promotion; however, they do assume the lion's share of administrative positions within the university. The initial high producers (TPS > 15) also do not change their level of productivity with promotion. They continue to be very productive in their research to the almost total exclusion of administrative responsibilities.

These two patterns are reminiscent of Gouldner's (1957) cosmopolitans and locals. He defined cosmopolitans as "low on loyalty to the employing organization, high on commitment to specialized role skills, and likely to use an outer reference group orientation." This definition applies to the high producers who are involved almost exclusively in their discipline as they publish articles and interact with their colleagues in the field. "Ideal" career progress for cosmopolitans would be recognition for outstanding achievement in their particular discipline. In contrast, locals are defined as "high on loyalty to the employing organization, low on commitment to specialized role skills, and likely to use an inner reference group orientation." Professors with a local orientation are not as committed to their discipline. Instead they are attached to the university and their colleagues within it. Furthermore, they assume active responsibility for the management of the university. "Ideal" career progress for locals would be advancement through the academic administrative ranks.

Further evidence for the existence of cosmopolitans and locals may be found in the pre-promotion administrative activities of these two groups of professors. The low producers had an average of 1.1 years of administrative experience in the five years prior to promotion, while the high producers had none whatsoever. For all of the professors, there were 0.4 years spent in administration before promotion and 2.0 years after. Consequently, the slight overall decline in Total Productivity Scores subsequent to promotion is more than compensated for in additional administrative responsibilities, not to mention the increased committee work assumed by full professors.

Fully 70 percent of professors whose TPS declined after promotion (N=20) became administrators. Of professors who maintained constant TPS before and after promotion (N=7), 57 percent were in administration, and of those who increased their TPS (N=13), only 46 percent assumed administrative positions. Clearly, some kind of tradeoff occurs between scholarly and administrative activities. However, it is also suggested that the professors themselves through their cosmopolitan or local orientations select the career path most suited to their purposes.

Conclusions

The results reported here do not differ markedly from similar studies. For example, in a project examining productivity before and after the granting of tenure, the researchers conclude that "tenure is not a retardant to pursuing substantial, long-term patterns that require academic commitment" (Bridgewater et al., 1983:238). In another study

on the effects of career age (years since attaining the PhD) on several productivity indices with a national sample of professors in seven disciplines, the authors state that "career age (and possibly tenure status) is a poor predictor of research-professional activity" (Bayer and Dutton, 1977:279). In other words, the pattern and rate of research productivity is established early within the career of the academic, and then maintained more or less constantly throughout his or her working lifetime.

Evidence for this latter assertion comes from a study by Clemente (1973). He examined the publication records of 2,205 PhDs in sociology from 1940 to 1970 in an effort to determine which of six independent variables (sex, age at PhD, years between bachelor's degree and PhD, age at first publication, publication before PhD and quality of department of doctoral training) were the best predictors of subsequent publication output. In his words, "early publication activity is strongly associated with subsequent productivity" (1973:417).

While it is impossible to answer precisely the question posed at the beginning of this paper — are professors motivated by external rewards or do they have internalized motivation? — we can state that they remain about as productive after their promotion to Full Professor as they were prior to this recognition, a fact which suggests strongly that their principal motivation is internal. It is fitting to conclude by citing a study of retired academics conducted by the American Association of University Professors (AAUP, 1983). The survey found that many of these scholars continued with their research and teaching endeavours, even into their nineties. As one 91-year-old respondent noted, "I have always enjoyed writing, and retirement has given freedom for more of this. I have produced four books since retirement, one of more than 1,100 pages and one of more than 600 pages. And I have taken delight in making the acquaintance of hundreds of books that have long been on my shelves, but remained unread for lack of time."

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