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~~Ph.D.~~ degree in ~~Sociology~~

William A. Faunce

Major professor

Date May 10, 1979

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SELF INVESTMENT THEORY AND ACADEMIC WORK

By

Earl Charles Nance

A DISSERTATION

Submitted to
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in partial fulfillment of the requirements
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DOCTOR OF PHILOSOPHY

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ABSTRACT

SELF INVESTMENT THEORY AND ACADEMIC WORK

By

Earl Charles Nance

This is a social psychological study designed to test the basic propositions of self investment theory as conceived by William A. Faunce. The main research question is concerned with gaining a more comprehensive understanding of those social factors associated with achievement in academic work. Our subjects consist of the entire populations of three social science academic departments from a large university committed to both undergraduate and graduate teaching.

Briefly, self investment means commitment to an activity based on the relevance of that activity for self esteem. In the context of the self, self esteem enhancement is greatest in those areas of self identity that receive the most social recognition for achievement from significant others. Furthermore, the total impact that positive evaluations have on one's self image is mediated by the level of self investment or degree of concern for success in that activity. Because of the bearing that status has on recognition for achievement, both inter- and intrapositional status distinctions are of crucial importance in terms of the relevant status criteria, potency of prestige and rewards attached, and subsequent commitments and loyalties to the related activities. Achievement is the key to the process by which

self investment and social interaction are assigned meaning and importance. The major purpose of this study was to confirm the interrelationships among levels of self investment, frequency of contact with colleagues and levels of achievement. This was accomplished by correlating three areas of self investment (research, teaching and nonwork-related activities) with frequency of contact in three related departmental sociometric networks and with levels of research productivity. In addition, to confirm our assertion that cosmopolitanism is associated with frequency of contact with departmental colleagues as well as with referent others within external research networks, we correlated cosmopolitanism with self investment and frequency of contact in departmental research networks. As expected, significant correlations emerged for the above-mentioned relationships.

The organizational goals of the university, administrative criteria used for faculty evaluations and colleague orientations combined constitute the research climate of the institution. The general nature of the research climate can be obtained by assessing the academic orientations of faculty members who dominate the nonwork-related sociometric networks. For our population, those who are the most active participants in the research sociometric networks are also the most active participants in the nonwork-related sociometric networks. The teaching sociometric networks are relatively isolated from the research and nonwork-related networks and level of participation in the teaching network was unrelated to research output, as expected. The opposite set of relationships is expected to emerge in institutions

where the research climate is weak, in which case, teaching orientations will dominate participation in nonwork-related sociometric networks.

A new finding to emerge from this study is that, under conditions of achievement, exclusivity of contact with colleagues, especially those who share similar levels of self investment in the related area of activity, is greater than for those who haven't achieved in those same activities. Thus, the combination of both achievement and high self investment produces stronger group cohesiveness. Achievement, however, is the most important factor relating to exclusive referent associations because it inspires frequent contacts partly due to expectations of positive evaluations. The implications of this finding are that those who occupy high status positions in society, especially in occupational activities, form strong group coalitions that exert power and authority over those who have achieved less and who are therefore in disadvantaged positions to produce strong group coalitions promoting their own interests.

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CHAPTER I

INTRODUCTION

This is a social psychological study designed to test the validity of some general principles of self investment theory linked to occupational achievement. Self investment is used here to mean the degree of commitment based on the relevance of that activity for self investment. The primary factors under study are frequency of contact with colleagues, self esteem, professional orientations and recognition for achievement. Faculty members from three social science departments constitute the population for our study. William A. Faunce's monograph entitled Work, Status, and Self Esteem provides the primary theoretical framework for this research effort and, of course, influences the interpretation of the data. The symbolic interaction perspective which is in many ways compatible with the assumptions of self investment theory is the underlying perspective that is drawn on throughout for interpretation and formulations of important research questions. While Faunce's theory often ascends to higher levels of abstraction, especially with reference to different status assignment systems, the symbolic interaction perspective provides many important links such as "significant other" and "reference group" that inform the theory. The sociology of science has also contributed important concepts and theories to this research, such as the cosmopolitan-local construct,

scientific network analysis and findings concerning important background variables of scientists. It is also important to mention that, among other goals, this is the first in a series of attempts aimed specifically at testing the basic propositions of self investment theory.

Discussion of the basic purpose of this study is difficult without first attempting an explanation of the nature of self investment theory. A more comprehensive understanding of the theory requires an elaborate discussion reserved for Chapter II. Therefore, only a brief explanation will be provided at this point. Suffice it to say that the crucial elements of the self-investment process include the status assignment system that may be regarded as the normative structure providing for prestige and material rewards resulting from recognition for achievement. Social recognition by reference groups serves as the primary evaluative source associated with areas of commitment and concern. Evaluations occur on a day-to-day basis through social interaction that, depending on the degree of concern for achievement, results in degrees of either enhancement or degradation of self esteem. The potency of rewards for achievement is bounded by both reference groups and the society at large where distinctions of status are made for almost all activities, of which work is the most essential area for most people. Thus, the higher up the interpositional status hierarchy a particular activity is found, the more likely will role incumbents be associated with greater rewards as visibility is enhanced and therefore status recognition is more likely. For example, a physician

derives greater deference from others and on a more frequent basis than a store salesman who is caught near the middle of the occupational status hierarchy. Reference groups provide the most essential link in the social recognition process insofar as self esteem maintenance is concerned primarily because only these groups are really aware of the quality of achievement under evaluation.

For our population, we found that both research and teaching reference groups will be identified as the most important areas of concern with research groups dominating most professional activities. It is assumed that where there is little or no recognition for achievement, especially in areas relating to research activity, then self investment will be withdrawn and reinvested in those activities where recognition for achievement is greater or more likely. Because this study is not longitudinal in nature, we do not have an opportunity to observe the total effects of lack of recognition for achievement or the possible effects of diminishing self investment that may accrue from saturation of status recognition. We do however have data on subjects at various career stages from which to derive tentative conclusions with regard to these issues.

A secondary purpose of this study is to examine the cosmopolitan-local construct of academic types as developed by Gouldner (1957, 1958). Although this construct, as conceived, consists of a continuum of types from local to cosmopolitan, basically, the local types are concerned with teaching and administrative functions within the local institution and loyalty is firmly attached to

the local institution rather than to disciplinary ties outside of it. On the other hand, cosmopolites are mainly oriented to professional interests and contacts outside of the local institution and their loyalty to the local institution is weak. However, even though expressions of loyalty may be strongly tied to external disciplinary interests for cosmopolites, the symbolic interaction concept of significant other and Faunce's concept of frequency of evaluation combined suggest that frequent daily contacts with significant others is necessary for self esteem maintenance and most of our knowledge of universities informs us that these significant others are often situated within the same university where common interests and goals are shared.

Therefore, we are suggesting that cosmopolitan orientations may be accompanied by strong reference group associations within the local institution and the possibility of this occurring is greater when there is a research climate dominating the institution. Gouldner's analysis supporting his reference group theory was based on a test of social popularity of faculty members through sociometric questions requesting the entire faculty of Coop college to respond to a random sample of names drawn from the college population. The problem is that no sociometric analysis was made within departments nor within research or teaching networks. Moreover, the site of Gouldner's study was primarily local in orientation. Under these circumstances, it is expected that those who are cosmopolitan in orientation will have fewer referent associations within the local institution; and for

those associations that exist, this orientation will be overshadowed by the larger population of localites within the sample. Close examination of the attitudinal items used in the cosmopolitan-local follow-up studies indicates that again the entire faculty population of the institution was sampled for interaction analysis instead of individual departments as functional units and no further attempts were made to do any sociometric analysis. The social interaction items used were mainly attitudinal in nature and no attempts were made to differentiate between research and teaching oriented professional contacts. Because we believe that academic departments are in themselves vital links in the self investment process insofar as they structure the most immediate status assignment system for recognition of achievement, sociometric analysis should be conducted to disclose social interaction in social, research and teaching networks of the academic departments.

Although in studies of academic types (e.g., Gouldner, 1957, 1958), cosmopolitans ("outsiders" and the "empire builders") and locals ("dedicated," the "elders," the "true bureaucrats," and the "homeguard") were supposedly found in those institutions of higher learning studied and follow-up studies by Berger and Grimes (1973) and Flango and Brumbaugh (1974) yielded similar results; an empirical study by Goldberg et al. (1965) concluded that in the industrial laboratory studied, professional personnel "did not choose organizational or professional rewards, as has been suggested in the literature, but they varied in the extent to which they sought after personal

gratification in general, whether these come from the organization or profession" (p. 710). Glaser (1963) also investigated professionals (scientists) in industry and found that when organizational policies and standards for performance are not inconsistent with research interests and professional ethics of scientists, then commitments to both organizational goals and the ethics of science are likely. While acknowledging some differences between industrial and academic communities, it may be asserted that, in general, circumstances surrounding self esteem maintenance are similar and that, in particular, organizational climate[1] is an important intervening variable mediating the content and impact of referent contacts within institutions.

Findings from organizational studies have emerged within the past decade (Fulton and Trow, 1974; Blau, 1973; Baldridge et al., 1978) to underscore the importance of "academic departments" as arenas of activity rather than the whole institution, or faculty members as independent agents. Evidence strongly suggests that neither academic departments nor parent institutions are mutually exclusive of one another, but instead they are interrelated in terms of organizational climate. Large public and private institutions with good research facilities and large graduate student populations tend to employ

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[1]Organizational climate is a combination of colleague climate found among departmental faculty as derived from Peter Blau's use of the concept in The Organization of Academic Work, 1973 and the primary organization guidelines for promotion, tenure, salary increase and the like. In most cases, organization climate is a reflection of the prestige ranking of the university, which, in essence, combines the above factors influencing faculty orientations.

faculty who maintain high rates of research productivity in comparison to other institutions.

These organizational studies also indicate that the larger the university becomes, the fewer bureaucratic constraints over academic departments are evident. These relationships are especially likely among elite institutions. The organizational factors combined with the general tendency for professional groups to exercise more self autonomy produces a social environment that is highly conducive to academic freedom. These conditions combined provide ample reason for concentrating our research on academic departments as the primary social structure for faculty activity and achievement. In particular, through sociometric analysis, we expect to discover the importance of everyday contacts for determining areas of professional interest and concern for achievement. Principles derived from sociometric analysis are also expected to apply to other work settings as well. However, the degree of importance of external organizational constraints will in most cases be greater outside of the academic community, especially among nonprofessional work groups.

Previous academic studies have relied heavily on large random samples of many colleges and universities with particular emphasis upon the "hard" sciences. Although this study, in comparison, has a small population and is limited to one academic setting, it affords the advantages of including almost the entire tenure track populations of three social science departments. Because of the importance of departmental status assignment systems for evaluation of performance

and for self esteem maintenance, an analysis of entire populations of the selected departments is essential for providing a better understanding of the determinants of academic achievement.

A further discussion of the nature of the research questions under consideration is provided in the following statements of the hypotheses to be tested and in brief discussions of their meanings for academic departments. Because several of the terms to be used require a more detailed and definitive discussion, the nature of the discussion to follow will be limited in scope, but, hopefully, illuminating of the issues of this research effort.

Hypotheses and Discussion

Hypothesis 1

H_1: The greater the achievement in a particular area of professional activity, the greater will be self investment in that activity.

In terms of self investment theory, the brief explanation to follow also refers to and is included in hypothesis 2. When combined, both sets of hypotheses and explanations constitute the basic propositions for the theory of self investment. Achievement is a central concept that is essential to the whole self investment process because it represents the end manifestation of social action that is evaluated according to the status assignment system. The degree of importance attached to a particular form of achievement is a direct consequence of the amount of social recognition accruing to it, as well as any material rewards accompanying it. Communication of social recognition

is essential to inform us of the merits of our accomplishment. Without social recognition, there would be little, if any, incentive to achieve. In more specific terms, recognition of success is meaningful when the source of recognition is significant others. While recognition for success from many sources enhances self esteem, the crucial arena of recognition is significant others whose values, beliefs and goals are most highly valued by us; we strive to achieve according to their standards of evaluation. In this context, certain reference groups, to the exclusion of others, become meaningful for us, in that, we pattern ourselves after them to gain their approval and respect. Social recognition thereby enhances our self esteem, which, in turn, increases or maintains our self investment in that activity, especially when significant others are involved.

For faculty members, the greater the success in a professional area of activity, the more likely will attention be directed to that area of accomplishment through daily encounters with colleagues. This, of course, produces self recognition that has the effect of continuing the faculty members' efforts to achieve in the area under evaluation. Also, displays of deference from students and other members of the community will serve to enhance self esteem. As academic success increases, frequency of contact with colleagues will also increase, partly because of rewarding experiences derived from these encounters. Bolstered self confidence as a professional as well as high self esteem as a person tends to increase self investment in the related areas of activity. Social recognition outside of the department is also evident

as other faculty members, aware of status differences within the discipline, communicate their approval.

In general, recognition for scholarly contributions of knowledge is more important for most academicians than the material rewards earned. Although social recognition is essential for self esteem maintenance, it differs for most businessmen, where this recognition process is related to the accumulation of wealth, income and conspicuous consumption, assumed in many different forms. In social situations with clients and associates, businessmen are likely to draw attention to their successful business undertakings that, in effect, convey the value of the rewards attached. In a similar manner, faculty members will, in social encounters with colleagues, draw attention to their progress in professionally related activities or to a recent reward or recognition afforded them for scholarly achievement. In the case of the businessmen and the faculty members alike, news of success is communicated through social interaction which has the effect of enhancing self esteem when acknowledged. The emphasis upon scholarly contributions to knowledge found in the academic community probably causes some uncertainty for some, especially where there is low consensus on the part of faculty members or within the discipline as a whole concerning the merits of one's work. In the business community, on the other hand, there is less uncertainty concerning success because it is usually manifested in material forms permitting clear observations and easy comparisons.

Hypothesis 1A

H_{1A}: Where there is a lack of recognition for achievement in a particular area of activity, self investment in that activity will diminish with age.

In the aftermath of repeated attempts to succeed, self investment is normally withdrawn to discontinue the discomforting effects of failure. Unless another form of social recognition is at hand, the consequences for the self investment process can be devastating. In most cases failure does not become a habit, but instead a new area of self investment is found to substitute for the old one and, as a consequence, feelings of self worth are restored. Repeated failures to gain recognition in research activities, as an example, may result in increasing self investment in teaching as a form of compensation. Thus, self investment may decrease considerably in one area of activity only to increase in another. These propositions, in part, may assist us in understanding the mobility patterns for some industrial workers as well as for some faculty members. Social recognition for success may also accrue to several areas of activity simultaneously, but due to the economies of time and resources, and the normal course of events, most faculty members will concentrate on fewer and fewer professional activities while allowing others to diminish in importance. Those self investment areas retained will in most cases consist of the most successful efforts. Some professional activities, such as research, demand considerable time and resources for successful completion so that other activities diminish in importance.

In addition to social recognition, there are intrinsic rewards that are exceedingly important to feelings of self worth. The Protestant Ethic is an example of a belief system that specifies things that should be intrinsically gratifying. Even these intrinsic rewards however are primarily extensions of early learning of societal norms and values as well as the opinions and values of significant others who influence our social behavior and career aspirations. In this context, significant others do not have to be present to influence the meanings and outcomes of our activities. Experienced authors, as an example, have acquired self evaluative frameworks of writing skills and ideas influenced by past training and helpful encouragement and assistance from significant others so that they can easily guide themselves to complete tasks in anticipation of expected rewards. Even under these circumstances, however, social recognition will eventually intrude into one's life to thus inform him or her of the relative merits of the work completed. Therefore, social recognition, in one form or another, is the key to the self investment process without which achievement would be unlikely. The greater the recognition for academic success, the more effort will be expended in the related areas of activity to the point where academic aspirations, as a reflection of self investment, have been fulfilled.

Lack of recognition in both teaching and research areas of activity, assuming either lack of recognition for administrative work or failure to gain entrance into administrative positions, will, in most cases, depending on career stage, lead to withdrawal of self

investment from academic activities. This may result in occupational movements to other academic institutions. For those who have earned tenure, the most likely possibility is to assume a low profile within the department and perhaps the institution itself in order to avoid negative evaluations. Membership in local community or fraternal organizations may suffice as sources of social recognition sufficient to restore lost self esteem resulting from academic failures. In particular, these organizations may be appealing for those who are adept at performing tasks in demand by these organizations. Involvement in these organizations will also result in deference to professional status from members who have lower social statuses. Moreover, for those academicians who have lost favor in their departments, familial relationships provide an important source of recognition where self investment may be increased. In essence, failure at work is not always tolerable, but it can be managed under circumstances where there is compensation for self esteem from other sources. Thus, recognition as a good father and provider may be compensation for little recognition at work in the same way that a reputation as a public spirited citizen may enhance one's public image.

Organizational climate of the institution is expected to play an important role in the selection of areas of self investment as well as the strength of commitment. For most prestigious universities, the organizational climate will emphasize research activities as the main area of self investment and collegial evaluations will be based on research productivity. The real impact of organizational climate is

through day-to-day encounters among the faculty, especially within their departments, where discussions will center on certain professional activities to the exclusion of others. In general, professional images are formed, graduate training included, by verbal opinions and body gestures of colleagues who thereby communicate evaluations of professional competency and worth. When there is a strong emphasis on one set of criteria to the exclusion of others, then it becomes necessary for those faculty members who have low performance records in the area of evaluation and who are concerned about collegial evaluation to increase performance levels in the approved area and therefore improve their status in the department. One of the side effects of a strong organization climate, however, is that some faculty members will increase their efforts to achieve in the approved area of activity without any genuine desire. They have merely submitted to peer pressure and in the absence of these pressures it is likely that they would reduce their efforts to succeed and withdraw self investment from the area of activity. In essence, these faculty members have higher self investment in their job than they have in their discipline as a whole. Tendencies to submit to collegial pressures to achieve in specific areas of activity will be greater under circumstances of consensus concerning the importance of achievement in that activity. Under these conditions, it is difficult to avoid evaluation of performance. Consequently, either efforts will be increased considerably to achieve in the selected area of importance or else self investment will be withdrawn from that area and increased in another area of

activity where the likelihood of recognition is greater. Assuming, as an example, a weak research climate, then moderate levels of self investment may be maintained in research even in the face of failure to gain recognition because of the lack of importance assigned to achievement in that area of activity. Self investment may also continue in the face of failure under conditions of dissensus concerning the related criteria. These conditions allow for a variety of status criteria to select from so that one may accept only those criteria that tend to enhance self esteem while ignoring the others without fear of strong social sanctions concerning the possibility of failure.

Hypothesis 2

H_2: The greater the frequency of contact with colleagues in relationship to a particular area of activity, the greater will be self investment in that same professional activity.

A well established social psychological principle related to this hypothesis is that individuals are attracted to those who are most like themselves in terms of holding the same interests and goals in life. In addition to this principle, however, our hypothesis means, according to self investment theory, that frequency of contact with colleagues is directly related to achievement in the related area of activity. The greater the level of achievement, the greater the tendency to seek out evaluations of performance through involvement in discussions in mutual areas of interest where one's expertise is relevant. For our population, we have established research and

teaching as two separate social networks. Even though overlapping from one social network to the other is expected, for the most part, we expect that most of the social interaction will occur in those networks that best reflect the organizational climate of the university as well as the designated function of the department. Actually, the organizational climate may tend to overshadow in importance the designated function of the institution or both influences may be strong enough to establish equal activity in both social networks, in which case faculty cliques in research and teaching will overlap. In principle, we expect these relationships between high frequency contact, achievement and self investment to hold for most work groups with the exception of work groups where work is not a "central life concern." Again, it is social recognition for achievement that provides the incentive for continuing efforts to achieve and hence maintaining self investment in that area of activity. For those faculty members who are placed low on the departmental status hierarchy because of lack of recognition for achievement in both teaching and research areas of activity, strong social ties are likely to be established with other professional groups outside of the department or within local community or fraternal organizations, as already suggested. For faculty members in their early career stage, we do not expect the same sets of relationships between frequency of association with colleagues and achievement because they have only begun to fulfill their potentials. Perhaps for these younger faculty members, perceived ability is the primary criterion for determining frequency of contact with colleagues.

Hypothesis 2A

H_{2A}: Exclusiveness of contact among faculty members will be greater under conditions of similar levels of self investment. Also, these exclusive relationships are stronger under circumstances of achievement.

This hypothesis is essentially an extension of those self investment propositions regarding frequency of contact with colleagues. In addition, however, it states that low achievers, who also are expected to have low self investment in the area of activity in question, will tend to seek out companionship exclusively with one another because, for one reason, they have similar records of achievement so that they are not overpowered by the higher status of higher achievers who may fail to recognize their accomplishments. It is also unlikely that high achievers will initiate social contact with low achievers. Notable exceptions are expected, however, among faculty cohorts, especially with regard to professorial ranks, where collegial associations are likely to occur. Also, where there are ideological splits in the department, faculty members may form into powerful coalitions to defend their interests and to influence administrative policy.

From the standpoint of self esteem, exclusivity of social contact may be a defense against the possibility of negative evaluations from status superiors. It is less threatening to self esteem when these risks are avoided. Association with those who have similar records of achievement will, in most cases, enhance self esteem because earnest attempts to offer one another some form of confirmation for an

accomplishment will be supportive of the group and, thus, provide compensation for self esteem lost from failure to gain recognition outside of the group. In order to ascribe more importance to the membership group, attempts may be made to discredit the accomplishments of high achievers. As an example, high achievers who publish frequently may be accused of not doing quality work or not being more concerned about students. For the group to survive, it must adopt a set of standards that extol the virtues of its membership while deemphasizing the importance of higher achievers. In this way, faculty members form protective boundaries between themselves and other faculty members who may perhaps unintentionally communicate negative evaluations concerning achievement. The professional orientations characteristic of groups formed, whether high or low achievement groups, will in large part be influenced by the type of organizational climate dominating the institution. Again, throughout this discussion, the assumption made is that high and low achievement is associated with high and low self investment, except in the case of faculty members in their early career stage. Exceptions to these general statements are possible, but on a whole, it is expected that the above stated relationships will hold for most of our population.

Hypothesis 3

H_3: The greater the self investment in a particular work-related activity, the greater will be self investment in work in general.

Justification for this hypothesis is derived, in part, from the literature on work studies. Evidence suggests that there is a

link, for example, between job involvement and the Protestant Ethic construct (Robinowitz and Hall, 1975). A more detailed discussion of this topic will be deferred until Chapter II. While there are differences between self investment in work and the Protestant Ethic, the similarities outweigh the differences to the extent that they both measure feelings of self worth in conjunction with work. This hypothesis is also intuitively appealing in that it is difficult to imagine achievement without work. An important question, however, is how important is work for feeling good about oneself as a person. Does inactivity produce self depreciation and prolonged states of unhappiness? The issue does not reside with the actual mechanics of work alone. The main point is that work produces certain outcomes, that when recognized as achievement by significant others, will enhance one's self esteem and in this sense make one feel good about one's self. Although the application of work in some activities will not always produce results, the prospect of success for most of us is enough of an incentive to continue making work a habit. Therefore, self investment in work will increase self investment in the related activity to the degree to which achievement is recognized. In this sense, both forms of self investment are related as our study will show.

The self investment process is an embodiment of the status assignment system insofar as it is dependent upon the attraction of statuses as evidenced by those variations of social prestige and material rewards attached. Social stratification theory is useful

for comprehending the nature of the role of statuses in connection with the social structure. Some social statuses (e.g., lawyer, doctor, professor, businessman) are assigned more prestige and rewards partly because role encumbents provide specialized services for society that are regarded as highly important in contrast to other services (e.g., janitor, dish washer, street cleaner).

The status assignment system for our study is found in the academic community, which, in turn, is a subsystem of the status assignment system for the whole society. For the general public, the status of a professor has a relatively consistent meaning to it, but for those who are members of the academic community, status distinctions are made according to those standards established within each discipline and academic department. Academic traditions, the division of academic labor as characterized by prestige differences among universities and colleges and the omnipotence of social recognition attached to research productivity have all contributed to the greater prestige and rewards attached to research activity. Therefore, we expect that self investment in work associated with research efforts as well as self investment in research itself will be greater and that teaching will assume secondary importance with regard to levels of self investment. In general, granting the importance of work for achievement at all occupational levels, self investment in work itself, as it relates to feelings of self worth, will tend to increase as the social stratification ladder is ascended. Unfortunately, the ultimate consequences of these relationships for the problem of social inequality

is that for those who are politically and economically remote from the main stream of society, few incentives remain to alter the course that influence their lives.

Hypothesis 4

H_4: The greater the cosmopolitan orientation, the greater the likelihood of more frequent contacts with colleagues within the discipline as a whole, including both departmental faculty and referent contacts outside of the institution.

This hypothesis is designed to test the thesis that cosmopolitanism is an outgrowth of recognition for achievement within the discipline as a whole. In the same way that referent contacts of nonprofessional workers, assuming at least moderate levels of self investment in work, are found mainly on the job, we expect that referent contacts for our subjects will also be found on the job which includes contacts in the department as well as outside of the university but within the discipline. The research literature dealing with the cosmopolitan-local construct has emphasized the whole institution as an important factor associated with professional orientations while devoting little attention to academic departments where most social interaction occurs. As an example, Gouldner's sociometric analysis was conducted on a random sampling basis that included a total population of 125 of which 26 subjects were drawn (Gouldner, 1957, 1858). His sociometric selections were based on the criteria of social popularity so that, in essence, the analysis was more a measure of orientation of organization as a whole than of professional

orientations. We hope to derive a more accurate picture of professional orientations by dividing our analysis into research, teaching and social sociometric networks. From this three-way analysis of professional associations, we expect that the professional orientations typical of that institution will emerge in the social networks. In general, referent contacts within the research sociometric networks of the departments and within the discipline as a whole should increase with cosmopolitan status.

In terms of self investment theory, we expect these relationships partly because one's professional self image is the result of evaluations from referent others within the discipline. It is difficult to imagine the possibility of maintaining high status as a cosmopolitan without also having a high status within one's academic department, unless, of course, the purpose as well as the orientation of the department is teaching. The intense nature of day-to-day contacts with colleagues in the department, compared to referent contacts outside of the university, is bound to produce strong feelings of concern for professional recognition, especially under conditions of high self investment in one's job. Moreover, the academic job in itself demands certain commitments requiring collegial recognition in order to function well as a faculty member. In the short run, it may be possible to avoid colleague evaluations within the department by focusing attention primarily on referent contacts outside of it, but eventually, unless recognition within the department improves, it will become necessary to move to another

academic department where recognition for cosmopolitan status is more likely.

In the next chapter, theoretical concerns relating to the cosmopolitan-local construct, organizational climate and self investment theory will be discussed insofar as these concerns bear on our hypotheses, findings and conclusions. Chapter III deals mainly with methods of data collection and operationalization of variables in connection with our hypotheses. The findings of our study, which are reported in Chapter IV, specifically deal with the results of the hypotheses tested and in addition, reveal some interesting findings with regard to the consequences of achievement for exclusivity and frequency of contact with referent others. Chapter V condenses much of the discussion of our research findings and also extends these findings to include possible implications and directions for further research of academic and nonacademic occupational groups.

CHAPTER II

THEORY

As already mentioned, this is a social psychological study and the area of inquiry is the academic community. Throughout the early development of this study and later during the analysis of data, however, macro theoretical assumptions derived mostly from sociology of science literature and organizational studies have informed the research design of this study. This is the first attempt to study entire populations of academic departments. Questions have been formulated to attend to the status assignment system which is also the evaluative framework utilized by colleagues in their day-to-day encounters with one another. The daily functions of academic departments, even though somewhat autonomous, cannot be studied in isolation, but must be interpreted within the context of the universities or colleges where they are situated. Notwithstanding these points of convergence between the social psychological and organizational levels of analysis, careful attention should be maintained when moving from one level of analysis to another because different levels of inquiry demand different modes of theoretical abstraction and different methodological frameworks. Therefore, studies like this one attempting to focus on social status and interaction processes related to work and comparative studies of formal organizations

that attempt to derive traits characteristic of them should be considered as primarily complementary in the information gained (Blau, 1974, p. 2).

The first part of this chapter will review the literature on work studies written primarily from the psychological perspective. Although this research is circumscribed by the symbolic interaction perspective, the psychological perspective is in many ways compatible with it. Next, studies of scientific productivity, mostly from the sociology of science literature, will be discussed insofar as topics bear on this research. The cosmopolite-local construct as it has been developed will be discussed insofar as it relates to the research design of this study. Formal organizational theory will be discussed and employed as an explanation of the external influences impinging upon academic departments which therefore constitute an intervening variable for our research design. Symbolic interaction postulates, especially as they are connected to the theory of self investment, will be summarized as a perspective mediating analytical models and tools of this study. Finally, the main focus of attention will be directed to the theory of self investment itself to explain the crucial elements of social interaction linked with academic achievement.

Job Studies

Although workers at all occupational levels share a need for positive evaluations, the degree of these needs is contingent upon the status assignment system that allocates prestige and material rewards for performance. On a whole, most studies have shown that professional

workers have higher levels of job involvement than do nonprofessional workers. Orzack, as an example, tested Dubin's "central life interests" theory of a group of professional nurses. Dubin had selected a group of industrial workers for his study and hypothesized that they would rate non-job-related activities closer to their own value orientations and thus more important to their life concerns than job-related activities. Dubin administered a questionnaire to 491 workers and found that "only 24% of all the workers studied could be labelled job oriented in their life interests" (Dubin, 1956, p. 135). In contrast to Dubin's findings, Orzack found that of the 150 professional nurses participating in the study, 79% considered work as their central life interest (Orzack, 1959). Although some methodological problems such as limitations of samples with regard to sex and type of profession studied prevent us from making generalizations to all professional groups, the remarkable differences of job involvement between these two occupational categories are significant enough for us to begin to make conclusions that extend to other professional communities as well.

Also, related to this discussion, although speculative in nature, is an important comment by Vroom.

> Persons high in ego-involvement and occupying positions at higher occupational levels may be more likely both to value, and to regard themselves as possessing, abilities which are relevant to performance in work situations. Consequently one might expect the nature of the work, particularly those aspects of work which are relevant to the abilities in question, to be more important in the determination of their satisfaction. (Vroom, 1962, p. 176)

Faunce also makes this speculation and in addition postulates that "it may be possible to resolve some of the many discrepant and disparate findings from job satisfaction studies by inferring differences in self investment in work" (Faunce, monograph, p. 5).

Degree of involvement in work may be closely associated with the social status and material rewards attached. In "A Comparative Study of Work Centrality, Job Rewards and Satisfaction" by Mannheim, the "work centrality thesis" was tested on 625 males whose socioeconomic characteristics were fairly representative of the population as a whole for four of the largest cities of Israel, except that there was an over representation of professional and administrative workers. Data collected from questionnaires revealed that work centrality "is strongly affected by the rewards the worker perceives on his job, i.e., the more reward he feels in all aspects of his job, the more will he think about it, prefer it above other roles, devote time and concern to it" (Mannheim, 1975, p. 101). Again, differentiation of reward structure favors professionals and higher administrative workers who in this study scored higher on work centrality scales than other occupational groups lower in status and job responsibilities. Mannheim's occupational study is excellent from a comparative point of view because it includes in the analysis several occupational groups representing a variety of socioeconomic class distinctions.

Although evidence strongly suggests that there is an association between the status level of an occupation and job involvement, care should be taken not to attribute job involvement entirely to structural

factors of the occupation. Possibly, there is a strong social class influence that mediates job attitudes and at least indirectly affects workers' level of commitment and willingness to become completely involved in work. This position concerning job involvement may be viewed from the perspective of alienation in that low job involvement is a consequence of felt lack of control and autonomy (powerlessness) and felt lack of satisfaction and fulfillment about one's job (self estrangement). In a study using these alienation variables, it was found that, in a longitudinal analysis of 442 high school students at two points of time with a fifteen-year interval in the interim, there was an overall negative correlation between socioeconomic status variables and alienation and, in particular, "occupational socio-economic status is negatively related to both forms of alienation, as predicted" (Otto and Featherman, 1975, p. 716). Early integration into societal values and dominant institutions is a necessary precondition for success and for nonalienating adaptation to social roles that becomes functional in the work setting. Thus, social class persists as an impetus to achievement.

> The net effect of being reared in a family of higher socio-economic status is to feel more control of one's circumstances. Families of higher socioeconomic statuses have resources with which to indulge themselves. This sense of mastery is conveyed from father to son. Family background statuses (a social setting) differentially affect the two variants of alienation. (Otto and Featherman, 1975, p. 717)

In a study of job satisfaction, job enlargement and individual differences, it was found that some communities foster malintegration of workers, or youths, into middle class norms and work ethics which

has the effect of producing alienating predispositions for those workers that becomes translated into low levels of job satisfaction (Hulin and Blood, 1968). Therefore, those reared in higher socio-economic families where exposure to middle class values and norms is greater will have a better chance of achieving professional status and, in comparison to those who have not had the same advantages, they will probably be more successful at executing professional obligations.

When occupational groups of similar social status are studied, few, if any differences emerge. In such a study of engineers, nurses and students, Lodahl and Kejner found with regard to job involvement "the scale items seem to be general over different populations, in that roughly the same factorial structure appeared in groups of engineers and nurses" (Lodahl and Kejner, 1965, p. 32). Also, in terms of level of job involvement it was found that "the students have lower job involvement than either the nurses or the engineers, who do not differ from each other" (Lodahl and Kejner, 1965, p. 30). We may begin to conclude from this study that job involvement varies significantly between professional and nonprofessional groups, especially for those at the extreme ends of the job scale; it does not vary, however, to the same degree where material rewards, recognition for achievement and social status are nearly equal for those occupying similar occupational positions. Thus, we would expect that academic professionals rate high on job involvement measures.

In the Lodahl and Kejner study (1965), performance and social interaction on the job seem to be linked to job involvement which

suggests that social contact on the job should be afforded more attention. It was found that two out of thirteen variables were correlated with the job involvement scale with the result that "the number of people contacted per day on the job (.30) and the interdependence of the job (necessity of working closely with others) (.34) are both associated with high involvement, at the .01 level" (Lodahl and Kejner, 1965, p. 31). Moreover, the findings of another study concluded that interpersonal relations with one's supervisor is significantly correlated (.05 level) with job involvement (Weissenberg and Gruenfeld, 1968). In neither study, however, was social contact with fellow employees or supervisors regarded as a necessary precondition for job involvement. In other words, social contact was not treated as an important theoretical issue. If, for instance, a symbolic interaction model had been employed, then different conclusions would have emerged because of the emphasis on the influences of significant others for levels of concern with achievement.

Other studies have also indicated both implicitly and explicitly the importance of social contacts related to work but without drawing major theoretical conclusions from the evidence. In a study by Korman, however, one general conclusion comes nearest to the theory proposed by this research.

> Social evaluations of one's competence for a task, even when it is not based on previous task experience but rather on subjective dimensions of a nonexperimentally based nature, appear to become internalized by the individual in such a manner as to affect his performance for the task. (Korman, 1970, p. 39)

Although Korman doesn't contend that frequent evaluations are necessary to maintain sufficient effort to perform, he does infer that competent performance as judged by others is linked to high self esteem and that those with high self esteem succeed more often in task performance areas than those who have low self esteem.

Success has been regarded as an important variable in several studies of job involvement (Lodahl and Kejner, 1965; Gurin, Veroff and Feld, 1960; French and Kahn, 1962; Vroom, 1962; Lawler, 1969). Generally, findings have indicated that high levels of job involvement are associated with high job performance. This is an important finding for self investment theory because recognition for achievement is a necessary precondition for maintaining levels of self investment or concern for achievement at or near the aspiration levels of individuals necessary for self esteem maintenance. Job involvement and self investment are similar concepts and yet different in some important respects, which will be explained toward the end of this chapter.

One of the most widely recognized methods for predicting job performance is the "expectancy model" (Lawler, 1968; Goodman et al., 1970; Lawler and Porter, 1967; Hackman and Porter, 1968). Expectancy theory states that an individual's tendency to perform a particular task is directly related to the perceived importance of the rewards associated with successful performance of the task. Thus, if the perceived rewards are great, then the tendency to perform will also be high. In studies based on expectancy theory, subjects were asked to rank order job activities or outcomes according to their perceptions

of the related rewards. The results of these tests are that there is a significant association between perceptions of rewards and actual achievement in related areas of task performance. The self investment model also accounts for perceived importance of job outcomes, but, in addition, measures the frequency of contact with fellow workers or colleagues as a determinant of concern and commitment to work.

The status assignment system peculiar to the academic community provides norms or guides for behavior often resulting in performance outcomes uncharacteristic of other professional communities. Professional groups found in business, industry, government and the academic community alike all share similar backgrounds and ethics of professionalism, but academicians remain relatively unfettered by organizational goals and demands of loyalty characteristic of other professional communities. Even though the bulk of academic funding for research and development in the social sciences is derived from federal sources, the major goal of research has been the advancement of knowledge and not government's need to make investments in the expectation of a profitable return as many critics have suggested (Useem, 1976). From this evidence, it is understandable that conditions in the academic world are more conducive to freedom to do research that is of vital interest for those within the discipline and for the discipline itself. These factors promoting open research, traditional expectations of scholarship, the security of tenure, and related criteria for promotions and salary increases

all produce stimulating environments for creative activities and achievement not available to other professional communities. The main contention of this research however is that, while the ethics of professionalism and the general research climate of universities is important, the primary stimulation for productivity occurs among colleagues within the social environment of academic departments. Probably for these reasons, aside from upward and downward mobility within the academic community as a whole, the vast majority of academic professionals remain dedicated and committed members of their academic departments.

Moreover, academicians' commitment to the academic community is not surprising in light of the identification process associated with one's profession prior to employment. It has been suggested that graduate school engenders pride in accomplishment, ideologies supporting research beliefs and activities, and internalization of motivations necessary to sustain efforts toward completion of academic assignments and that sponsorship speeds the whole process along by directing one to specialized fields and even future prospects and positions within the academic community (Becker and Carper, 1956). These factors no doubt contribute to job satisfaction of professionals. It is hypothesized here that social support received in academic departments greatly improves job satisfaction.

Some research findings suggest that job satisfaction may be more closely linked with job design factors of organizations and that job involvement may be mostly a function of individual differences

that persons take with them from job to job (Hulin and Blood, 1968; Lawler and Hall, 1970). As we move up the socioeconomic ladder, opportunities for controlling one's work environment improve, power over decision-making increases, and greater prestige and material rewards accrue. Job satisfaction like job involvement can therefore be conceived as more likely in higher occupational statuses (Vroom, 1962, p. 176; Mannheim, 1975). Job involvement, as a separate measure, has been positively linked with higher educational and urban backgrounds, both of which lead to greater participation in decision-making processes (Siegel and Ruh, 1973). Taking the above factors into account, it is reasonable to assume that there is relatively high job satisfaction among faculty members especially because academic settings provide for greater autonomy, participation in departmental decision-making and greater status rewards for achievement.

Job satisfaction is not a major thrust of this research nor has it been incorporated into the study as a variable. It has been mentioned, however, because by establishing associations among background factors (integration into middle class norms and ethics of work), interoccupational positions, job involvement, recognition for achievement and job satisfaction, it is easier to understand why academic commitments and achievement can be relatively high in the absence of other rewards such as high income and those fringe benefits common to other professional groups. Moreover, the powerful influences of intrapositional status distinctions among academicians plays an important role in the determination of professional commitments and the maintenance of high expenditures of effort.

Expanding on the concept of collegial evaluations, faculty members establish collective criteria for regulating and evaluating one another, are relatively autonomous in selection of research assignments; and as a collectivity, they are responsible for fulfilling the educational goals of the institution. Under these circumstances, self regulation is an essential ingredient likely to culminate in job satisfaction. Colleagues bestow recognition on one another and, in many instances, they have a strong impact on administrative decisions concerning tenure, salary increases, and promotions. Under these circumstances, job satisfaction, while partly dependent on interpositional status distinctions, is largely a consequence of collegial recognitions for achievement.

The relationship between job involvement and job satisfaction can be viewed differently depending on the job satisfaction items under consideration. Weissenberg and Gruenfeld tested a "two-factor theory of job satisfaction" formulated by Herzberg (1959). The first set of factors are motivators and they are "recognition, achievement, advancement, responsibility, and the work itself." The second set of factors are hygiene conditions and they are:

> interpersonal relations with peers and with superiors, company policy and administration, superiors' technical competence, working conditions, and job security. Hygiene conditions have also been referred to as extrinsic or work-context conditions because they are all derived from the environment surrounding the job. (Weissenberg and Gruenfeld, 1968, p. 470)

The results of the above study indicated that the motivator items correlated with job involvement at the .05 level of significance in contradistinction to the finding that the hygiene items did not

correlate with job involvement. Furthermore, the motivator items or variables accounted for more of the variance in job satisfaction than did the hygiene items. The motivator items significantly linked with job involvement were recognition, achievement, and responsibility. These findings are important because recognition and achievement, in particular, are crucial concepts for the theory of self investment. Recognition for achievement is a necessary precondition for enhancing self esteem required to produce high levels of effort and for maintenance of self investment in the related area of activity. When little recognition for achievement produces low involvement, then in the absence of motivational factors, job satisfaction may be higher than expected when the hygiene conditions are favorable.

As an interesting note related to our study, for the above study the only hygiene variable that correlated with job involvement was "interpersonal relations with the superior." The importance of this one significant relationship was overlooked in the final analysis, which is observed from a concluding comment. "This finding lends further support to our hypothesis since it indicates that, in general, satisfaction with hygiene variables seems to be unrelated to job involvement" (Weissenberg and Gruenfeld, 1968, p. 471). Actually, from the point of view of symbolic interaction, the interaction with the superior variable should have been combined with the motivational factor variables because interaction with one's superior is a form of recognition on many jobs where employees are not likely to interact with their superior under circumstances of poor performance records

and where these records are important sources of evaluation among fellow employees. Moreover, superiors may be deemed as significant others due to the importance of their evaluations regarding task performance, assuming, of course, a reasonable degree of concern for achievement. Self investment theory recognizes this association with job involvement as an essential link between recognition and achievement enhancing self esteem.

Most empirical studies concerning the academic world have been primarily restricted to the physical and biological sciences which in part reflect the impact of funding by industry and government. Also, most of the data from these studies have been drawn from large national samples and they have been intradisciplinary in approach. There have only been a few interdisciplinary empirical studies (Allison and Stewart, 1974; Fulton and Trow, 1974; Blau, 1973; Dornbusch and Scott, 1975). Empirical studies of social scientists are very sparse, and meaningful comparisons between the "hard" and "soft" sciences have not been attempted except in an almost speculative fashion. Some of the basic approaches for studies about academia are those that have focused on personality traits of scientists while taking into account organizational influences (Pelz and Andrews, 1966; Taylor and Barron, 1963), the importance of the prestige level of graduate school (Crane, 1965), the consequences of associations with eminent scholars (Zuckerman, 1967; Griffith et al., 1973), relationships between types of organizations and productivity (Fulton and Trow, 1974; Blau, 1973), external scientific networks or "invisible colleges"

(Crane, 1972; Gaston, 1973; Griffith and Mullins, 1973; Price, 1961; Lemhardt, 1977), visibility and diffusion of knowledge (Cole and Cole, 1973), exchanging information for recognition (Hagstrom, 1965; Mulkay, 1972; Jevons, 1973; Reskin, 1977) and the process of accumulative advantage or the "Matthew effect" (Merton, 1968; Allison and Stewart, 1974; Cole and Cole, 1973). This study is partly intended to provide the "missing link" to the recognition for achievement thesis to explain variations in research productivity. By connecting internal and external research networks together, it is hoped that a total picture of the variations in achievement determinants will begin to emerge. In particular, the frequency and intensity of interaction contacts between colleagues is expected to be a strong indicator of academic interests and achievement. Other topics to be explored in this study and related to the above approaches are: organizational climate, prestige level of graduate schools, orientations of academic administration, prestige level of academic departments and university, research and teaching networks and recognition for achievement.

Cosmopolitan-Local Construct

In order to differentiate between those who have strong commitments to either research or teaching, or strong commitments to both, the cosmopolitan-local construct has been incorporated into the research design of this study. Our definition, however, differs slightly from the definition proposed by Gouldner in that research output and participation in national professional associations are all factors composing cosmopolitanism, which is strongly associated

with referent contacts both internal and external to the university. Because of the way in which these concepts are utilized in our study, direct parallels cannot be drawn between our study and those which have replicated the cosmopolitan-local construct as conceived by Gouldner (1957, 1958). We are also testing the conclusion by Glaser (1963) that loyalty to both the local organization and the universal ethics of science or professionalism are not incompatible. For our analysis, the most important concept is reference groups that are bounded by the status assignment system and which in combination with each other are the essential sources of recognition for achievement necessary for self esteem maintenance.

Despite differences in emphasis, an analysis of Gouldner's treatment of reference groups is an important matter as it directs attention to the possible consequences of referent contacts in relationship to the research climate of the institution. Gouldner's theoretical concern was with the relationships of latent role functions of cosmopolitanism and localism with the manifest role functions of professionals that are found in academic communities. The main thrust of this analysis was to measure attitudes concerning involvement and loyalty to the local institution. Questionnaire items were directed at the local institution (Co-op College) to ascertain degrees of acceptance of and loyalty to educational policies and issues of concern related to students, colleagues, departments, administrative rules and the administration. As expected, the faculty are distributed on a continuum of cosmopolitanism and localism, depending upon their overall degree of loyalty to the local institution.

Gouldner's initial assumption concerning reference groups is that for cosmopolitans they are probably external to the university or college: "Those low on loyalty to the employing organization, high on commitment to specialized role skills, and likely to use an outer reference group orientation" (Gouldner, 1957, p. 290). However, further refinement through factor analysis of the data of the cosmopolitan-local construct resulted in six types, one of which is "Empire Builders," that in addition to having cosmopolitan orientations, "are committed to their specific academic departments, particularly in the physical sciences and the creative arts (which are especially strong and cohesive on this college campus). This departmental commitment is suggested . . . by their expressed feelings that there was too much thoughtless criticism of departments and their members" (Gouldner, 1958, p. 450). This classification of cosmopolitans is close to the one proposed by Glaser of dual loyalty (1963). Although Gouldner does not expand on this finding, one may make the inference that strong commitments to one's department and to the discipline as a whole may not be incompatible, especially when conditions for both are provided.

This is not inconsistent with Glaser's contention that basically the distinction between local and cosmopolitan scientists "derives from conflict between the two goals" (Glaser, 1963, p. 250). Conflicts between these two goals are resolvable depending on the freedom and resources available to pursue research activities as well as fulfilling the educational goals of the institution. Although

Glaser's thesis was tested in an industrial setting, we should be at liberty to apply it to academic communities as well. In this context, it is possible that those who are extreme cosmopolitans may also have strong ties within the local institution or department, assuming that they are of the "Empire Builder" variety.

Although, as will be discussed shortly, the best conditions for both research and teaching activities to flourish are probably found in large public institutions with a large body of both undergraduate and graduate students, there are a few smaller universities where these conditions also exist. Dean E. McHenry reports that at the University of Santa Cruz, which is a smaller university, a plan to emphasize excellence in undergraduate teaching but not at the expense of research has been successfully instituted (McHenry, 1977, pp. 86-116). This university has been able to recruit highly qualified researchers and scholars, who, while devoting considerable time to undergraduate teaching, have also performed exceptionally well as researchers. The publishing awards and recognition afforded this faculty have placed them in the top percentage bracket of the country. One of the most attractive features of this campus for faculty is the opportunity to become closely involved with undergraduates. Moreover, the undergraduate population of this campus has earned more than their share of national academic awards and acceptance to prestigious graduate schools has been high. The main point of this discussion is that evidence suggests that it is possible for faculty members to be simultaneously committed to research and teaching while being accomplished in both areas of activity.

In part, Gouldner depended on sociometric analysis to support his contention that cosmopolitans in general have fewer associations within their local institutions. He did not, however, concentrate on his subjects' academic departments, but instead relied on a list of names consisting of 26 faculty members randomly selected from a survey population of 125. Subjects were requested to indicate their level of contact with these faculty members based on social popularity, which in the final analysis may be merely an indication of the weak research climate of the university itself. Because Gouldner's Co-op College, according to the description given, had a weak research climate, we may conjecture that his sociometric analysis revealed the strong local orientation of this campus without any indication of the climate of any individual academic department. Evidence for the types of faculty on this campus is found in Gouldner's data (1957, p. 295). Gouldner established four categories on a continuum from cosmopolitanism to localism in orientation for the 125 faculty members. He found that only 29 faculty members were "extreme cosmopolitans," while 43 were "extreme locals" and that those in the two categories on the cosmopolitan side of the continuum consisted of only 52 of the 125 faculty. Therefore, we cannot be certain of Gouldner's assertion that the low profile of cosmopolitans on this campus is evidence for the tendencies of cosmopolitans to have referent associations outside of their institutions. Given a strong research climate, it is possible that a social popularity sociometric analysis would reflect this research climate, thereby showing cosmopolitans to be more popular than locals,

even though, as Gouldner suggested, their orientations may be cosmopolitan in nature. Had Gouldner obtained sociometric data in both research and teaching networks, which is the case in our study, then he would have undoubtably found that cosmopolitans would be highly active in these networks while locals would be inactive in them.

In our sociometric analysis, as an example, we found that those who selected one another for nonwork-related reasons, which is similar in intent to Gouldner's social popularity concept, were, in the majority of cases, the same subjects who selected one another for exchanging research ideas and papers in the research sociometric network. For our population, social popularity choices reflect the strong research climate of the university. Also, follow-up studies of the cosmopolitan-local construct (Berger and Grimes, 1970, 1973; Goldberg et al., 1965; Glaser, 1963; Flango and Brumbaugh, 1974) do not include sociometric analysis but instead rely heavily on attitudinal data with a few questions asking for the number of department and nondepartment faculty the respondent was best acquainted with, which again, is a measure of popularity and not of associations based on either teaching or research interests. Cosmopolitan orientations have been assumed to be an indication of outside reference group association. A careful search of the literature on the cosmopolitan-local construct uncovered no serious concern for organizational climate. While attention was paid to the type of institution or industry selected for analysis, in no case were either teaching or research organizational climates incorporated into the

research design of any study as an intervening or control variable. However, these observations are not true for studies that have focused on academic productivity, primarily because research output is greater in highly prestigious universities.

The basic argument that has been presented here is that Gouldner's six academic types are probably excellent concepts for understanding academic orientations but not necessarily good indicators of the location of reference groups. An improvement on Gouldner's sociometric method of analysis, such as the one employed in our study, will lead to a more precise measure of the type and frequency of collegial associations, especially where the mode of analysis includes all tenure track faculty within the department. In this way, a better picture of the research and teaching networks may be obtained. Also, by adding a sociometric analysis of social popularity and contrasting this network with the other two networks, a better indication of the true nature of the research or teaching climate of the institution may be determined.

Organizational Climate

In general, all of the various combinations of cosmopolitanism and localism to be found in academic departments are contingent upon the size of the educational institution, ratio of graduate students to undergraduate students, availability of research facilities, academic orientations of the faculty, research output of the faculty, evaluative criteria used for promotions, tenure, salary increases and special privileges (Fulton and Trow, 1974; Blau, 1973). The actual

interaction among these factors may be conceptualized as a reciprocally reinforcing process between personality and social structure as determined by the institutional environment, whereby one set of conditions (e.g., peer pressures for research output) is accompanied by another (e.g., availability of time and research facilities) and also certain patterns of interaction emerge from policy changes and external societal pressures such as social movements, government priorities, foreign investments, and economic demands and fluctuations. Those universities that qualify as the strongest research oriented are found among the most prestigious in the nation.

An interesting finding to support the above observation is that, in the large public institutions studied that have a high ratio of graduate students, high percentage of faculty members with Ph.D. degrees, and a variety of graduate programs, the overall productivity of the faculty as a rule is relatively high (Fulton and Trow, 1974; Blau, 1973). These social factors combined produce a social environment highly conducive to strong research orientations for most faculty members, and evaluations of professional performance based mainly on research productivity. Thus, while personal characteristics are important, social influence on one's immediate environment may have a significant bearing on the type of professional activities selected. This evidence also advances the argument that organizational climate should not be ignored or reduced in significance when studying academic institutions.

While the university administration establishes a general set of guidelines for hiring, tenure, promotions, and salary increases, academic departments have relatively more autonomy than do organizations

where performance is based on nonprofessional standards. Bureaucracy is an important control mechanism by which the norms of job performance are structured and attitudes toward work are influenced. Weber's "ideal type" of bureaucracy emphasizes the formal aspects of organizations where rational planning, strict divisions of labor, and an authoritative control over work are most often found. Under these circumstances, skilled and unskilled workers compose the majority of the work force with professionals occupying most of the management positions. Weber's "ideal type" however is not found in most organizations where the majority of workers are professionals (Stinchcombe, 1959; Blau, 1974). As a substitute for the bureaucracy proposed by Weber, highly valued professional skills and achieved statuses found among the faculty of academic departments constitute the normative system whereby faculty members rely on one another for helpful assistance and allocation of rewards for achievement. An indication of how the social systems of academic institutions may operate to influence professional activities is explained by Blau.

> Whether a faculty member's research interests are stimulated or stifled in an academic institution depends on his colleagues, on how many of them have completed graduate education, which has socialized as well as trained them for research, and which makes it probable that they are actually engaged in research. (Blau, 1973, p. 269)

Again, organizational climate exerts pressures to "publish or perish" on faculty that have an important bearing on the evaluative criteria found in academic departments. Thus, the academic climate may be regarded as almost "independent of the individual's own training

and of institutional conditions" and exerts "an influence nearly as strong as his or her training" (Blau, 1973, p. 268).

Understanding the social exchange processes found in predominately research-oriented departments leads to a clearer formulation of a theory explaining productivity which is a major concern for this research. Positive evaluations of research performance exchanged during social encounters are the essential ingredients for enhancement of self esteem necessary to maintain efforts to further research achievement. Blau discusses the exchange processes found in research oriented departments as follows:

> Colleagues with research skills facilitate one's own research by tending to give advice when needed, since being asked for advice is a welcome sign of respect for their superior skills, and they make working on research more gratifying by furnishing attentive listeners in hearing about promising leads and suggestive results. These processes of social exchange are a continual source of rewards for scholarly endeavors, and create group pressures to engage in scholarly research by depriving those failing to do so of social rewards. (Blau, 1974, p. 269)

In effect, we have concentrated on the internal processes of departmental activities and research productivity. While these considerations directly concern the empirical data collected in this study, some of the variations in interaction processes can be attributed to the organizational climate external to the departments studied. Some of the important factors influencing the internal dynamics of academic departments are: general administrative policies, college deans, student enrollments, job market demands and community pressures. Even at the national level, large granting agencies may have a powerful impact on research interests and activities insofar as

faculty members may become busily engaged in applying for research grants to advance their own areas of interest and thus place themselves in positions of advantage for promotions and salary increases as well as recognition for achievement. Despite these external pressures on academic departments, considerable autonomy remains, especially at the university level. The fact that an academic department that was designated as a teaching unit in the university we studied could become research-oriented is an indication of the possibilities for freedom available to academic departments, even though this anomaly may be partly the product of the strong research climate of the university. It is relatively clear at this point, however, that administrative bureaucracy does not always control or have unrestricted jurisdiction over academic departments. Again, this may be partly attributed to the role of professionalism within academic departments. In this context, tenure is a buffer between capricious administrators and faculty members which allows freedom that might otherwise be impossible. Without the protection of tenure, it is doubtful that some faculty members would be permitted to exercise as much independence as they do.

A factor contributing to greater academic freedom of the faculty of large prestigious institutions is that more elite institutions allow their academic departments greater academic freedom. In a study conducted by Baldridge et al. (1978), the degree of control of professional behavior was compared among different types of colleges and universities. Measures of bureaucratic control centered on "faculty contracts, professional travel, and control of the curriculum" (p. 114).

In particular, they found large differences between degree of bureaucratic control between elite and nonelite institutions. "In the public sector there were more rules and regulations in community colleges, less in prestigious institutions; in the private sector there are more in private junior colleges, less in the elite universities" (p. 114). Because of the elite nature of our institution studied, we must consider this factor as an important variable in our explanation of why our academic departments may be conceived as relatively autonomous except for obvious limitations such as curriculum responsibilities, budgetary restrictions, and general administrative criteria for evaluation of faculty that must be maintained. Therefore, these conditions allowing for more autonomy for academic departments as well as the prevalence of professionals in these departments is bound to encourage peer evaluation of academic performance as a valuable source of self esteem maintenance for the majority of faculty.

In essence, these factors that contribute to academic freedom also place more importance on peer evaluations of academic performance. The prestige ranking of the institution, the tradition of academic freedom, the role of professionalism, and the policy of tenure are all conditions contributing to the relative importance of peer evaluation for self esteem maintenance. Furthermore, these factors assist us in understanding why intrapositional status distinctions appear to be the most important sources for sustaining efforts to achieve in the face of public apathy or lack of interest in academic achievement,

unless, of course, products of research found mostly in the biological and physical sciences have a direct bearing on their lives. In most cases, recognition of achievement is highly valued when the sources of recognition are perceived as having high status.

The Symbolic Interaction Perspective

This research has been circumscribed by the symbolic interaction perspective with particular emphasis upon the impact of significant others on identity formation and self esteem. Relatively few attempts have been made to lend empirical support to the symbolic interaction approach to explain social action (Manis and Meltzer, 1972). This study is expected to contribute empirical evidence of the kind necessary to bring credibility to the interactionist perspective. Also, as already mentioned, the theory of self investment is a unique social psychological theory designed to redirect research questions into more fruitful areas of inquiry leading to a clearer understanding of social action from a basic framework that is closer to symbolic interaction than any other perspective.

Unlike psychological explanations of social behavior that tend to stress the "normal" unfolding of innate traits through proper nurturement, the symbolic interaction perspective stresses the consequences of a variety of different social influences that are judged as either common or unique depending on social outcomes and the interpretations of others. In general, the behavioristic approach and the symbolic interactionist's approach are alike in stressing the influences of others on social learning, but they differ in the crucial

area of "self concept." According to the interactionist perspective, man is not simply determined by others' influences but he possesses the capacity for reflexive thinking uncharacteristic of other species.

Symbolic interactionists, in the tradition of William James (1890), Charles Cooley (1902), George Herbert Mead (1934) and Harry Stack Sullivan (1947), discuss the self as a detached observer of the mind whereby emotions that accompany thinking and social action may become partly suspended to afford the opportunity for evaluation of ideas and conduct in a more object way. Ideal social models are called upon as appropriate guides and measures for these monitoring functions and the successful outcome of thought processes depends on the accuracy of the social models used. While others' evaluations of us is an important factor influencing our conduct, it is the self-evaluation process that is the crucial element producing self esteem or our feeling of self-worth.

In brief, the symbolic interaction concepts that are most applicable to this study are: (1) social interaction, (2) mediating symbols, (3) objective self awareness, and (4) significant others. For explanatory purposes, these concepts may be formed into a series of relationships. Admonishments by words alone by significant others leads to self-evaluations to assess the truthfulness of these assertions and subsequently to affect the formulation of strategies designed to resolve any ensuing conflict. In the case of praise, self-evaluation will lead to enhancement of self esteem that encourages additional efforts to maintain a good image. These concepts and relationships

form the basic theoretical framework for our discussion of the theory of self investment.

The Self Investment Theory

This section is intended only to address those issues and topics of self investment that have a direct bearing on the research questions. For a more detailed and scholarly elaboration of the theory of self investment, reference is made to Faunce's monograph (n.d.). The major issues to be discussed here are: selective self investment, objective self awareness, subidentities, inclusiveness of self identities, social status, self esteem, inter- and intrapositional status distinctions, recognition for achievement, significant others, frequency of contact with significant others, and withdrawal of self investment. Although many of the self investment propositions to be discussed may be found in the psychological literature, the main perspective for this discussion is symbolic interaction.

While we may think of ourselves as a whole self reacting differently depending upon our goals and the structure of the social situation at hand, we may, for analytical purposes, discuss the self according to the most commonly recognized differences that emerge from those situations. For the most part, professional activities entail a set of social roles to which self identities are attached and which become competing elements of self insofar as their importance for self esteem maintenance is concerned. Those professional roles (i.e., researcher, teacher, administrator) that are functionally important for self esteem maintenance are, in most cases, those roles that derive

the most recognition from colleagues or others who are regarded as competent judges of performance. Thus, success or failure in executing one's professional obligations results in some professional roles becoming important for self esteem maintenance while other roles become too risky. As one's professional career unfolds, the accumulation of successes and failures deriving from involvement in professional activities will tend to structure the self into a hierarchy of subidentities with varying degrees of self investment. The greater the recognition for achievement in research, as an example, the more the self investment in that activity will increase as a consequence of self esteem enhancement. Because of recognition for achievement in several areas of activity, there may be several areas of professional commitment dominating the top of the hierarchy of subidentities and self esteem will therefore be relatively high for the professional identity as a whole. Assuming success in only one area of professional activity, it is possible that a "core" identity will emerge with other professional identities descending in importance. Because of competing demands characteristic of professional obligations, the limits of time and energy will require that, for most professionals, resources be directed to areas where the pay-off is most likely. Thus, successes in subidentity areas of professional activities facilitate selective self investment in those areas and subsequent feelings of self worth as a professional.

In addition to professionally related recognition for success, public recognition of professional status also contributes to the self

investment process. As a general rule, the more highly valued the status, the more likely that others will display deference with respect to it. In most social situations outside of the academic community, the majority of those individuals encountered by professors will be lower on the occupational status hierarchy. The importance of these status distinctions follows from evidence suggesting that occupational status, especially in industrialized communities, is the most important social indicator of status in the community. Professional status tends to be a dominant self identity due to its high visibility in most social situations outside of work resulting in deference being displayed to it by the majority of those encountered. These interstatus distinctions may in part be responsible for initiating high self investment in work and selection of professional areas of commitment. Inordinate expenditures of time and energy required to complete graduate training is evidence for this assertion. Thereafter, high self investment in professional careers, especially within academic communities, appears to be mainly the result of recognition for achievement from specific referent others, as well as from general others. Under circumstances of lack of recognition for achievement within academia, interpositional status distinctions may become an exclusive source for confirmation of status claims.

While professional identities tend to be highly visible in social encounters, they also tend to be inclusive of other self identities. The more often objective self awareness is produced through social encounters that draw attention to professional

characteristics of the actor, the more elaborate will become one's self defining traits with respect to that identity. This is particularly true under circumstances of intraposition distinctions where other professionals will invoke evaluations of professional conduct or initial discussions that center upon professionally oriented activities. In effect, those professional self identities called on most often to form frameworks for objective self awareness in relationship to typical social encounters become more inclusive self identities. "These two dimensions of the inclusiveness of a self identity--the number of self defining traits included and the range of social relationships to which the identity is relevant--should be highly intercorrelated" (Faunce, n.d., p. 37). The combination of these two variables should be associated with high self investment in one's professional identity. This assumption takes into account recognition for achievement in those activities that are most often the focus of attention in social encounters. Professional self identity will diminish in importance under circumstances of failure to gain recognition for achievement.

Most often, differences in levels of self investment found among professionals are a consequence of deference displayed in social encounters with those who apply interpositional status distinctions in combination with recognition for achievement from those who apply intrapositional status distinctions. Frequent evaluations from those both within and outside of the academic community, assuming academic achievement, will strengthen these associations. Within the academic community, some important sources of recognition are: salary, promotions, tenure status, professional titles, election to important

advisory councils, election to offices of professional associations, receiving research grants, having articles and books accepted for publication, and receiving good reviews of publications. These forms of acknowledgment of performance confirm status claims and can be conceived as payment for the worth of the performance according to the judgments of significant others, i.e., as forms of social exchange for services deemed to have high value for the discipline. This conceptualization of relationships is within the tradition of Homans and others who emphasize the importance of social approval for rewarding and sustaining productivity.

> If social exchanges involve some calculation of gains, costs, and profits, then self esteem may be seen as one medium of exchange in terms of which profit or loss is defined. In social encounters in which self esteem is invested--consequently risked--the anticipated return from the "commodity" exchanged is an enhancement or reaffirmation of social status which, in turn, produces either an increment in self esteem or confirmation of an already positive self identity. (Faunce, n.d., pp. 2-3)

Considering the importance of social exchange for determining levels of self investment allows us to propose that social recognition is the essential ingredient for self esteem enhancement required to maintain efforts to achieve. In the absence of recognition for achievement from referent others, faculty members will most likely withdraw self investment from professional areas of concern and, possibly, increase self investment in, for example, community or fraternal organizations where confirmation of status claims is less problematic. It is assumed, however, that, for most academicians, there will be high self investment in at least one area of professional

activity. Although an unlikely possibility for most professionals, failure to gain recognition in any area of achievement may result in little or no discomfort because of little self investment in professional areas of concern. However, the most likely outcome for lack of recognition in one area of professional activity is to withdraw self investment from that area of concern and to increase self investment in another area of concern where recognition for effort is more likely.

Again, the self investment process may be viewed as selective in the sense that some self identities become of paramount concern for feelings of self worth. Recognition for achievement is considered to be the most important factor contributing to this process.

> Self investment is conceived of here as a process through which the degree of effect of social encounters upon self esteem becomes differentially distributed among social roles. It seems clear that success or failure in performance of some social roles has much greater impact upon self esteem than success or failure in others. Self investment is seen as a selective process in which the extent of investment of self in any role is dependent upon the amount of return on such investments in the past and the anticipated amount of return in the future. (Faunce, n.d., p. 2)

In terms of subidentities, those professional activities selected over others will be the ones that receive the most recognition for achievement by referent others on the most frequent basis. Therefore, we may conceive of subidentities, at least in the ideal sense, as forming a pyramid where the subidentity at the top receives the greatest amount of social recognition and the subidentity at the bottom the least. The sum of these subidentities constitutes feelings of self worth as a professional. A strategy intended to buffer the ill

effects of negative evaluations concerning professional self identity is to withdraw self investment from that area of concern and also to reduce frequency of interaction with referent others, thereby diminishining in importance to the self that subidentity. In this way, mechanisms operate to assure that the loss of self esteem in one aspect of professional role commitments will not have a decided impact on one's total self image.

Imagined presence of significant others is a form of self evaluation in that the criteria by which we imagine that they evaluate us become part of our self-evaluative framework. The actual presence of significant others, however, provides evaluations of self that are relatively free from those distortions that might occur where the evaluation is imaginary instead of real. The greater the frequency of actual encounters with significant others, the more unambiguous and experientially based become evaluations and the stronger will be the impact on feelings of self worth. Frequent reminders of failure will surely result in loss of self esteem and, eventually, withdrawal of self investment in that area of activity. In essence, self perceptions of self worth are to a great extent a measure of how others, especially significant others, judge us with regard to specific presentations of self or with regard to task performances. The image that we hold of ourselves can therefore be conceived as the totality of both external and internal sources of evaluation, both of which constitute a continuum rather than a dichotomy of social perceptions and evaluations of achievement. The greater our

achievements, both past and present, the higher will be our feelings of self worth or self esteem as a consequence of these evaluative processes.

Experimental evidence supports this assertion that external sources of evaluation are often more important for feelings of self worth. In experiments conducted by Wicklund and Duval (1971), it was found that performance of assigned tasks was greater under conditions where images of the self were reflected on mirrors or reproduced through television cameras. It was found that while viewing oneself through an external medium, there is a greater inclination to become aware of one's performance level in the task area. Experimental evidence clearly indicated that efficiency rates in the task performance areas improved as a consequence of external presence of images of self. In a later study by Ickes, Wicklund and Ferris (1973), it was found that there is a relationship between objective self awareness and self esteem. Experimental subjects who listened to their own voices on a tape recorder tended to focus attention on themselves to a greater extent than for those who did not listen to their own voices but who listened to another person's voice. Depending upon the source of feedback, results clearly showed that estimates of self worth either increased or declined more often for the subjects in the presence of conditions producing objective self awareness than for subjects in conditions where these conditions were absent.

A probable explanation for the outcomes of those experiments where either images of the self or voices of subjects produced

objective self awareness is that observing oneself or listening to oneself through another medium produces a surrogate alter ego within the self. This surrogate alter ego then evokes an evaluative framework consisting of the total extent of accumulated social knowledge and experiences including significant others' evaluations concerning the task performance area in question. In the absence of external sources of evaluation, subjects may elect to ignore the relative merits of success in the task performance area which, in effect, shields them from feelings of low self worth in the event of any critical evaluations.

For faculty members, objective self awareness is a daily occurrence among departmental colleagues and the relative impact on feelings of self worth is partly dependent upon the status ranking of the colleague encountered. This proposition is partly derived from a series of empirical studies, one of which is by Webster and Sobieszek (1974). One proposition that they tested with their findings emphasizes the importance of ability for assessing the legitimacy of evaluations. "If the evaluator is perceived as having high task ability, or if he is known to have access to objective standards, his opinions are likely to be significant, if he is thought to have low ability, he is likely to be ignored" (p. 161). In the academic community, achievement is usually given priority over ability as a basic criterion of status within academic departments. Achievement demonstrates the presence of ability and also one's degree of commitment to and concern for professional standards and goals. Without any

visible evidence of one's ability, status ambiguity is likely to be experienced and eventually the role incumbent will descend the status hierarchy as failure to achieve will be viewed as a sign of incompetence. During the early stages of academic careers, collegial perception of ability is an important criterion for evaluation of performance since other sources of evaluation have not yet emerged.

Knowledge of social statuses is acquired through early socialization and becomes the basis of values attached to objects and people and when carried into adulthood it becomes the basis for social action in the form of striving for status attainment. Throughout this process of development, significant others play an important role as social agents who transmit knowledge of culture and without whose influence it is difficult to conceive of a social structure or a society. Some significant others assume more meaning and importance in our lives than others in that we model our behavior after them or strive to attain the same goals that they hold. This category of significant other may be termed "referent other" in that they are members of reference groups. For the purpose of our study, subjects' colleagues and others within their discipline but outside of the institution constitute the primary reference group. While other reference groups undoubtedly have a bearing on the lives of our subjects, the focus of this study is upon disciplinary reference groups and henceforth, for the sake of brevity, these reference group members will be called "referent others."

If we had selected work groups at the bottom of the occupational hierarchy, then the term "referent other" would in most cases

be inappropriate when making references to fellow workers. It is unlikely for most unskilled workers, as an example, especially for those in their early career stages, that reference groups would be found exclusively at work. Job involvement studies suggest that those who occupy low status jobs generally have lower levels of involvement in their jobs which roughly translates into low self investment in work. According to self investment theory, where there is high self investment there will also be significant others who provide the necessary recognition for achievement that enhances self esteem which has the effect of sustaining self investment. Several factors have already been mentioned that explain why faculty members rely heavily on their colleagues for confirmation of status claims. Again, these factors include strong career commitments, importance of recognition from colleagues and relative autonomy of academic departments that leads to reliance on these status assignment systems to regulate and conduct academic affairs. Also, the above-mentioned factors give credibility to the position that academic departments should be regarded as important social systems influencing the self investment process.

Sufficient evidence has been presented to allow us to begin studying academic social systems as functional units which, while not immune to organizational influences of parent institutions, are semi-sustaining and semigoverning social worlds. From this perspective, universities, especially elite universities, may be regarded as a conglomeration of academic worlds whose clients are students but whose primary source of recognition are those status assignment systems found within academic departments and related disciplinary social networks.

All of the above-mentioned conditions are expected to establish an environment highly conducive to objective self awareness for those faculty members who have high self investment in their professions. The nature of our subjects' evaluative frameworks depends in large part upon the status criteria of the majority of colleagues. Where these status criteria include research and scholarly publications, then those disciplinary social networks outside of the university may be regarded as extensions of departmental research networks insofar as essential sources of recognition for achievement may be concerned. Several studies support the contention that recognition for achievement according to disciplinary standards and measures of performance persist as the most essential sources of recognition (Mulkay, 1972; Hagstrom, 1965; Reskin, 1977; Jevons, 1973). Frequent self examination or objective self awareness is a common outgrowth of the many years of graduate training, academic pressures to publish and frequency of evaluation from referent others. Under conditions of lack of recognition for achievement, objective self awareness relating to academic activities is expected to diminish.

Several types of definitions of self esteem can be found in the literature, each of which depends on the general perspective of the discipline, type of research problem under analysis and level of generality. The most common definition found is the one used for this study. According to this definition, self esteem consists of attitudes that we hold about ourselves resulting in self evaluations of approval or disapproval (Wells and Marwell, 1976, pp. 64-65; Rosenberg, 1965).

This general principle operates at the global level as well as at the level of specific self identities. In terms of self investment theory, whether the judgment that we hold for ourself is harsh or complimentary depends on our success or failure in the particular area of activity, assuming, of course, self investment in that area. In the absence of self investment, success will not necessarily enhance self esteem because of the lack of concern for this particular self identity for feelings of self worth. It is likely, however, that where there is a continuation of success in a particular area of activity that self investment will increase and subsequently this subidentity area will become more essential for self esteem maintenance.

According to this perspective, we may relate self identities, as expressions of personality, to separate domains of self esteem. Success in one area of self identity may exclude other self identities in importance, in that, high self investment and, therefore, a need for high self esteem in that particular area of activity will overshadow any manifest need for maintaining self esteem in other areas of self identity. High self investment in one's professional role, as an example, will surely at some level exclude other self identities in importance if for no other reason than for economies of time and resources that exclude possibilities in other areas.

In a discussion of self, we may refer to global self esteem as the equivalency of self evaluations concerning the most important self identities. High self investment in one's profession accompanied by the necessary recognition for achievement will result in a strong dominance

of the professional self identity over other self identities and of global self esteem as well. A long combination of achievement tends to gradually include most subidentities or professional roles that make up the professional self identity. In this context, professional commitments to achievement may be strong and subsequently recognition for achievement will result in this subidentity dominating all others and hence high global self esteem. Thus, while success may not be related to all self identities, it may be sufficiently strong in one self identity area where there is high self investment to suffice for self esteem maintenance. These relationships will be more likely under circumstances where the status of the social or occupational role in question is relatively high. Even under circumstances where the number of successes in professional subidentities is low, inclusiveness of professional status in general may produce sufficient self esteem enhancement to maintain at least moderate levels of self investment in professional areas of activity.

Another likely possibility is for aspiration levels to increase in several areas simultaneously in response to increasing recognition for achievement. The outcome of this process is for self investment in all of the related areas of activity to increase in response to these changes to the point where recognition for achievement levels off and self esteem remains constant. In essence, what has been suggested is that self esteem is not a simple process, but, instead it entails various combinations of social recognition for achievement, level of self investment, status of the activity related to the self identity, and frequency of evaluation from referent others.

Research findings strongly suggest that for those with a college education, there is a closer link between occupational prestige and self esteem than there is between income and self esteem. For those without any college education, income is more closely linked with self esteem (Luck and Heiss, 1972). Based on these findings, for the academic community as a whole, it is likely that frequent evaluations by colleagues is a primary source of self esteem enhancement because this source of recognition is linked to prestige that is associated with high levels of education and occupational status. Thus, during the early stages of socialization into professional roles, the anticipation of professional status and interpositional status distinctions by graduate students are important sources of self esteem maintenance. As the concern for concentrated areas of study increases, recognition for achievement in these areas from professors and later from colleagues narrows the range of significant others' influence to the point where intrapositional status distinctions become more important for self esteem maintenance.

Three categories of self investment have been incorporated into the research design of this study to measure the degree of commitment and concern for professional achievement. These categories are research, teaching and nonwork-related activities. The underlying proposition in this design is that where there is a strong need to succeed there will also be recognition for achievement as an enhancement to self esteem. Two measures of professional subidentities have been devised to examine the cosmopolitan-local construct and also to

facilitate studying the range of academic activities. The cosmopolitan subidentity measure includes: publishing articles and books, receiving research grants, election to national professional associations and recognition as an especially creative and productive academician. Although this cateogry does not exclude recognition by departmental colleagues, it is mainly directed to recognition with referent others outside of the university. The second category is intended to measure degree of commitment and involvement with the local institution and includes: recognition as an especially good teacher, recognition for advising students, election to important committee assignments, and degree of concern for student responses in classes. The third category of self investment is intended to measure degree of concern and commitment to nonacademic areas of activity. It is expected that where there is low self investment in professional activities there will be increased self investment in nonacademic activities to compensate for losses in self esteem. The nonacademic category includes: recognition for membership in local community and fraternal organizations, pride in home ownership, recognition for achievement in hobbies or leisure activities, and a reputation for being active in political affairs in the community. The purpose of this research design is to measure the degree of concern for recognition from those reference groups associated with each of the above-mentioned areas of activity. In this way, we have set up a test of the basic self investment proposition linking self investment with recognition for achievement.

Although the main purpose of this discussion has been to relate self investment theory to our research questions for an explanation of typical outcomes, the fact that each person possesses unique personality characteristics has not been overlooked. For the most part, however, depending upon recognition for achievement, our study centers upon the strength of commitment to particular professional activities. For variations in outcome, we may conceive of different patterns of professional role playing within subidentity areas. In this context, "a subidentity represents a cluster of all the attributes manifested by a person, not the minimal requirements for a position. A role can be played by a number of people, a subidentity, like a fingerprint, is unique to one individual" (Miller, 1963, p. 675). Miller's definition is an apt one for our discussion because it focuses attention on the processes of individual adaptation to professional role commitments. Self investment theory suggests that while each individual possesses a unique personal history, levels of concern and commitment to particular areas of professional activity are in general predictable in the sense that recognition for achievement in any one subidentity area will enhance self esteem and thereby increase self investment in that area of activity. Therefore, variations in self investment in subidentity areas of professional activities may be explained with reference to related differences in achievement. We do not hold that recognition for achievement is the only factor contributing to variations in levels of self investment; but if we can empirically confirm the significance of this relationship, then perhaps we have made good progress toward development of a sound social psychological theory.

During graduate training and the early stages of professional careers, commitments to both teaching and research appear to be equally strong for most professionals. Thereafter, commitments and, of course, self investment assumes one of two forms, depending on both personality and social structural variables. Assuming a history of success in research areas of activity and a strong research climate for the institution and within the academic department, then the most likely outcome will be for research to become the subject's primary goal. Most academic careers appear to take either research or teaching directions of development, depending on the degree of recognition for achievement in these broad categories of activity. In addition to the above-mentioned factors contributing to career selections, the economies of time and resources place restrictions on academic careers so that often concentration of efforts will be confined to one of the two areas of activity at the expense of the other.

Another purpose of this study is to measure self investment in work as a concept apart from self investment in any particular area of activity and then to test for any differences in relationship to research output between these two measures of self investment. This type of analysis is not unlike those studies that have correlated job involvement with the Protestant Ethic for work groups where the two measures were found to be highly correlated with one another (Ruh and White, Rabonowitz, cited in Rabinowitz and Hall, 1975). The Protestant Ethic construct has also been found to be a fair indicator of individual differences among employees in the effects of job satisfaction upon job behavior (Wanous, 1974).

Our self investment in work construct and the Protestant Ethic construct are alike in that they both direct attention to the importance of work for feeling good about one's self. They are different in that the Protestant Ethic construct expands the concept of feeling good about one's self to include beliefs concerning the moral worth of people based on commitments to work. However, because it appears that the similarities between the two concepts outweigh their differences, we expect to find that self investment in work and in particular areas of activity to be correlated in the same way that job involvement and the Protestant Ethic are correlated.

It is intuitively appealing to link self investment in work to success in task areas of activity in that it is difficult to imagine success without high expenditures of effort. Although work may occur in almost all types of activity, for most people, the meaning of work is culturally bound to those areas of activity from which they derive some remuneration in the form of income or barter for goods or services rendered. Therefore, we expect most of our subjects to conceive of work in terms of their professional commitments.

Challenge and mobility responses to the lack of recognition for achievement are self investment concepts that are important to the theory of self investment but are not included in the research design of this study primarily because the time frame of our analysis does not provide for sufficient latitude in examining these possible outcomes. Also, gathering data regarding these concepts entails questions that would, in most cases, invade the privacies of faculty

members who would normally be unwilling to admit to the existence of conflicting departmental situations producing challenge or mobility responses to failure. In brief, a challenge response occurs under circumstances where there is a lack of recognition for success because the activity under self evaluation is low on the departmental status hierarchy. By challenging the low status of the activity, it may be possible to convince the majority of faculty members to elevate in importance the status criteria related to this activity. A mobility response occurs when there is a lack of recognition for achievement, but instead of changing or repositioning the status criteria in question, additional efforts are expended to achieve within the same area of activity. For our population, a likely example of a mobility response is for faculty members who are attempting to gain recognition for achievement in research to continue their efforts at an increasing rate. This possibility is more likely during early career stages when failure to achieve in research areas of activity is not a significant loss to self esteem because similar situations are found within the same faculty cohort which, in effect, alleviates invidious comparisons. Assuming a continual history of failure to achieve, either self investment will be withdrawn or else faculty members will move to other academic departments where their accomplishments will be appreciated.

While recognition for research publications and scholarly work by one's colleagues may be the main impetus for activity in research, it is also possible that the need to retain one's academic job is also important. In order to maintain a favorable image with one's colleagues,

it may be necessary for some faculty members to become engaged in activities where they have little self investment. Given a strong research climate, as an example, some research output is necessary to maintain at least a minimal degree of credibility. These circumstances are likely for typical untenured faculty members whose research output may result from a strong desire for job security and a niche in the academic community rather than from a concern for advancing knowledge within the discipline or becoming enthralled with intellectual questions and topics of the day. This explanation may also account for some discrepant results found with some work studies measuring job involvement. A more obvious example of the "manifest need for occupational achievement" resulting from self investment in some other activity is found among factory workers whose only purpose in working is to earn enough money to maintain a particular standard of living or to purchase a business of their own (Faunce, monograph, p. 177).

Having explained the main propositions of self investment theory contributing to our study, it is useful at this point to examine how these propositions are operationalized in the form of a model explaining the determinants of cosmopolitanism, which is an important focus of our study. A model (Figure 1) has been constructed to illustrate self investment variables influencing localite and cosmopolite orientations. This model may be conceived as a container of possible outcomes for faculty members. In general, recognition for achievement produces frequency of evaluation from referent others and increasing levels of self investment. As an example, a true cosmopolite has acquired

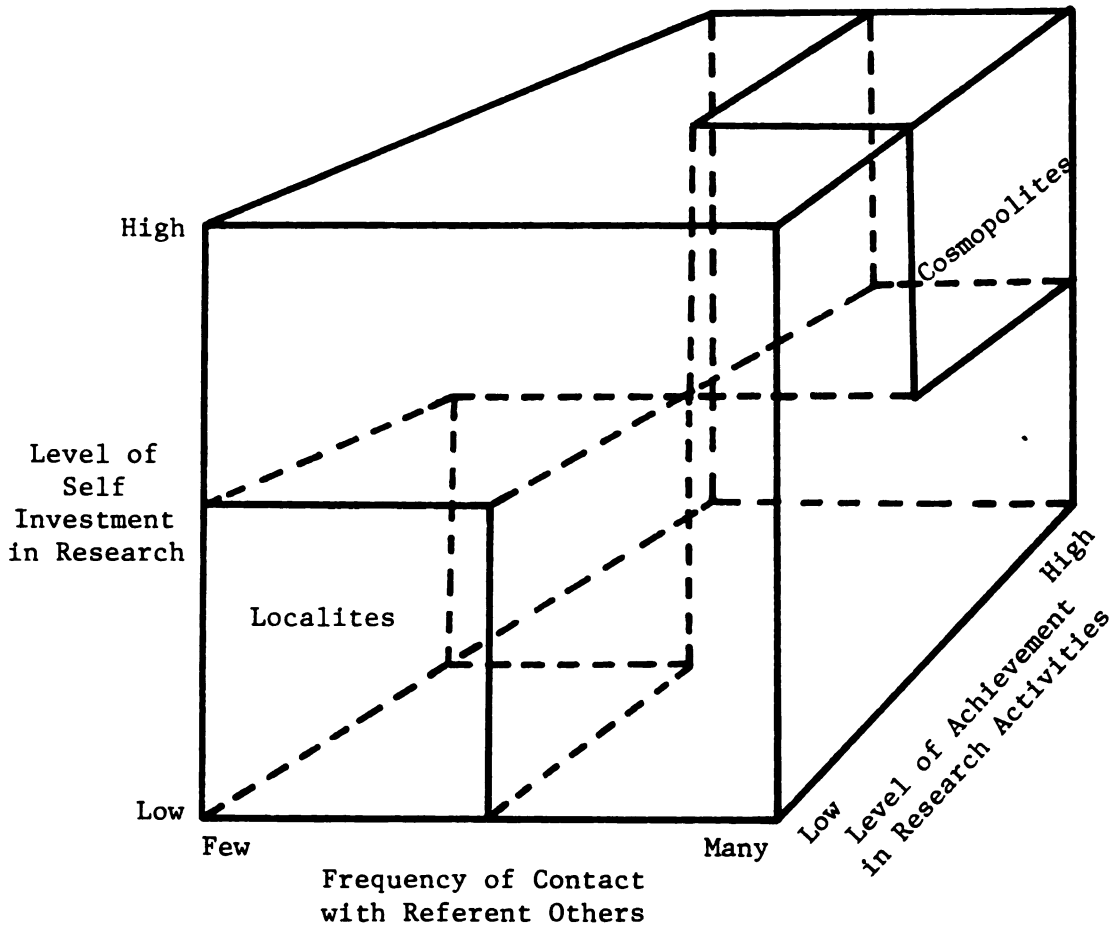

Figure 1. Self investment variables related to localite and cosmopolite orientations--a three dimensional illustration of the determinants of cosmopolitanism.

high status within the discipline through recognition for achievement from those referent others who have acquired recognition from other referent others. High status as a cosmopolitan is associated with high self investment in research. Those who have high cosmopolitan status occupy the upper right hand corner section of the container toward the back of our model. Localites, on the other hand, have failed to achieve high recognition for research productivity. Therefore, they will have fewer research contacts with referent others, lower self investment in research and, thereby, occupy the lower left hand corner section of the container toward the front of our model. The most likely outcome for localites will be that they will have high self investment in teaching as recognition for professional achievement derived primarily from this source. Localites will also be more inclined to move into administrative positions, therefore, shifting their reference group orientations from research networks to administrative and, bureaucratic networks to derive recognition for achievement. Furthermore, it is expected that localites will generally have a stronger interest in and orientation toward student needs and interests than cosmopolitans.

The social environment impinging upon the evaluation processes among faculty is a combination of organizational climate, either research or teaching in orientation, and the status criteria for the majority of faculty. Both of these factors are, of course, interrelated in the sense that organizational constraints and policies of the administration will affect the allocation of money and resources

of the department as well as influencing faculty decisions concerning tenure, promotions, salary increases and granting of special privileges. The publication records of the faculty will also have a bearing on the selection of status criteria. The designated function of the department is important inasmuch as administrative expectations influence faculty decision-making and evaluations for promotion in the direction of either teaching or research. Also, the quality of faculty hired will be influenced by the designated function of the department. It is expected, however, that the organizational climate of the institution will have a strong impact upon the daily social exchanges among the faculty, even though these exchanges may not have legitimate ties to the formal evaluative criteria derived from the designated function of the department.

As a way of summarizing this chapter, eleven statements have been formulated to synthesize the theories and propositions discussed in this chapter. This list is not intended to exhaust the total number of possibilities afforded by the material of this chapter, but it represents those ideas directly related to the research questions of this study.

1. The higher the occupational status, the more likely will the rewards for achievement accruing to role incumbents be sufficiently strong so as to engender high levels of self investment, dedication and commitment to perform successfully, and these relationships will be stronger under conditions of frequent evaluation of performance by referent others.

2. Organizational climate is important insofar as expectations and policies of academic administrators establish criteria for decision making influencing tenure, salary increases, promotions, and special privileges facilitating research efforts and, most importantly, departmental status criteria, which, in turn, is highly dependent upon professional orientations of departmental faculty.

3. In general, administrative control of academic departments is relatively unrestrictive in comparison to other work organizations, especially with regard to nonprofessional work groups.

4. The cosmopolitan-local construct is useful for understanding professional orientations. However, for cosmopolitans, frequency of contact with departmental colleagues will in large part depend upon the type of organization climate.

5. For academic professionals in general, interoccupational status distinctions, the long ordeal of graduate training, demands for high standards of performance, and peer pressures produce higher levels of self investment than is characteristic of other occupations.

6. For academicians, in contradistinction to many other occupational groups, intrapositional status distinctions are more important than interpositional status distinctions for determination of the importance of achievement and for self esteem maintenance.

7. The more frequent are evaluations by referent others in either teaching or research areas of activity, the more likely will expenditures of effort remain high; providing, of course, that there is high self investment and recognition for achievement in those areas.

8. In general, academicians will develop professional subidentities as they concentrate on fewer and fewer areas of study to the exclusion of others and their levels of self investment will correspond to an hierarchy, in terms of importance, of these professional subidentities.

9. The greater the achievement in either teaching or research activities, the greater will be self investment and frequency of contact with others in relationship to these activities.

10. Failure to achieve in professional subidentity areas of activity will result in withdrawal of self investment in those activities and, as a form of compensation, there will be increasing self investment in nonacademic areas of activity.

11. In the academic community, exchanging papers, acknowledging scholarly contributions, working together on research projects, papers, articles and books and publishing research findings are the primary sources of social recognition and, in part, substitutes for material rewards that provide for the major source of social recognition found in other occupational groups.

CHAPTER III

METHODS

The method for collecting data in this study was mainly personal interview, supplemented by data from vitae. Most of the hypotheses have been tested by statistical routines employed through computer facilities. To insure confidentiality, the normal procedure of assigning numbers instead of names to each questionnaire was adopted. A letter was sent to each subject disclosing the purpose and intent of the study, followed by a visit or phone call to arrange for an appointment.

The campus site for this study is a big ten university. Faculty commitments are to excellence in undergraduate teaching as well as emphasizing graduate education. This university is also ranked among the top twenty-five public and private universities in the nation. Because of difficulties encountered in locating academic departments of comparable size in the physical and biological sciences and due to the lack of attention afforded to social science disciplines in research studies, only social science departments were selected. Because of the importance placed on research and teaching orientations in the literature and because of the research questions of this study relating to these issues, social science departments were selected to represent both of these orientations. One of the three departments selected.

has been designated by the administration as a teaching unit, while the other two departments, although committed to undergraduate teaching, have overriding concerns for research output. It is noteworthy, however, that faculty members from all three departments share in common strong research orientations. Maintaining the confidentiality of the departments selected has been accomplished by naming the two research oriented departments as SS1 and SS3 and the teaching oriented department as SS2.

Only tenure track faculty members were included with the exception of those who were functioning in administrative roles at the time. The exclusion of nontenure track faculty should make our population consistent in terms of shared goals and loyalties to the department and university. The assumption is that those who have temporary appointments will lack the incentive to form firm commitments to the local institution and that, in particular, they will probably not be well integrated within most faculty groups or share in the decision-making processes essential to the conduct of departmental business. Those faculty members currently involved in administrative work were excluded mainly because the burden of administrative tasks may at least temporarily reduce their involvement in important issues relating to their discipline.

Prior to each interview, a vita was requested to reduce the time for each personal interview and also to obtain accurate information, especially in cases of long publication lists, and for the most part this attempt was successful. In most cases where a vita was secured

prior to the interview, the interview time did not exceed forty-five minutes. This was fortunate because the initial response from most subjects was that they would not consent to an interview unless it was limited to an hour or less.

Collection of Data

During the beginning interview phase of this project, an attempt was made to ascertain the status hierarchy rankings of faculty members, but after several interviews, this attempt was abandoned.[1] The main purpose was to test the general hypothesis that the resolution of status ambiguity is partly contingent upon one's level of self investment and

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[1]Included in the original proposal for this study was the proposition that high self investment in a particular area of professional activity is associated with high achievement and high status placement in the departmental status hierarchy related to that area of concern. Therefore, questions were devised requesting each faculty member to rank departmental colleagues on two ten-step ladders by placing cards with faculty members' names on the steps corresponding to their status placement in both research and teaching status hierarchies. In connection with this ranking procedure, follow-up questions requested faculty members to indicate their certainty concerning their own status placement and degree of perceived assessment of how others would rank order status criteria in both areas of concern. For younger faculty members in particular, it was hypothesized that status ambiguity would be experienced prior to tenure. Under circumstances of general dissension concerning status criteria, there would be more self perceived incidences of status ambiguity, and for those who are most uncertain about their status placement, self investment in that area of concern would be greater due to tendencies to select out those status criteria most conducive to high self esteem.

The main problem encountered was that several faculty members, during the initial stages of interviewing objected to ranking their colleagues on a status hierarchy, even though adequate allowances were provided for anonymity of all subjects. Questions relating to the above issues were then deleted from the interview schedule and replaced by questions asking for personal ranking of professional criteria used in collegial evaluations.

that general consensus among departmental faculty regarding the ranking of status criteria will produce social certainty concerning professional status and, for those who are ranked low on the status hierarchy, withdrawal of self investment will be likely. Other ways of testing parts of this hypothesis were devised.

Completion of the interviews took about one term, after a pretest with eight faculty members. Fortunately, only two faculty members from Department SS2 were unavailable because of other obligations. Also, excluded were faculty members who were away from the university because of other commitments. The departmental distribution of our population is as follows: Department SS1 = 21 subjects, Department SS2 = 19 subjects, Department SS3 = 27 subjects. In general, the interview schedule may be separated into five broad areas of concern.

First, personal background information, including professional training, employment experiences, academic mobility, professional associations, research productivity, and family status, have been addressed with questions 1-8 and 10-16 (see Appendix A). Self investment in work, which is actually part of the other self investment questions (34A to 48B), is covered by question 9.

The second set of questions (17-21) is intended to obtain information concerning the allocation of professional duties within the department including courses normally taught, credit hours taught, committee obligations, and degree of involvement with graduate students. The amount of time allotted for research activities is addressed by question 49. Questions 50 and 51 are intended to measure the amount of time spent preparing to teach courses.

The third set of questions (22-23) is intended to measure degree of consensus regarding the ranking of professional status criteria. The questions take two forms with regard to ranking. One method consists of allowing the subject to select his or her own set of professional criteria used for evaluation of colleagues in the department. The other set of questions confines the ranking of professional criteria to eight pre-selected status criteria. Following these questions are questions requesting the subjects' perceptions of consensus with regard to faculty ranking of these criteria. Surprisingly, it was discovered that in all three departments there is high consensus with regard to ranking of professional status criteria.

The fourth set of questions (34A to 40B) is intended to measure levels of self investment in research, teaching and nonwork-related activities. Also, included in this set of items is question 9 that measures self investment in work. Further discussion of these self investment items is reserved for the "Hypothesis 1" section of this chapter.

The fifth set of questions (51 to 54) is intended to measure sociometric associations for the research, teaching and nonwork-related networks within each of the three departments. Also, associations within research networks outside of the departments but within their disciplines were requested. Mainly, these questions are intended to ascertain total levels of commitment to professional areas of concern with particular emphasis upon research networks.

For all the interview schedule items, interval scales were devised when possible (e.g., age, grant dollars, number of publications, etc.). It was necessary to use nominal scales for questions 2A, 3, 4, 25, 28, 32, 49 and 50. Open ended questions (13, 22, 26, 29, 33, 52, and 53) were coded by first listing all of the responses to each of the questions and then deriving the most common categories for ordinal scaling with the exception of questions 22 and 29 which required nominal scales. For the remaining questions, where interval scaling was impossible, ordinal scales were used.

Operationalization of Variables

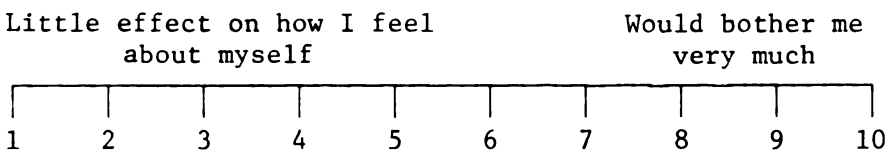
Hypothesis 1

H_1: The greater the achievement in a particular area of professional activity, the greater will be the self investment in that activity.

To test this hypothesis, self investment variables were correlated with measures of research output. Because, as previously noted, many faculty members were reluctant to rank their colleagues on measures of teaching performance, and because student evaluations of teaching performance are not accessible for data analysis, research output became our only objective criterion of academic performance. The following self investment items were used for this test:

> The next set of questions relates to how much you are concerned or bothered by the possibility of failure with regard to certain outcomes of your life. Here is a card with a scale of responses to the following items. Please tell me the number which corresponds with your responses to each of the following situations.

In order to assess the effects of achievement on levels of self investment, each self investment item was divided into achievement and nonachievement categories of response. This was accomplished by beginning each item with a question asking whether or not the subject had achieved in that particular area of activitiy. The item response was then categorized as either an achievement or a nonachievement answer. The subjects were handed a response card with the following scale on it:



Research Items

34A. (If subject has published a book.) You said that you have published a book. Did it receive a favorable evaluation by others in your field? yes a, no b

___ a. How would you feel if you published another book but this time it did not receive a favorable evaluation by others in your field?

___ b. How would you feel if you published another book which again did not receive a favorable evaluation by others in your field?

B. (If subject has not published a book.) You said you have not published a book. How would you feel if you published a book which did not receive a favorable evaluation by others in your field?

35A. (If subject has belonged to a professional association.) You said you have held an office in a professional association of your field.

___ a. How would you feel if you never again were elected to a professional association of your field?

B. (If subject has not belonged to a professional association.) You said you have not held an elected office to a professional association of your field.

___ b. How would you feel if you were never elected to such an association?

38A. (If subject has received a research grant.) You said that you have not received a research grant.

___ a. How would you feel if you never again received a research grant?

B. (If subject has not received a research grant.) You said that you have not received a research grant.

___ b. How would you feel if you never received one?

40. Are you recognized by your colleagues as an especially creative and productive scientist? yes _a_, no _b_

___ a. How would you feel if you never again receive recognition as an especially creative and productive scientist?

___ b. How would you feel if you never receive recognition as an especially creative and productive scientist?

42. Have you published an article in a leading journal of your field? yes _a_, no _b_

___ a. How would you feel if you never again publish an article in leading journal of your field?

___ b. How would you feel if you never publish an article in a leading journal of your field?

Teaching Items

37. Are you generally recognized by your colleagues as an especially good teacher? yes _a_, no _b_

___ a. How would you feel if you were never again recognized as an especially good teacher?

___ b. How would you feel if you were never recognized as an especially good teacher?

41. Are you sought out by colleagues for advice concerning matters of teaching? yes _a_, no _b_

___ a. How would you feel if you were never again sought out for advice concerning matters of teaching?

___ b. How would you feel if you were never sought out for advice concerning matters of teaching?

44. Have you been selected to an important college or university committee assignment? yes _a_, no _b_

___ a. How would you feel if you were never again selected to an important college committee assignment?

___ b. How would you feel if you were never selected to an important college committee assignment?

45. Do you have a reputation for being successful at counseling students? yes _a_, no _b_

___ a. How would you feel if you never again receive recognition as a successful counselor?

___ b. How would you feel if you never receive recognition as a successful counselor?

47. Have you been elected to the (department advisory committee)? yes _a_, no _b_

___ a. How would you feel if you were never again elected to the department advisory committee?

___ b. How would you feel if you were never elected to the department advisory committee?

48. Have you been getting good responses from students in classes? yes _a_, no _b_

___ a. How would you feel if you never again get good responses from students in classes?

___ b. How would you feel if you never get good responses from students in classes?

Nonwork-Related Items

36. Do you have a reputation for being active in political affairs in your community? yes a, no b

___ a. How would you feel if you were never again recognized by anyone as being active in political affairs of your community?

___ b. How would you feel if you never were recognized by anyone as being active in political affairs of your community?

39. Do you own a home that others compliment you about? yes a, no b

___ a. How would you feel if you never again receive compliments about your home?

___ b. How would you feel if you are never complimented about a home that you own?

43. Do you have a hobby or leisure activity that others regard you as especially good at? yes a, no b

___ a. How would you feel if you were never again recognized as being good at that activity?

___ b. How would you feel if you were never recognized as being good at any hobby or leisure activity?

46. Are you recognized by others as being active in a local community or fraternal organization? yes a, no b

___ a. How would you feel if you were never again recognized as being active in a community or fraternal organization?

___ b. How would you feel if you were never recognized as being active in a community or fraternal organization?

Six composite variables were created by combining all achievement items into the three general areas of self investment shown above (research, teaching and nonwork-related) as well as combining all nonachievement items in each of three areas. As an example items 37,

41, 44, 45, 47 and 48 were combined to form an achievement composite variable, which consists of all of the part (a) item responses, and a nonachievement composite variable, which consists of all of the part (b) item responses. It is important to bear in mind that all references throughout the remainder of this dissertation refer to the achievement composite variable as "high achievement" variables and all of the non-achievement composite variables are referred to as "low achievement" variables. The reason for this distinction is because nonachievement item responses, as an example, do not mean that our subjects have failed to achieve in any aspect of that area of self investment. As a matter of fact, analysis of our data shows that all of our subjects have achieved in some aspects as well as not achieved in other aspects of all three self investment areas. Therefore, the appropriate label for either achievement or nonachievement composite variables is either high or low achievement corresponding to subjects' actual state of achievement for that category of self investment. To eliminate the effects of computing only a fraction of a subject's total self investment in a particular area of activity, which is the case for either low or high self investment categories, three additional variables reflecting the three self investment areas were created to measure the total levels of self investment by combining low and high achievement categories.

The basic purpose underlying the construction of the self investment items was to pose each question in view of the most relevant reference group. In some cases, this was accomplished by making direct references to those groups most concerned about achievement in that

particular activity (questions 34, 37, 40, 41), while for the remainder of cases, references were made to include others who are concerned about that area of achievement without specific mention of any particular reference group. However, for most faculty members, general approval of achievement is related to academic reference groups. If reference group alter egos related to the activity in question are unimportant for the subject's feelings of self worth, then the prospects of failure in the particular area of concern is of little importance. In this context, those significant others whose evaluations of our performance are most important for feelings of self worth may be called "orientational others" because they direct our attention and stimulate our interests in activities that are most important to us. A major reason for the design of the self investment questions selected is the belief that responses to the prospect of failure are a better indication of the importance of achievement in a particular activity than responses to the prospect of success. Strong cultural expectations are attached to the concept of success in that few people will deny its importance for general social recognition. However, by concentrating on the possibility of failure, then these normative expectations influencing responses to failure are reduced.

The primary selection criterion for the self investment in research items was to equate them with those professional achievements that have been assigned the most importance by academic peers. Actually these items are criteria used in all of the disciplines to assess the academic worth of faculty members. Item 40, however, is an exception

because it lacks precision with regard to the basis of evaluation but instead is intended to obtain a general impression from each subject concerning his or her reputation within the discipline. Only the most recognized forms of achievement have been included as items. It is possible that other forms of recognition may exist within academic departments, but, in general, the criteria selected allow for more general conclusions and applicability to the disciplines in relationship to cosmopolite statuses.

With the exception of question 34, all of the self investment items have the same format for measuring responses to failure. Question 34 has two sections to the achievement part of the question because sometimes books are published which do not receive a favorable evaluation by referent others in the field or discipline. In the case of articles, research grants, and election to professional associations, acceptance or rejection is more clearly defined since acceptance by companies, agencies, and professional associations is tantamount to acceptance by referent others.

Self investment in teaching was measured for the most part by raising questions that relate to the most important performance criteria for general recognition as a competent or even excellent teacher. Each of these items is intended to elicit the subject's concern about the responses of referent others to their teaching performance. While some of these items do not directly concern teaching, they do relate to

purely local concerns and commitments. Another justification for including items relating to administrative functions is because of the theoretical assumption that for those who have low levels of self investment in research, active involvement in teaching and administrative functions of their departments affords social recognition that may be essential for self esteem maintenance. In general, depending on the colleague climate of the university, acceptance by local peer groups is the next best alternative to acceptance by reference groups within the discipline itself. These items also reflect the basic concern in the literature for localites as a distinct analytical category. We did find however that one-fourth of our population are both research and teaching oriented and have achieved in both areas of activity. Thus, we are not discounting the possibility of faculty members possessing loyalties to both their local institutions and the discipline itself.

The nonwork-related self investment items are intended to tap, among other things, those dimensions of self concerned with active involvement with fraternal and community organizations. In terms of our theoretical assumptions about professional recognition for achievement, these nonwork-related activities provide the next best alternative for gaining recognition for achievement. Recognition for achievement by fellow club members and community leaders supplies the necessary enhancement to self esteem that may be lacking in the professional community. In particular, involvement in local community affairs is a rewarding experience in terms of deference paid by others to professional status. This does not discount the possibility, of course, for

high academic achievers becoming involved in community functions. This likelihood is remote, however, considering the pressing demands of professional commitments. In addition to high self investment in local community affairs, it is expected that these faculty members will take a more active role in family activities than those who are high academic achievers. Therefore, we have included item 39 to tap this dimension of self investment.

The self investment composite variables were correlated with three measures of research output. Most studies assign weights to different types of productivity and then compute a total as a final measure of research achievement. In addition to research total, our study includes a yearly average of productivity and trends in research output as measures.

The following weights were assigned to categories of research output: books = 8, edited books = 4, journal articles = 2, and papers presented at professional associations = 1. These assigned weights are based on Diane Crane's measures of productivity. Crane designated one book the equal to four journal articles. The main criteria for selection were "fullness of the publication, relevance to the discipline, and the extent to which publications are available in a reasonably well stacked library" (Crane, 1965, p. 702). Research total is the sum of all weights assigned for each category of research output.

The average of research output was established as a measure to determine whether or not there is a relationship between consistency in research output and self investment in research activities. In

part, the assumption being tested is that productivity in relation to professional career is associated with a high level of self investment in research. Excluded from this analysis were those subjects who have been in their departments for a year or less because insufficient time had elapsed for them to begin to fulfill their research potentials. Average research output was measured by dividing subject's research total by the total number of years within the profession.

Research trend is the third measure of research output intended to detect both increasing or decreasing rates of productivity for our subjects. Because three time segments were required for each subject to compute research trend, two years as a department member was selected as the cutoff point. Two years is too short a span of time from which to calculate a research trend with any reasonable degree of accuracy. In most cases, subjects' vitae were secured to obtain a chronological picture of research output and when vitae were not available, information was obtained through personal interviews. Research trend is computed by computing the percentage increase or decrease of research output in time segment three, latter one-third of professional career, in comparison to time segment one, beginning one-third of professional career. Research output in each career time segment was computed in the same way that the total of research output was computed for the whole professional career. The coding scheme for research trend is as follows: 1 = 50% or greater increase, 2 = 20% to 50% increase, 3 = less than 20% increase, 4 = 20% to 50% reduction in

output and 5 = more than 50% reduction in output. It is noteworthy that research trend became the best indicator for cosmopolitan orientation and reputation within the disciplines. This suggests the importance of the career stage at which achievement occurs.

The ranking of professional criteria was also correlated with the research output variables to determine the association between the subject's personal criteria of academic success with his or her actual research performance. In large part, the assumptions for this analysis follow from cognitive dissonance theory, in that we tend to judge others according to those standards reflecting our most important self defining traits and accomplishments. This is a form of selective perception resulting in greater personal satisfaction from interpersonal association with those who are most like us. Therefore, if these assumptions are true, then we should find that faculty members judge the merits of one another's professional achievements according to their own performance record. In terms of symbolic interactionism, this analysis is a test of the assumption that we tend to seek the evaluations of those who are important significant others in our lives. Furthermore, establishing professional criteria that favor one's own record of accomplishment results in a form of self esteem enhancement by drawing attention to one's own self worth. The open ended question (22) intended to discern professional criteria is as follows:

> Now I have some questions of a different sort. We are interested in the kind of criteria that are used in collegial evaluations in this department. We are not so much interested in the formal criteria used in making tenure decisions as we are in the everyday

> evaluations that colleagues make of each other's work. Different people may use different bases for making those evaluations. What are the criteria that you personally regard as most important?

The next item is an instruction (23) requesting each subject to rank order these criteria. Later this rank order of criteria was coded into general categories.

> You have mentioned (repeat all criteria). Now would you please rank those criteria in order of importance. Which is the most important? Which next? (etc.)

The other item tapping professional criteria is question 30 requesting subjects to rank order universal status criteria (publishing books, teaching undergraduate students, receiving research grants, editing books, teaching graduate students, publishing articles, consulting work external to the department, and community services).

> Now here are a set of cards containing categories commonly used in universities for evaluating performance. Please rank order them in terms of the importance of each category for how you personally evaluate your colleagues in the department.

Because we expect a relationship between self investment in a particular work-related activity and in work in general (Hypothesis 3), we also expect that self investment in work is associated with achievement. Question 9 measures self investment in work by using a scale of from one to ten. The response category for the lower end of the scale is "important that I succeed at work to think well of myself" and the upper end of the scale has a response category of "not important that I succeed at work to think well of myself." The response statement is as follows:

Here is a card with a scale from one to ten on it. The scale is intended to represent the range in the extent to which success or failure at work affect our feelings about ourself. A person for whom work is the most important thing in life and who must be successful at work in order to think well of himself (herself) would be at the extreme left end of this scale. The other end of the scale would represent a person who regards other things as being more important than work and who does not need to succeed at work in order to feel that he (she) is a success.

___ a. What point on this scale represents the importance of work to your feelings about yourself?

___ b. At what point would you say you were five years ago?

___ c. How about five years from now?

We do not expect self investment in work to be equally correlated with each area of activity, but instead to be related to those self investment areas in which there is the most recognition for achievement. For the majority of our subjects, academic achievement is restricted to either research or teaching, but not both areas of activity simultaneously. In terms of the academic status assignment system, we expect that self investment will be greatest in the self investment area of research where social status and rewards are greatest, moderately high in teaching activities, and low for nonacademic activities. Thus, as a general rule, self investment in work will be associated with those activities where there has been the greatest recognition for achievement. In essence, the level of self investment in work is a function of the salience of rewards and social recognition afforded for achievement.

Hypothesis 1A

H_{1A}: Where there is a lack of recognition for achievement in a particular area of activity, self investment in that activity will diminish with age.

This hypothesis was tested by correlating subjects' ages with their level of self investment in both high achievement and low achievement areas of research, teaching and nonwork-related activities. For high achievers, self investment was expected to either remain constant or increase with age. The greater the recognition for achievement, the more likely will self investment increase with age. For low achievers, self investment in the related areas of activity should diminish with age. It is unlikely, however, that low self investment will persist in all areas of professional activity. Under circumstances of failure to gain recognition for achievement in one type of activity, self investment will be withdrawn from that activity and increased in another activity where recognition for achievement is more likely. During early career stages, self investment in research activities is most likely to be high primarily due to the high prestige and rewards afforded to research output. These circumstances are especially true in an institutional setting where the colleague climate strongly favors research productivity. In the long run, failure to gain recognition for research will lead to increasing levels of self investment in teaching as a form of self esteem compensation.

Hypothesis 2

H_2: The greater the frequency of contact with colleagues in relationship to a particular area of activity, the greater will be self investment in that activity.

This hypothesis was tested by correlating frequency of contact among colleagues in the three sociometric networks with self investment in the related areas. As an example, subjects' level of self investment in research was correlated with frequency of contact with colleagues in the research sociometric network and similar procedures were employed for each of the other two networks. Sociometric data for this hypothesis were derived from question 51. The instructions read to each subject for this part of the interview were as follows:

> This last set of questions is intended to ascertain the nature and frequency of your contacts with members of your department. Here is a card showing categories of contact: (1 = very frequent, 2 = frequent, 3 = infrequent, 4 = never). I will first read to you the faculty member's name. Please tell me the number for each of the three categories that best reflects your level of contact with this colleague. We will proceed in this manner through a list of faculty members of your department.

Following this question was a list of all tenured faculty from the interviewee's department. Each name was followed by these categories of contact with colleagues. These categories were intended to correspond with the three self investment areas. A card was given to each subject, listing levels of contact with colleagues for research, teaching and nonwork-related sociometric networks. The captions describing participation in these networks are as follows: (1) "Exchanging ideas on research projects, papers, articles or books," (2) "Exchanging ideas on course-related material," and (3) "Getting together mainly for nonwork-related reasons." A sociometric analysis

of interpersonal contacts for each subject was then conducted, the result of which is a sociogram of each sociometric category for each department.

In most studies, questions relating to sociometric analysis request frequency and nature of social contacts vis-a-vis specific time frames (e.g., once a week, every two weeks, once a month, etc.). This format was avoided mainly to insure that subjects' responses center on the subjective importance of collegial contacts rather than on the purely quantitative aspects of association. This produces an overall picture of frequency of contacts with colleagues that are probably most relevant to self esteem by permitting subjects to select levels of association that, while lacking in current frequency of contact, may assume the greatest significance for the related subidentity areas. Also, even though current academic schedules may have an important bearing on frequency of contact among colleagues, these influences are reduced with this method. Current academic schedules are expected to have the strongest impact on the teaching sociometric networks.

A special computer program was enlisted to organize our sociometric data into reciprocal dyadic links at each of the three levels of association ("occasionally," "very frequent," and "frequent"). Sociograms were produced for each of the three sociometric networks in each of the three departments. The sociometric categories selected for final analyses were frequency of contact at all three sociometric levels of intensity, strength of sociometric contacts, and frequency of contact

at the high frequency level (very frequent). Frequency of contact at all three sociometric levels of intensity simply includes all reciprocal links regardless of the level of intensity (very frequent, frequent, and occasional). Strength of sociometric contacts is defined as the total of the weights attached to each reciprocal link divided by the number of reciprocal links. Weights are the sum of the intensity levels of contact (very frequent = 3, frequent = 2, occasional = 1). Frequency of contact at the high frequency level is simply the total number of social contacts at the "very frequent" and "frequent" levels.

These sociometric categories were then correlated with the related areas of self investment. In particular, our analysis concentrated on the high frequency of contact category as the best indicator of involvement with colleagues because this category reduces the possibility of incidental or occasional collegial association that may have little bearing on self esteem maintenance. It is natural to expect that sociometric selections concerning each faculty member will overlap in the three areas of association. In general, however, the most crucial contacts in relationship to self esteem maintenance are those where subjects have the most self investment.

Hypothesis 2A

H_{2A}: Frequency of contact among faculty members will be more exclusive under conditions of having similar levels of self investment and also when these faculty have achieved in that particular activity.

Nonstandard routines of analysis were employed to compute the frequency of contact among colleagues above and below the mean for each

self investment item to determine degree of association for those who share similar levels of self investment. For a few self investment items, especially in the nonwork-related areas, many subjects' responses clustered near the lowest response category (1 or 2) for which the related response is "little effect on how I feel about myself." Thus, it was difficult, if not impossible in some cases, to establish a cut-off point for evenly distributing subjects above and below the mean. Because of these problems of uneven cell size and skewedness toward the lower end of the scale, the subjects were divided at the median rather than the mean.

In general, the procedure in testing this hypothesis was to first isolate those who have high self investment from those who have low self investment in each category of self investment by dividing each self investment variable into two groups, one below and one above the mean. The next step was to compare frequency of contact among colleagues by doing a within-the-group and between-the-group sociometric analysis.

The technique of analysis entailed first organizing thirty sheets of paper corresponding to the thirty self investment items. The I.D. numbers for all subjects who were above the mean for self investment in all thirty categories were listed on the top half of each sheet and the same method was repeated at the bottom half of each sheet for those below the mean. Next, under each I.D. number, all reciprocal links in the related sociometric network along with degree of association (very frequent, frequent, occasionally) were

recorded. While all reciprocal links were recorded, only those at the very frequent and frequent level of association were selected for testing of the hypothesis because these links represent exclusivity of contact. A separate part of each sheet was set aside to record the I.D. numbers for all of those subjects who had reciprocal associations with those from another mean group and these data were used in the between-the-mean group analysis. The results of these computations were then submitted to a mathematical routine for analysis.

The mathematical routine employed is called "urn randomization" because the procedure employed is based on mixing different numbered objects in an urn for random selection (Stanley and Campbell, 1966, p. 24). The basic assumption is that each subject has an equal chance of being selected by all departmental colleagues, and, assuming no predictable methods of selection, frequency of association will be random in nature.

To begin, the total number of exclusive links are summed up for the self investment item under analysis and then, based on this sum, a potential number of links is assigned to each of the three groups (above the mean, below the mean, and across the mean). Our formula assumes an even distribution of the total number of links that exist for that variable or area of self investment for above, below and between the mean groups. The actual number of exclusive links for the three groups is then compared to the potential based on the expectation of randomness for the groups to derive ratios of association. The definitions of symbols and the formula used to derive the distribution of potential links is as follows:

N = Total number of subjects above and below the mean,

N_1 = Number of subjects above the mean,

N_2 = Number of subjects below the mean, and

N_a = Total number of reciprocal links.

Above the mean group $$X = N_a \times \frac{N_1(N_1-1)}{2}$$

Below the mean group $$Y = N_a \times \frac{N_2(N_2-1)}{2}$$

Between the mean group $$A = N_a \times \frac{N_1 \times N_2}{\frac{N(N-1)}{2}}$$

Having derived the potential distribution of reciprocal links for the three groups, the actual distribution of reciprocal links is then compared to this potential to determine exclusivity of contact. Assuming that the number of potential and actual reciprocal links is equal, then this would result in a ratio of zero suggesting a random distribution of contacts. Positive numbers mean that the ratio of actual to potential links is greater than zero and negative numbers mean that the ratio of actual to potential links is less than zero.

Hypothesis 3

H_3: The greater the self investment in a particular work-related activity, the greater will be self investment in work in general.

This hypothesis was tested by correlating the self investment composite variables in research, teaching and nonwork-related areas of

activity with the measure of self investment in work in general. A detailed explanation of the composite variables developed from the thirty self investment items and of the measure for self investment in work in general are found in the discussion of Hypothesis 1.

Self investment in work is expected to be closely associated with those activities where there is high self investment and also where there has been recognition for achievement. Under conditions where there is recognition for achievement in all areas of self investment, then self investment in work will be associated with self investment in each of these activities. Otherwise, self investment in work will only be associated with those activities where there has been achievement. For our population, those who have very high levels of self investment in research are not expected to have high self investment in teaching. It is possible, however, to have some self investment in both research and teaching simultaneously.

In terms of self investment theory, the strength of the relationship between self investment in work and self investment in particular areas of activity is a direct function of the degree of prestige and rewards attached to that activity. The status assignment system for society as a whole and for the academic community in particular constitutes the incentive structure for these relationships. In general, both the societal and the academic status assignment systems allocate greater rewards, especially in terms of prestige, for those who have achieved recognition for research activities. This prestige is translated into more attention and deference being afforded on a

day-to-day basis to researchers in comparison to teachers. By virtue of the heavy demands placed on research activities for time and resources, teaching activities will normally receive less attention by research-oriented social scientists.

Hypothesis 4

H_4: The greater the cosmopolitan orientation, the greater the likelihood of more frequent contacts with departmental colleagues.

In general, this hypothesis was tested by correlating cosmopolitanism with departmental sociometric networks. Question 14, 15 and 53 were selected to represent cosmopolitanism because they represent the faculty's involvement with referent others in external academic networks as well as recognition within the discipline as a whole. The cosmopolitan indicators are as follows:

14. Do you now hold or have you in the past held any elected offices with local or national association? yes ___, no ___. Which ones?

Local, regional and national categories of office holding were created from question 14. The national category of office holding was used as one-third of the cosmopolitan variable.

15. Have you presented papers at meetings of professional associations? yes ___, no ___. If yes, how many? ___ and which associations?

Again, national, regional and local levels of professional associations were derived from this question. Papers presented at national professional associations was used as one-third of the cosmopolitan variable.

53. Are there (type of social scientist) outside of this university with whom you are working on research projects, professional articles, books, etc.? yes ___, no ___. If yes, how many (type of social scientist) are there? _____ How often have you done this? _____

When was your last contact? _____

What is the nature of your correspondence?

Are these contacts increasing ___, decreasing ___, remaining about the same? ___

The number of social scientists indicated was taken from the first part of question 53 as one-third of the cosmopolitan variable.

A major assumption concerning cosmopolitan status is that high research productivity is associated with it. One problem with this assumption, however, is that it infers that the mere accumulation of publications will result in cosmopolitan status in one's discipline. In order to resolve this issue, our first test was to correlate the eight measures of research productivity with cosmopolitanism while controlling for age to discover its effects. The measures of productivity used were number of books edited, books published, articles published, dollar amount of grants received, papers presented at local professional associations, consultation at national level, and prestige level of journals in which articles were published. All of these measures, except for prestige level of journals in which articles were published, required only the sum of the number of accomplishments in each category of productivity.

The method used to calculate prestige level of journals in which articles were published requires a more detailed explanation. The following question was used to measure this variable.

10. Have you published any articles in professional journals? yes ___, no ___. If yes, how many? _____. In what journals?

Three faculty members were selected from Department SS1 and three members from Department SS3 to rate the quality of each journal published in by faculty members according to how they perceived that these journals stand in terms of prestige within their disciplines. The rating levels used were: 1 = very prestigious, 2 = prestigious, 3 = acceptable, 4 = low prestige, and 5 = not prestigious. Faculty members from Department SS2 did not participate in the judging of journals because this department is composed of a variety of social sciences. Therefore, for Department SS2, we used those ratings from the faculty judges of the other two departments. This did not present a major problem, however, because the majority of journals in which articles were published in Department SS2 were found within the disciplines of the other two departments and also because the publication rate for this department is generally low in comparison to the other two departments.

Agreement among the judges selected to rate journal articles was high. In Department SS1, there was total agreement for thirteen out of twenty-five journals and of the remaining twelve journals there was only one case where the difference in rating among the judges was greater than one rating level. In other words, there was complete agreement in 52 percent of the cases and the degree of disagreement for the remainder of cases was very slight. In Department SS3, agreement among the judges was also very high. In effect, there was complete agreement in ratings for forty-five out of fifty-six

journals among the three judges and the differences among them in rating the eleven remaining journals did not exceed one level. In other words, for Department SS3, there was complete agreement in 80 percent of the cases. Hence, we may accept that those ratings assigned to journal articles are reasonably valid.

After testing for the effects of age on cosmopolitanism, a multiple regression analysis was conducted with the above research variables and additional variables relating to cosmopolitanism (research grants received, consultation at the national level and prestige level of journals).

Having established the relationship between cosmopolitanism and research productivity, our next task was to test the link between cosmopolitanism and colleague contacts in each of the three sociometric networks. The operationalization of these variables has already been discussed.

It was expected that the strongest link would be between the research sociometric network in the departments and cosmopolitanism. The lack of a link between the research and teaching sociometric networks has already been discussed as a reflection of the strong research orientations of the faculty and of the colleague climate of the institution. In general, the teaching sociometric network should not link up as well with cosmopolitanism as the other two networks.

The expected relationship between external referent contacts and colleague contacts in departmental research networks (question 51) was tested by correlating the research network variables with the

external contact variables (question 52 and 53). Except for question 53, all of the items relevant to the operationalization of this hypothesis have been discussed. Item 53 is the same as item 54 except for the emphasis on working relationships.

53. Are there (name of social science) outside of this university with whom you are working on research projects, professional articles, books, etc.? yes ___, no ___. If yes, how many (name of social science) are there? _____. How often have you done this?

Establishing the link between external and internal referent contacts within faculty members' disciplines supports our assertion that the discipline itself is a primary source of self esteem maintenance equivalent to a nonprofessional job environment. Furthermore, rather than viewing cosmopolitanism as a condition that detracts from local commitments and involvements, our intention is mainly to redirect attention to the necessity of referent contacts for self esteem maintenance within departments which leads to another way of conceptualizing cosmopolitanism.

CHAPTER IV

FINDINGS

Overall, the findings of our study support the self investment model and, in addition, through a serendipitous finding, a new insight into the frequency of interpersonal associations has been gained. A thorough discussion of the implications of our findings is reserved for the concluding chapter. In order to facilitate a clearer understanding of the major propositions of this study, some additional tables, not suggested in the methodology chapter, have been added to illustrate some important points relevant to self investment theory.

Research Findings

Hypothesis 1

H_1: The greater the achievement in a particular area of activity, the greater will be self investment in that activity.

The primary test for this hypothesis was obtained through Pearson correlations between the achievement and nonachievement self investment items that have been collapsed into composite variables with the three measures of research productivity. For the purpose of this analysis, because each of the three areas of self investment tested taps one general subidentity area of the self, spillover effects from one self investment area to another are expected.

For our population, professional commitments and demands that reflect the colleague climate of the institution should produce extensive utilization of time and resources for research purposes that results in higher self investment in research activities than in other areas of activity. Therefore, we will be particularly attentive to the research area of activity as the most important source of professional recognition for our population as a whole.

The findings in Table 1 show significant relationships between self investment in research and the research output variables. In another analysis, not shown here, we found no significant associations between self investment in teaching or nonwork-related activities with the research output variables. The relationships between self investment in research and research productivity are clearly significant for the total of research output ($r = .49$, $p = .001$), average of research output ($r = .46$, $p = .001$) and trends in research output ($r = .48$, $p = .001$). It is noteworthy that the differences in association for these research output variables is almost minimal.

Our professional criteria items are rough measures of self investment in research if we assume that people are most likely to evaluate others in areas where their own self investment lies. By correlating these scales with research output, an additional assessment of the merits of the self investment model may be made. The individualized version of the professional criteria model, which is based on an open ended response to ranking of professional criteria, appears to be a more reliable indicator of research output than the universal version

Table 1. Relationship Between Self Investment and Research Output Variables: Zero Order Correlations

	Research Output		
	Total of Research Output	Average of Research Output	Trend in Research Output
High achievement category of self investment	r = .49 p = .001 N = 67	r = .46 p = .001 N = 67	r = .48 p = .001 N = 66

of the professional criteria model, which is based on eight standard criteria used for assessing professional performance. Perhaps this difference in results may be explained in terms of tendencies of subjects to rank order standard universal professional criteria (Table 3) according to normative prescriptions of success closely linked to the academic status assignment system in contrast with individualized selection of professional status criteria allowing for a greater range of flexibility because of the open ended nature of this item.

Both professional criteria models are excellent indicators for average of research output (Tables 2 and 3). However, in neither model is trend in research output significantly associated with ranking of professional criteria. The individualized version of the professional criteria model (Table 2), however, approaches significance ($r = .17$, $p = .087$) and is significant in the case of total of research output ($r = .20$, $p = .054$). The findings of these series of tests also confirm

Table 2. Effectiveness of Professional Criteria Model (Individualized Version of Ranking Status Criteria) as an Indication of Research Output: Zero Order Correlations

	Research Output		
	Total of Research Output	Average of Research Output	Trend in Research Output
Professional criteria model (individualized version)	r = .20 p = .054 N = 66	r = .34 p = .003 N = 66	r = .17 p = .027 N = 65

Note: A scale ranging from research over teaching to teaching over research for evaluation of professional performance was used for both professional criteria models.

Table 3. Effectiveness of Professional Criteria Model (Universal Ranking of Eight Standard Status Criteria) as an Indication of Research Output: Zero Order Correlations

	Research Output		
	Total of Research Output	Average of Research Output	Trend in Research Output
Professional criteria model (standardized universal criteria version)	r = .11 p = .193 N = 65	r = .34 p = .003 N = 65	r = .03 p = .417 N = 64

Note: Association between the two professional criteria models is (zero order correlation) r = .71, p = .001, N = 62. See remarks in Table 2 for the type of scale used.

what one would expect to find according to the theory of cognitive dissonances, in that, individuals tend to evaluate others according to their own predispositions and achievements in order not to create discomforting inner conflicts. For self investment theory, however, it reveals that individuals tend to establish criteria that corresponds with their own areas of self investment. This conclusion also relates to our finding (Hypothesis 2) that individuals tend to associate mostly with those who share their level of self investment since it is difficult to imagine associations where there are different systems of professional status criteria in existence among the actors.

In general, the results of our analysis indicate that in order for self investment to be sustained, there must be recognition for achievement. It is this recognition process that enhances self esteem sufficiently to encourage the actor to continue efforts required to achieve or, alternatively, to increase efforts required for reaching higher plateaus of achievement. Data bearing on Hypothesis 2 will show that frequency of contact with referent others is the other link in the self investment chain that is necessary to maintain high self investment in a particular activity. Without social recognition, little incentive will remain for the continuation of efforts to succeed. The absence of social recognition, however, is almost impossible to imagine because the mere acknowledgment of success stimulates the emergence of social norms of recognition relating to favorable social outcomes. In other words, to succeed is to fulfill those desirable expectations learned during one's formative years of

socialization. Those who have succeeded will seek out social recognition from those who place importance on the achievement in question. In most cases, these evaluators will be members of one's reference group. Praiseworthy evaluations are not always deliberately sought, but they will be elicited through a number of communication ploys whereby success becomes the main topic of conversation or else indirect references are made to it. In general, in order to insure recognition for achievement, those whose evaluations of performance may be negative will be avoided in favor of those whose evaluations are most rewarding. Thus, even when recognition for success is not expected, the most likely alternative to negative evaluations is to withdraw from these unrewarding social encounters in favor of those encounters that contribute to one's feelings of self worth or in which evaluations of performance are at least neutral. Avoidance of job performance evaluations may be accomplished through membership with fraternal organizations where interactions are often expressive in nature in that evaluative criteria are based on club activities. In effect, active involvement in fraternal organizations may be a form of self esteem compensation for failure to gain recognition for achievement on the job.

In this sense, social action partly consists of a series of events that become part of the internal processes of self evaluation depending on their importance to self esteem. Where others communicate, either verbally or nonverbally, their approval or disapproval of performance in high self investment areas, the impact upon self esteem

will be substantial and strongly associated with degrees of commitment and levels of effort required to achieve.

The remaining part of our analysis of Hypothesis 1 is concerned with the relationship between self investment in work and self investment in research activity. It should be recalled here that self investment in work focuses on how important work is for feeling good about oneself. An analysis, not shown here, revealed that there is no relationship between self investment in work and the research output composite variables. Although, as Hypothesis 3 suggests, there is a relationship between self investment in research and research output. Therefore, the following analysis is mainly concerned with explaining the reason for this discrepancy.

As already noted in Chapter III, self investment in work in general may be associated with either research or teaching but not necessarily with both areas simultaneously. Because, as previously noted, the high achievement categories of self investment also include low achievers, it was necessary to isolate high achievers as much as possible from low achievers in order to test the group that best represents high achievement in research activities. This was accomplished by splitting this variable at the mean, thus, creating a high achievement group (above the mean) and a low achievement group (below the mean). Because all of our subjects responded to at least one achievement and one nonachievement item for all three self investment areas, splitting the population at the mean results in high achievers emerging in the above the mean group, even though the entire variable was intended to represent achievement in research. The self

investment in research of these groups was then correlated with self investment in work, the results of which are shown in Table 4. It is apparent that self investment in research for high achievers is significantly correlated with self investment in work ($r = .32$, $p = .036$), which is the expected outcome according to self investment theory. This relationship, while not as strong as most of our correlations, is sufficient to suggest that the two areas of self investment are related to each other as well as with achievement in research activities. Self investment in work is not associated with self investment in research among those with low achievement in research; but for most of our population who have not achieved in research activities, teaching activities provide the necessary substitute for research achievement, a finding which will be discussed in more detail in a later section of this chapter.

Table 4. Association Between Self Investment in Work and in Research (Above and Below the Mean): Zero Order Correlations

Above the Mean	Below the Mean
$r = .32$ $p = .036$ $N = 33$	$r = .11$ $p = .272$ $N = 33$

Further evidence for the effects of achievement on levels of self investment is shown in Table 5. Overall, the mean level of self investment for the high achievement items is 4.88 compared to 4.00 for the low achievement items. This table is not as effective, however, in revealing the consequences of achievement as the correlative analysis with the research category variables (Table 1) partly because it fails to show the variations of self investment associated with achievement. However, even taking this exception into account, the evidence presented in Table 5 is still convincing support for our hypothesis. It is especially noteworthy that there are clear differences in levels of self investment between high and low achievement categories of self investment for all three areas. Furthermore, self investment in professional activities is greater than self investment in nonwork-related activities as expected.

Hypothesis 1A

H_{1A}: Where there is a lack of recognition for achievement in a particular area of activity, self investment in that activity will diminish with age.

The impact of achievement on levels of self investment with age is shown in Table 6. In effect, what these findings suggest is that for high achievers, self investment in the three areas of activity will remain relatively constant. Whereas, for low achievers, lack of recognition for achievement will result in gradual withdrawal of self investment from the related areas of activity (Table 7).

Table 5. Mean Levels of Self Investment for All Fifteen Self Investment Items

Self Investment Areas	High Achievement Categories	Low Achievement Categories
Research Items:		
34. Publishing books	6.12[a]	6.29
35. Membership in professional associations	2.00	2.40
38. Receiving research grants	5.43	4.74
40. Exceptionally creative and productive scholar	6.81	5.93
42. Publishing journal articles	6.38	6.33
Teaching Items:		
37. Exceptional teaching	7.15	5.11
41. Teaching advice requested	4.63	2.88
44. Appointment to important committee assignments	3.63	2.52
45. Reputation for advising students	5.71	2.57
47. Appointment to advisory committee	3.35	4.84
48. Good student responses	8.43	6.33
Nonwork-Related Items:		
36. Involved in political affairs	3.00	1.88
39. Proud of own home	2.87	2.44
43. Good at hobby or leisure activity	4.21	3.27
46. Membership in local fraternal organizations	3.42	2.54
Average means	4.89	4.00

[a]Self investment scale ranges from one to ten. High range of scale corresponds to high self investment.

Table 6. Relationship of Age to High Achievement Areas of Self Investment: Zero Order Correlations (N = 65)

	Self Investment Categories			
	Research	Teaching	Nonwork-Related	Total
Age	r = .01 p = .476	r = .15 p = .116	r = .05 p = .373	r = .13 p = .154

Table 7. Relationship of Age to Low Achievement Areas of Self Investment: Zero Order Correlations (N = 65)

	Self Investment Categories			
	Research	Teaching	Nonwork-Related	Total
Age	r = -.45 p = .001	r = -.43 p = .001	r = -.34 p = .003	r = -.50 p = .001

In particular, the negative correlations for research and teaching areas of activity are impressive (Table 7, research, $r = -.45$, $p = .001$; teaching, $r = -.43$, $p = .001$). An interpretation of these results is that in the face of persistent failure to gain recognition for achievement, self investment will be withdrawn from the area in question. Withdrawal of self investment is partly a defensive strategy, whereby, in order to retain a positive self image, it becomes necessary to avoid social encounters where attention might be directed to shortcomings in particular areas of professional activity. Self investment in unrewarding activities will decline to the point where it ceases to be of any real importance to self esteem. Consequently, another area of professional activity will be selected where recognition for achievement is most likely. Failure to gain recognition in research activities, as an example, may lead to increasing self investment in teaching where recognition for achievement will compensate for self esteem losses suffered.

The lower, but significant correlation between low achievement in nonacademic activities and age (Table 7, $r = -.34$, $p = .003$) may be partly explained by the fact that for most faculty members, community activities assume a low priority of importance. Therefore, failure in these activities is less likely to result in withdrawal of self investment, because self investment in these activities is already low (Table 5). However, the relative strength of this relationship is not sufficient to warrant conclusions concerning any major differences in response to failure between nonacademic and professional activities.

Again, because self investment in achievement related activities and self investment in work in general are expected to be related, we expect that lack of achievement in research activities will also produce decreasing levels of self investment in work with age. However, the interaction effects found with the self investment composite variables, as the preceding discussion of the problem indicates, makes it inadvisable to test the above assumptions without first taking the proper precautions to avoid distortions. Therefore, in order to isolate high from low achievers to avoid interaction effects for research and teaching activities, both of these self investment composite variables for achievement were combined to form one composite achievement variable and then this variable was split above and below the mean to create high and low achievers for research and teaching activities combined. Each of these groups was then subjected to a correlative analysis between self investment in work with age, the result of which is displayed in Table 8.

Table 8. Association Between Self Investment in Work and Age for Above and Below the Mean Groups of High Achievement for the Combined Categories of Self Investment in Research and Teaching: Zero Order Correlations

Above the Mean for Research and Teaching	Below the Mean for Research and Teaching
r = .49 p = .031 N = 15	r = -.40 p = .062 N = 16

An important observation from our analysis is that for those who are high achievers, self investment in work will increase with age ($r = .49$, $p = .031$). This association may be partly explained by virtue of the type of population under study. Those who are high achievers, which consist of about one-fourth of our population, must maintain high self investment in work mainly because of the amount of effort required to achieve in both areas of activity simultaneously. For those who are low achievers in both professional areas of activity, we find the same tendencies to withdraw self investment in work ($r = -.40$, $p = .062$) that are found with the separate areas of self investment (Table 7).

The strong research orientations of our population contribute to tendencies to engage in research activities even though success may appear to be remote, but in those cases where research output is apparently impossible, withdrawal of self investment in research activities is more evident due to consensus of those around concerning the importance of research output, thus, producing strong social sanctions for failure. Most evaluations of academic performance having either positive or negative outcomes for self esteem are found among academic groups where day-to-day social encounters occur. In contrast, faculty members located in less prestigious institutions where less emphasis is placed on research activities, may pursue research projects without great fear of social sanctions in the event of failure primarily because research output is placed lower on the evaluative hierarchy of that institution. It is also possible that

under circumstances of lower placement of research output on the criteria hierarchy, there will be less consensus concerning its importance among faculty groups. Given recognition of the potential of future success for younger faculty members, then a strong research climate will tend to produce continuous or reoccurring efforts to succeed in those activities. In essence, the amount of self investment attached to any professional area of concern is dependent upon the social atmosphere of academic departments and the institution alike. The stronger the research climate and the degree of consensus with regard to it, the more negative will be social sanctions with regard to failure in research. Lack of achievement in research activities will most likely lead to withdrawal of self investment from those activities. Accordingly, self investment in teaching or administrative activities will occur where recognition for achievement is more likely and, hence, self esteem enhancement will result.

The evidence presented corroborates our hypothesis that achievement has a significant impact on levels of self investment. Our assumptions for self investment in work also hold, but only after taking into account the combined effects of high and low achievers who compose the research variables. It has been found, according to another analysis not presented here, that one-fourth of our population are high achievers in research but low achievers in teaching and one-fourth of our population are high achievers in teaching but low achievers in research. Thus, high self investment in work will be associated with those areas of self investment related to

achievement but not with those areas of activity where there has been little achievement. Further clarification of the relationships between self investment in particular areas of professional activity and in work will be discussed in the section of this chapter dealing with Hypothesis 3. Suffice it to say for now that the two areas of self investment are related.

Hypothesis 2

H_2: The greater the frequency of contact with colleagues in relationship to a particular area of activity, the greater will be self investment in that activity.

The empirical evidence supporting this hypothesis is found in Table 9 where the effects of achievement on levels of self investment are clearly shown. The strongest link with self investment is with the research sociometric networks. The strongest of these links are the relationships between self investment in research and frequency of contact at all frequency levels and also with the strength of sociometric links ($r = .40$, $p = .001$, for both measures). This finding is related to our finding from Hypothesis 1 that the level of self investment is related to recognition for achievement. The strength of association, which means the ratio of high frequency contacts to low frequency contacts, is greater for the research network than for the other two sociometric networks, as an indication of the lively interaction that exists among colleagues with regard to research interests. The link between self investment in research and sociometric links at the high frequency levels of contact is also sufficiently high to warrant attention ($r = .30$, $p = .008$). Actually, this

Table 9. Relationships Between Three High Achievement Areas of Self Investment and Related Sociometric Networks: Zero Order Correlations (N = 63)

Self Investment Areas	Sociometric Links at All Frequency Levels	Strength of Sociometric Links	Sociometric Links at High Frequency Levels (Exclusiveness)
Research	r = .40 p = .001	r = .40 p = .001	r = .30 p = .008
Teaching	r = .18 p = .078	r = .28 p = .014	r = .38 p = .001
Nonwork-related	r = -.04 p = .369	r = -.04 p = .385	r = -.09 p = .240

latter category of analysis is the most reliable measure of contact because it is based on "frequent" and "very frequent" reciprocal contacts representing more firmly committed interpersonal associations rather than those that are casual by nature.

The relatively strong research climate of this university in addition to the strong research orientations and publishing records of the majority of our subjects explain, in part, the high level of activity in the research networks. The greater the number of faculty members involved in research then the greater the possible combinations of reciprocal contact among these colleagues. Increasing levels of self investment in relationship to greater numbers of contacts with colleagues is the result of being rewarded in these everyday encounters because of recognition for achievement in research areas of professional activity. Self esteem is enhanced through daily reminders of success

and high status placement in the departmental status hierarchy. Actually, this process is reciprocally reinforcing because those who have achieved recognition for research will tend to associate more with one another. This has the effect of producing self evaluation concerning one's professional image and it also maintains one's desire to continue to succeed. In this context, high expenditures of effort to succeed along with frequent evaluations are most likely to result in accomplishing academic tasks related to the evaluative area.

The relationships between self investment in the achievement area for teaching and frequency of contact with colleagues in the teaching sociometric networks is weak at the total of all frequency contact levels, but it is strong for exclusiveness of contact with colleagues. As an interpretation, the main reason for the weak association at the total contact level has already been explained, in that, fewer colleagues compose the teaching networks in comparison to the research networks. The relationship with the exclusiveness of interpersonal contacts in the teaching networks is, however, impressive ($r = .38$, $p = .001$) and warrants further comment. The high exclusiveness of these associations is partly due to the organizational constraints found in Department SS2 where there are several teaching committees assigned to a few specific instructional fields to coordinate teaching activities within these areas of instruction. Faculty members who compose these teaching groups are required to meet several times each term, which partly accounts for the strong exclusiveness of contact for our population as a whole. However, the relative weakness of the teaching network in comparison to the research networks is evidenced by the

moderate correlation of self investment in teaching with strength of sociometric links ($r = .28$, $p = .014$). A plausible explanation for this weak correlation is that for those faculty in Departments SS1 and SS3, frequency of association in the teaching networks is probably at the weakest level of association, which, in combination with exclusiveness of contacts for Department SS2, results in the moderate correlation. In contrast, a greater proportion of research contacts are at the high frequency level of association. Again, this is probably a consequence of the strong research orientations for these faculty as well as of the fact that their research publications assist in providing for the recognition for achievement sufficient for self esteem maintenance.

The relationship between the nonacademic areas of self investment and the nonwork-related social networks is almost nonexistent for the achievement categories. The correlations for all three levels of association is almost zero ($r = -.04$, $r = -.04$, $r = -.09$). This may be explained by the fact that for most faculty members, self investment in nonacademic areas of activity is very low in comparison to the two other areas, which is evident from Table 5 and also because the nonwork-related sociometric network mostly consists of those who have high self investment in research activities. Because the nonwork-related sociometric network is defined as a "social choice" network, it does not necessarily draw those who have nonacademic interests, but instead it reflects the socialization patterns for the most dominant professional orientations of the faculty, which for our population is

research. This association between self investment in research and contacts with colleagues for nonwork-related reasons is illustrated in Table 10.

The significant association for self investment in research and social contacts at all frequency levels ($r = .37$, $p = .002$) and strength of sociometric links ($r = .39$, p. .001) and with exclusiveness of contact ($r = .31$, $p = .006$) clearly indicates the dominance of research orientations among the faculty. Further evidence of the link between the research and nonwork-related sociometric networks is provided in the section of this chapter dealing with Hypothesis 2A. The associations between self investment in teaching and social contacts is not significant, but almost random in nature.

Table 10. Relationships Between Professional High Achievement Areas of Self Investment and "Getting Together for Nonwork-Related Reasons": Zero Order Correlations (N = 63)

High Achievement Self Investment Area	Nonwork-Related Sociometric Network		
	Sociometric Ties at All Frequency Levels	Strength of Sociometric Ties at All Frequency Levels	Sociometric Ties at High Frequency Levels of Contact (Exclusivity)
Research	r = .37 p = .002	r = .39 p = .001	r = .31 p = .006
Teaching	r = -.13 p = .164	r = -.07 p = .293	r = -.14 p = .145

A conclusion drawn from self investment theory explaining the findings from Table 9 is that a necessary precondition for self esteem maintenance is the attainment of social approval as a consequence of academic achievement through day-to-day contacts with fellow colleagues in the department. Without collegial recognition for achievement in particular areas of activity, self investment will be withheld or withdrawn from those activities and increased in other activities where the prospects of recognition for achievement are more likely. In this way, lost self esteem will be regained in the new areas of activity. This principle of self investment theory may partly explain why occupational careers are sometimes abandoned for new life styles where success is more promising.

It should be born in mind throughout this analysis that each of the three sociometric networks merely reflects a subidentity role relationship for each faculty member. Therefore, we expect that for most faculty members, sociometric choices for each of the three networks will overlap to some extent and will correspond to one role relationship with that faculty member rather than a choice based exclusively on that area of activity. In the context of this understanding, one type of role relationship may dominate the other two. For our population, the research network appears to be the most dominant of the three sociometric networks. Evidence for this assertion is found in Table 10 that clearly shows that the research and the nonwork-related sociometric networks are linked closely together, thus, suggesting that those who share research interests also get "together for nonwork-related reasons."

Additional evidence to support our contention that the research and social networks are strongly linked is found in Tables 11 to 13. In general, both research and social sociometric networks correlate more significantly with the research output variables than does the teaching network for reasons already suggested. It is noteworthy that for the social network, the correlations for the total research output (Table 11) at the exclusive level of contact is significant ($r = .32$, $p = .005$) and the correlation for the average of research output variable (Table 12) is also significant ($r = .34$, $p = .003$) and greater than for the research networks. This appears to be conclusive evidence that those who are active in the nonwork-related networks are also highly productive researchers and scholars.

Failure of frequency of network contact in the research network to significantly relate to the total of research output variable (Table 11) may be partly explained in terms of the cumulative nature of this variable which is not necessarily associated with current research activity. The significant relationship for the research network at the exclusive level with the trend in research output variable (Table 13) may be partly explained by noting our findings from Hypothesis 4; this variable is the best of the three research output variables for predicting cosmopolitanism, which, in turn, is related to high referent associations within the department. This finding also follows from what you would expect from those who are currently increasing their research output. As current research output increases, so will collaboration with referent others' increase on research

Table 11. Relationships Between the Three Sociometric Networks and "Total Research Output": Zero Order Correlation (N = 63)

Type of Network	Sociometric Networks		
	Sociometric Links at All Frequency Levels	Strength of Sociometric Links	Sociometric Links at High Frequency Levels
Research	r = .25 p = .026	r = .23 p = .033	r = .16 p = .113
Teaching	r = .24 p = .031	r = .13 p = .155	r = -.03 p = .420
Nonwork-Related	r = .29 p = .001	r = .34 p = .004	r = .32 p = .005

Table 12. Relationships Between the Three Sociometric Networks and "Average of Research Output": Zero Order Correlations (N = 63)

Type of Network	Sociometric Networks		
	Sociometric Links at All Frequency Levels	Strength of Sociometric Links	Sociometric Links at High Frequency Levels
Research	r = .38 p = .001	r = .37 p = .001	r = .29 p = .015
Teaching	r = .23 p = .033	r = .21 p = .049	r = .12 p = .176
Nonwork-Related	r = .36 p = .002	r = .36 p = .002	r = .34 p = .003

Table 13. Relationships Between the Three Sociometric Networks and "Trends in Research Output": Zero Order Correlations (N = 62)

Type of Network	Sociometric Networks		
	Sociometric Links at All Frequency Levels	Strength of Sociometric Links	Sociometric Links at High Frequency Levels
Research	r = .23 p = .035	r = .28 p = .015	r = .29 p = .012
Teaching	r = .14 p = .144	r = -.10 p = .229	r = .13 p = .152
Nonwork-related	r = .27 p = .016	r = .25 p = .027	r = .17 p = .092

projects, articles and books. The moderate, but significant relationship found with the research networks for exclusiveness of referent contacts and the average of research output (Table 12; r = .29, p = .015) is a clear indication of the general association between steady research output and collegial recognition. In general, these findings supplement the evidence presented so far that achievement is associated with referent other contacts and levels of self investment. Furthermore, this evidence points to the relative isolation of the teaching networks with regard to associations of low research output and referent associations, especially at the high frequency level of contact.

Because referent contacts within disciplinary networks outside of the university may reflect an extension of internal referent

associations, we have tested for degree of association in these networks. The assumption of this analysis is that the higher the number of referent contacts within the discipline, the higher the professional status within that discipline. The result of this analysis shows that self investment is significantly associated with referent contacts outside of the university (Table 14). The association with external referent contacts defined as "mostly exchanging ideas and papers" is moderately strong ($r = .20$, $p = .055$) while the relationship with referent contacts "mostly actively working on research" is stronger ($r = .28$, $p = .014$). It is obvious that the associations between teaching and nonwork-related areas of self investment with external academic networks is almost nonexistent.

Table 14. Relationships Between Self Investment in Three Achievement Areas of Activity and Frequence of Contact with Colleagues in External Research Networks: Zero Order Correlations ($N = 63$)

Self Investment Areas	Referent Contacts for "Mostly Exchanging Ideas and Papers"	Referent Contacts for "Mostly Actively Working With on Research"
Research	r = .20 p = .055	r = .28 p = .014
Teaching	r = -.02 p = .427	r = .06 p = .310
Nonwork-related	r = .03 p = .413	r = .00 p = .490

The stronger association found for relationships based on "actively working with on research" (r = .28) may be explained in terms of the intensity of this form of relationship in comparison to one based on "mostly exchanging ideas and papers." An ongoing working relationship entails stronger concerted efforts to succeed and therefore to work with referent others to avoid negative evaluations. Also, the frequency of contact under these circumstances is greater which tends to produce more frequent self evaluations of performance which, in turn, affects feelings of self worth which can also be translated into self investment theory with respect to the degree of concern for achievement in the evaluative area of activity.

In essence our findings support the hypothesis that self investment in particular areas of activity is related to the frequency of contact with referent others in the related sociometric networks. These expected associations hold for both collegial associations within the department and external to it within disciplinary networks. Also, as expected, primarily those who have high self investment in research, as well as high research output, will have frequent contacts with referent others in external disciplinary networks. In another analysis not shown here, it was found that the relationships between low achievement categories of self investment and frequency of contact with referent others is negative, thus, supporting our assertion that achievement has a significant impact on levels of self investment.

Hypothesis 2A

H_{2A}: Exclusiveness of contact among faculty members will be greater under conditions of similar levels of self investment. Also, these exclusive relationships are stronger under circumstances of achievement.

The data used for testing this hypothesis have been organized into contingency tables to show the effects of both high and low levels of self investment as well as high and low achievement levels. This hypothesis is corroborated in the self investment areas of research and nonwork-related activities, but not in the area of teaching for some reasons to be discussed.

The main evidence supporting our hypothesis is found in Table 15 where the ratio of actual to potential links is particularly strong (+.42). It is important to recall throughout this analysis that potential means reciprocal link distribution expected on the assumption of randomness. The interpretation for this finding is that those who have either high or low levels of self investment in research, under circumstances of achievement, will tend to associate more with each other than with those who have different levels of self investment in research. The ratio of actual to potential links for the nonwork-related sociometric network is also strong (+.29). Again, it appears that even in the area of nonwork-related activities, exclusiveness of contact is associated with similar levels of self investment and achievement. Moreover, for the nonwork-related networks, the ratio of actual to potential links (-.31) is strong in the negative direction, as expected. This means that there is little association between

Table 15. Exclusiveness of Group Associations Relating to High Achievement Areas of Self Investment

Sociometric Networks Corresponding to High Achievement Areas of Self Investment	Exclusiveness of Contact	
	Above and Below the Means Groups Combined[a]	Between the Mean Groups
Research	+.42[b]	-.06
	N = 139[c]	N = 139
Teaching	+.02	-.04
	N = 197	N = 197
Nonwork-related	+.29	-.31
	N = 81	N = 81

[a]Above the mean groups have high self investment and below the mean groups have low self investment in that particular activity.

[b]Ratios reflect the relationships of actual reciprocal links to potential reciprocal links, assuming randomness of distribution. If all reciprocal links are distributed randomly, then the ratio of actual to potential links is zero or the number of actual links equals the number of potential links for that particular group. If the number of actual reciprocal links exceeds the number of potential reciprocal links or the number of links expected by randomness alone, then a positive (+) valence is assigned to that ratio. If the number of potential reciprocal links exceeds the number of actual reciprocal links, then a negative (-) valence is assigned to that ratio.

[c]"N" represents the total number of times subjects responded to self investment items for that particular area. The size of the N is partly dependent on the number of items that comprise that particular category. The small "N" for nonwork-related networks reflects only four items for this category; the larger "N" for the teaching networks reflect the six items for this category and the medium size of N for the research category reflects the five items for that category.

faculty members who have high self investment in nonwork-related activities, under circumstances of achievement, and those who have low levels of self investment in those same activities.

In the teaching sociometric networks, the ratios of actual to potential links for both high and low levels of self investment (+.02) and for the between-the-mean groups (-.04) are very weak. The reasons for these weak associations are related to our previous findings that in relative terms the teaching networks are inactive and mostly isolated from the other two sociometric networks. In effect, associations based on teaching-related reasons provide only the most basic instrumental interactions needed for the efficient functioning of academic departments insofar as institutional prerequisites of undergraduate teaching are concerned. According to our findings in Table 10, faculty members who get together for teaching-related reasons do not normally associate with one another for nonwork-related reasons. Assuming strong professional concerns regarding teaching, you would expect that these same faculty members would associate with one another for purely social reasons as well. It is also evident from Table 16 that the absence of achievement makes little difference on exclusivity of contact (+.06, -.09) for the teaching networks, but it does make a difference for research networks primarily because sociometric choices in the area of research are relatively unrestrained by the organization and therefore more conducive to free choices of faculty.

Further evidence of the relative isolation of the teaching networks is found in Table 17. From this analysis, it is clear that only self investment in teaching is significantly associated with the teaching sociometric networks at the high frequency level ($r = .38$, $p = .001$) and strength of sociometric links ($r = .28$, $p = .001$). These significant associations may be explained, in part, by another analysis that revealed that members of Department SS2, where teaching is emphasized, compose 29 out of 52 of the actual reciprocal links above the mean (high self investment) in the high achievement category of self investment in teaching. In other words, without Department SS2, there would be very little association for teaching related reasons. Again, it may be recalled that the major reason for association in the teaching networks of Department SS2 is because the primary purpose of this department is the team approach to teaching that requires that teaching sections function as groups that meet regularly to attend to problems and development of course curriculum and teaching methods. Also, faculty members of Department SS2 are required to teach twelve units per term in comparison to faculty members of the other two departments who are required to teach no more than two courses per term.

The consequences of low achievement on exclusivity of contact in all but the nonwork-related sociometric networks is clear from Table 16 where the associations are weak. The ratios of actual to potential links for teaching (.06, -.09) and for research (.06, -.08), while in the expected directions, are not sufficiently strong to support our hypothesis. These low ratios may be due to chance alone, but the

Table 16. Exclusiveness of Group Associations Relating to Low Achievement Areas of Association

Sociometric Networks Corresponding to the Low Achievement Areas of Self Investment	Exclusiveness of Contact	
	Above and Below the Mean Groups Combined	Between the Mean Groups
Research	+.06[a] N = 153	-.05 N = 153
Teaching	+.06 N = 126	-.09 N = 126
Nonwork-related	+.12 N = 109	-.21 N = 109

[a]See footnotes in Table 15.

Table 17. Relationships Between High Achievement Categories of Self Investment and the Teaching Sociometric Network: Zero Order Correlations (N = 63)

High Achievement Self Investment Areas	Teaching Sociometric Network[a]		
	Sociometric Links at All Frequency Levels	Strength of Sociometric Links	Sociometric Links at High Frequency Levels (Exclusivity)
Research	r = .19 p = .069	r = .12 p = .175	r = .08 p = .259
Teaching	r = .18 p = .072	r = .28 p = .001	r = .38 p = .001
Nonwork-related	r = .02 p = .443	r = .03 p = .401	r = -.01 p = .481

[a]All three high achievement categories of self investment are correlated here with the teaching sociometric networks found in all three departments.

evidence presented so far suggests that achievement has a decided impact on self investment and frequency of association with others. Social recognition for achievement strengthens commitments to work resulting in productivity by enhancing self esteem essential for maintenance of a positive self image. Lack of achievement apparently contributes to weak group cohesion and to low self investment, and, in the long run, results in withdrawal of self investment in that area of activity.

Examples that illustrate the powerful influences of achievement on group cohesion may be drawn from many areas of activity. For a basketball team, as an example, winning games assures the continuation of public recognition enhancing self esteem of the players necessary for a strong team spirit. As the team continues to win games, the players will form into a more tightly knit group. In contrast, losing games often leads to a lack of cooperation and dissension among the players. Also, a closer knit group facilitates more frequent contacts among the players that will enhance self esteem for the better players and, perhaps, produce negative self images for the poorer players who may avoid negative evaluations under conditions of fewer contacts with teammates. In a similar manner, those who have achieved in the same areas of professional activity, will tend to seek one another out on a more frequent basis to make status claims through the process of exchanging papers, knowledge and advice and by working together on research projects, etc.

For the nonwork-related sociometric networks, the absence of achievement appears to have little affect; the ratio of actual to

potential links for the high and low self investment groups combined is moderately strong (-.12) while for the between mean groups, the ratio of actual to potential links is strong (-.21) in the negative direction, as expected. The main reason for this finding is the close link between the research and the nonwork-related networks. Thus, achievement in nonwork-related areas of activity does not have an important bearing on "getting together for nonwork-related reasons." For the most part, these relationships are expected because most of our subjects have high self investment in research-related areas of concern and, subsequently, they will tend to socialize with each other more frequently as work is a "central life concern" for them.

A further indication of the link between the research and nonwork-related networks is found in Tables 18 and 19. In Table 18, the total number of item responses for the high achievement area of high self investment in research (78) almost equals the total number of item responses for the low achievement area of low self investment in nonwork-related activities (77) found in Table 19. Moreover, the ratio of high frequency contacts to item responses for this research category (.69) is almost the same for the nonwork-related category of colleague association (.62). In large part, the strong research orientations among our subjects accounts for the strong links between the research and nonwork-related networks.

The primary purpose for Tables 18 and 19 is to further illustrate the impact of achievement on frequency of association among faculty. In all but one category, which is below the mean group for teaching, the ratios of high frequency reciprocal links

Table 18. Distribution of the Ratios of High Frequency Contacts to the Total Number of Responses to Self Investment Items for All Three High Achievement Categories

Sociometric Areas	High Achievement Self Investment Categories		
	Above the Mean Groups	Between the Mean Groups	Below the Mean Groups
Research	.69[a] N = 78[b]	.49 N = 139	.48 N = 61
Teaching	.53 N = 98	.43 N = 197	.22 N = 99
Nonwork-related	.27 N = 37	.27 N = 81	.72 N = 44

[a]This ratio represents the total number of reciprocal high frequency contacts (scaled responses at the very frequent and frequent contact levels) to the total number of respondents for that self investment category.

[b]See footnotes in Table 15.

Table 19. Redistribution of the Ratios of High Frequency Contacts to the Total Number of Responses to Self Investment Items for All Three Low Achievement Categories

Sociometric Areas	Low Achievement Self Investment Categories		
	Above the Mean Groups	Between the Mean Groups	Below the Mean Groups
Research	.58[a] N = 72[b]	.39 N = 153	.35 N = 81
Teaching	.25 N = 63	.24 N = 126	.27 N = 63
Nonwork-related	.16 N = 32	.21 N = 109	.62 N = 77

[a]This ratio represents the total number of reciprocal high frequency contacts (scaled responses at the very frequent and frequent contact levels) to the total number of respondents for that self investment category.

[b]See footnotes in Table 15.

to the total number of item responses for each category of social contact is less in the low achievement categories (Table 19) than in the high achievement categories (Table 18). For both high and low achievement categories, high self investment is generally associated with greater high frequency contacts with colleagues, but achievement appears to be the most consistent factor influencing high levels of high frequency contact.

By comparing the lower item responses (81) for the high achievement nonwork-related categories with the low achievement categories (109) for the same area of self investment, we find that our suspicion is confirmed, that our population generally consists of low achievers in nonwork-related activities. Also, supporting this conclusion is the evidence from Table 5 that shows that the level of self investment for our population as a whole in nonwork-related activities is comparatively low.

Taking into account the documented argument that the teaching networks are relatively inactive, it appears that our hypothesis is supported. Exclusivity of associations are related to high self investment and these relationships are more likely under conditions of achievement in the area. It appears evident that both high and low self investment groups who are low achievers do not form exclusive collegial contacts to the same degree as high achievers. In the absence of achievement, it seems that socio-emotional needs can be a firm basis for exclusivity of association, but apparently for our population, achievement is the essential factor. In the absence of

achievement, for the research networks, however, while exclusivity of contact is low (Table 16), the ratios of high frequency contacts to item responses for high self investment groups is greater than for the low self investment groups (Table 19).

Assuming that these conclusions apply to other social groups as well, we may begin to focus on these important factors that contribute to strong commitments to activities. Also, where groups form an integral part of the job environment, group cohesiveness and association may be partly conceived as a product of recognition for achievement. In the broadest sense, we may begin to develop a theory explaining how highly successful group efforts and individual successes perpetuate power and control over important segments of society. By virtue of the fact that these groups or individuals associate more often with referent others, the retention of their achieved statuses and the continuation of rights and privileges attached to their positions will probably persist. In contrast, those who remain unrecognized for achievement tend to have fewer referent contacts leading to withdrawal of self investment, which, in turn, contributes to their lack of effectiveness in achieving status or operating as social change agents.

Hypothesis 3

H_3: The greater the self investment in a particular work-related activity, the greater will be self investment in work in general.

This hypothesis has logical appeal since the idea that one will work hardest in those activities where there is high self investment

is difficult to dispute, especially under circumstances where the rewards for productivity are great. The concept of work, as culturally defined, is the accomplishment of a particular task that is valuable to the society and of great importance to the identity of a group whose evaluative frameworks are strongly embedded in successful task performances. Our measure of self investment in work is linked to the group's consensual validation of criteria of performance that for most of its members becomes the link to the evaluative framework for self evaluation. When the group values the end product of one's efforts, then the task performer will ordinarily feel good about being involved in work that leads to social recognition for achievement, providing that there is high self investment in that area of activity. Assuming high self investment in a task area, then achievement in that area of activity will lead to enhancement of self esteem necessary for the encouragement of continued efforts to succeed. This whole self investment process is dependent on successful outcomes for the task performer.

When, as an example, there is only one basic indicator for successful job performance, such as fitting parts on an assembly line, then self investment in work is more likely to be associated with a weekly pay check. It is difficult to possess a strong feeling of accomplishment for something that requires little or no skill. Professional accomplishments, on the other hand, provide an extreme contrast in the variety of task areas whereby many alternatives are available that require creativity and adroitness for successful

outcomes. In general, there are many guidelines and limitations inherent within each discipline that may hamper truly creative efforts. As a general rule, however, the ethics of professionalism promote innovative ideas and assimilation of knowledge to maintain flexibility and change necessary for healthy growth in the disciplines. At the basis of evaluative frameworks, however, are the fundamental guidelines by which most academic accomplishments are judged. Thus, eminent scholars within each discipline are the main reference points for self evaluation of performance in research.

Therefore, for most workers who perform tasks that require little skill or education, annual income is the primary gratification derived from work, although there are other benefits from work such as companionship and relief from boredom. The main point of this discussion, however, is that the primary source of recognition for academicians is scholarly performance, which, in turn, is essential for self esteem maintenance. Self investment in work and in the professional activity are linked to the degree of recognition for achievement in that activity.

Support for this hypothesis is found in Tables 20 and 21 where self investment in work is found to be associated with all three areas of activity. As expected, these associations are particularly strong in the research and teaching areas of activity primarily due to the high prestige and rewards attached. Also, many years of dedication and effort have preceeded professional status so that high self investment in professional activities has become both necessary for achievement and essential for the arduous tasks that

Table 20. Relationship Between Self Investment in Work and in Professional Areas of Activity: Zero Order Correlations (N = 64)

	Self Investment Categories		
Self Investment in Work	High Achievement	Low Achievement	High and Low Achievement Categories Combined
Research activities	r = .17 p = .092	r = .37 p = .001	r = .46 p = .001
Teaching activities	r = .25 p = .022	r = .23 p = .034	r = .41 p = .001

Table 21. Relationship Between Self Investments in Work and Nonwork-Related Areas of Activity: Zero Order Correlations (N = 64)

	High Achievement	Low Achievement	High and Low Achievement Categories Combined
Self investment in work	r = .08 p = .267	r = .29 p = .010	r = .26 p = .019

must be overcome to attain professional recognition. The strongest support for Hypothesis 3 is found in Table 20 for the combined areas of high and low achievement in research ($r = .46$, $p = .001$) and in teaching ($r = .41$, $p = .001$).

While all of the relationships in Table 20 are in the expected direction, only the high achievement category of research is not significant at the .05 level. However, the interaction effects of high and low achievers explains why this correlation (Table 20, $r = .17$, $p = .092$) is relatively low and our analysis of this variable above and below the mean with work (Table 4) illustrates that those who have the highest self investment in research also have high self investment in work ($r = .32$, $p = .036$). This is an important finding, because it clearly demonstrates that there is a significant relationship between high self investment in research and in work for those who have achieved.

The reason for combining both high and low achievement self investment categories is because this form of analysis allows an exact comparison to actual levels of self investment in either research or teaching. Combining achievement and nonachievement items produces a total score reflective of self investment in that area of activity to a greater extent than correlating either achievement or nonachievement items only because, in the first case, we have derived a fair average of self investment whereas, in the second case, we have derived a fraction of the total depending upon the number of items responded to in either achievement or nonachievement categories. Differences

for the two types of analysis is peculiar in nature to the composite variables that have been created from the several items in each self investment area. In general, what is occurring is that in the case of correlating either the high or low achievement composite variables, the total of all scores is the measure of self investment, which, for those who have responded to only a few items, may be very low and therefore not truly representative of their self investment for that entire area of activity. According to this analysis, the lower correlation for the high achievement category of research ($r = .17$, $p = .092$) may be explained, in part, in terms of the aggregate of items responded to by our population, which is 139, compared to 153 items responded to for the low achievement in research category. The same item response analysis may be applied to the nonwork-related area of activity (Table 21), but in the opposite direction, where there are only 81 item responses in the high achievement category and 109 item responses in the low achievement category which reflects the lack of interest that our subjects have in nonwork-related areas of activity. This explains, in part, the insignificant relationship between self investment in work and in the high achievement category for nonwork-related activities ($r = .08$, $p = .267$). Also, self investment in work in general is not expected to relate to nonwork-related activities.

A noteworthy aspect of this analysis are the variations of relationships depending upon the reward structure attached to the activities in question. Self investment in work is least associated with self investment in nonwork-related activities ($r = .26$, $p = .019$)

as expected. While self investment in work is related to self investment in research activities (r = .46) to greater extent than to self investment in teaching activities (r = .41), the difference is not sufficient to warrant comment. In general, it appears that our hypothesis is supported for all three areas of activity. Moreover, the rewards attached to particular activities are more conducive to high levels of self investment in work than to other activities, which follows from self investment theory. The higher the status attached to a particular area of achievement, the greater will be social recognition and hence the more likelihood that role encumbents will have high self investment in work in order to achieve in those activities.

Hypothesis 4

H_4: The greater the cosmopolitan orientation, the greater the likelihood of more frequent contacts with departmental colleagues.

Confirmation of this hypothesis involves a series of tests, the first of which establishes the relationship, if any, between age and cosmopolitanism. Because cosmopolitanism is supposed to reflect academic productivity and national recognition within disciplines, variables relating to these parameters were employed in our analysis. Cosmopolitanism was also correlated with all three areas of self investment to determine whether or not it is characterized exclusively by research concerns. Because the category of external referent contacts is one-third of the cosmopolitan composite variable, any correlation with other variables includes this assumption of outside referent associations. In general, the basic relationships between internal and external referent contacts is confirmed by the following analysis.

It may be argued that research output and national recognition relating to cosmopolitan orientations may be a natural outgrowth of career advancement. Therefore, our first test was to compute partial correlations for the research output variables and cosmopolitanism while controlling for the effects of age. The relationship between age and cosmopolitanism is almost nonexistent ($r = .003$) and the partial correlation test revealed that age has almost no effect on the relationship between research output and cosmopolitanism. It may be inferred from this analysis that cosmopolitan orientations are related to active involvements in external research networks in conjunction with research productivity that results in national recognition within disciplines.

In order to specify the relationship between productivity and cosmopolitanism, the link with the research output variables must be established. The regression analysis employed to test the relationships between research output variables and cosmopolitanism is found in Table 22. The results of this analysis is particularly impressive ($p < .001$) and indicates that the selection of variables comprising the cosmopolitan composite variable partly fulfills the purpose for which they were intended.

Apart from some notable exceptions, Table 22 represents those research output variables previously selected to create the composite variables. Consulting work at the national level is one of those exceptions because it represents recognition for achievement and not achievement itself. It was included in our analysis because it is an indication of one's professional reputation within the discipline's

Table 22. Relationships Between Research Output Variables and Cosmopolitanism: Regression Analysis (N = 67)

Research Output Variables	Simple Correlations
Books published	r = .02
Books edited	r = .32
Articles published in professional journals	r = .24
Research grants received (dollar amount)	r = .32
Consulting work at the national level	r = .24
Papers presented to regional professional associations	r = .34
Papers presented to local professional associations	r = .24
Prestige level of articles published	r = .16

$R = .63$ ($p < .001$), $R^2 = .40$.

characteristic of cosmopolitan status. Another exception is research grants received which is an indication of recognition for competent research potential but not necessarily for research output. Prestige level of journals in which articles were published is an indication of cosmopolitanism because it represents national recognition within the discipline, although it does not necessarily qualify as a measure of research output because the prestige rank of journals does not always represent the quality of articles contained. While quality of performance is important for national reputation of scholars, it is difficult to measure unless citation index analysis is conducted which for the purpose of our study was impractical due to the many diverse social

science disciplines and the variety of interests represented by our population. With the exception of books published, most of the variables selected are fair indicators of cosmopolitanism. The very few members of Department SS3 who have published an inordinate number of books in comparison to most other cosmopolitans accounts for much of this low correlation.

Recognition of cosmopolitans within their departments is suggested by the data in Table 23 where it is clear that there is a strong link with the research sociometric networks ($r = .32$, $p = .005$) at the high frequency level of contact and a moderately strong link for the nonwork-related sociometric networks ($r = .21$, $p = .046$) for the same category. These associations found in the research and nonwork-related networks may be explained in the context of our previous analysis revealing that these two sociometric networks are closely linked. Because of the relative isolation found for the teaching sociometric networks, the insignificant relationship ($r = .15$, $p = .110$) at the high frequency contact level is understandable. The stronger associations for the teaching networks for reciprocal links at all frequency levels ($r = .28$, $p = .001$) and for strength of sociometric links ($r = .24$, $p = .026$) may be partly explained by noting that these associations are based on "occasional" contacts and, in most cases, these contacts are natural outcomes of the more frequent contacts with the same colleagues for "getting together for research related reasons." Thus, it appears evident that there is a strong link between cosmopolitan status within the disciplines and recognition by colleagues within academic departments.

Table 23. Relationships Between Cosmopolitanism and Frequency of Contact with Departmental Colleagues for Three Networks: Zero Order Correlations

Sociometric Networks	Cosmopolitanism		
	Sociometric Links at All Frequency Levels	Strength of Sociometric Links	Sociometric Links at High Frequency Levels
Research network	r = .31 p = .005 N = 67	r = .31 p = .007 N = 64	r = .32 p = .005 N = 67
Teaching network	r = .28 p = .011 N = 67	r = .24 p = .026 N = 64	r = .15 p = .110 N = 67
Nonwork-related network	r = .25 p = .019 N = 67	r = .27 p = .016 N = 64	r = .21 p = .046 N = 67

Confirmation of the tie between external referent contacts and collegial associations within the departments is found in Table 24. The strongest associations appear to be at the level of all frequencies of contact for "exchanging ideas and papers" ($r = .49$, $p = .001$) and for "actively working on research projects, professional articles, books, etc." ($r = .51$, $p = .001$). For sociometric links at high frequency levels, we find strong associations with "exchanging ideas and papers" ($r = .48$, $p = .001$) and a moderate association with "actively working on research projects, professional articles, books, etc." ($r = .27$, $p = .016$). Also, for the strength of sociometric links, there are significant correlations in both areas of referent contact. This means that in general

Table 24. Relationships Between Internal (Departmental) and External (Disciplinary Networks) Research Networks (N = 63)

	Departmental Research Networks		
Disciplinary Research Networks	Sociometric Links at All Frequency Levels	Strength of Sociometric Links	Sociometric Links at High Frequency Levels
Exchanging ideas and papers	r = .49 p = .001	r = .40 p = .001	r = .48 p = .001
Actively working on research projects, professional articles, books, etc.	r = .51 p = .001	r = .21 p = .050	r = .27 p = .016

the ratio of high frequency contacts to low frequency of contacts is high.

While previous studies (Gouldner, 1957, 1958; Blau, 1973) emphasize that those with cosmopolitan orientations tend to hold strong commitments to external research networks and weak loyalties to their local institutions, these studies do not address the question of actual contact with departmental colleagues. It is possible, for example, that Gouldner would have arrived at the same conclusions in his study of Co-op College that we did, if he had conducted sociometric network analysis on both research and teaching networks instead of concentrating exclusively on one network where participation was based entirely on "social popularity." This shortcoming has persistently plagued

cosmopolitan and local studies ever since Gouldner's study. As an example, Berger and Grimes (1973) in their analysis of the cosmo-local construct found little evidence to support a "reference group orientation" situated mainly outside of the local institution.

Several studies have involved a comprehensive analysis of external research networks for particular disciplines by relying primarily on citation data (Mullins et al., 1977; Small, 1977; Mulkay, 1974, 1975; Mullins, 1972; Breiger, 1976; Crane, 1972), and until now, there has been no attempt to link these external scientific networks with research networks within academic departments. Thus, by linking both networks together a more complete picture of collegial association results.

It is likely that by applying the research design of our study to a primarily teaching-oriented institution, the opposite patterns of referent contact will emerge insofar as dominant social networks are concerned. Strong teaching orientations among the majority of faculty members will result in teaching and social networks being linked. Testing for both research and teaching networks, however, probably would reveal active research networks within these institutions linked with external disciplinary networks. However, these research networks are not expected to be particularly active in comparison to those found in most prestigious universities. It is likely that these conditions prevailed at Gouldner's Co-op College, but because of the sociometric methodology used, this information was not obtained. Having a cosmopolitan status does

not mean a lack of commitment or loyalty to the local institution. It merely points to a firm reliance on recognition for achievement from referent others within one's own discipline. This recognition is crucial for self esteem maintenance necessary for continuing efforts to succeed. In this context, commitments are to professional networks serving faculty members most essential needs, but not necessarily to the organizational commitments and goals of the local institution where professional needs may remain unmet.

It is probably true that national recognition and strong ties to external networks lead to weaker ties with local institutions, but at the same time cosmopolitan status is certain to attract attention and deference from colleagues and students alike. Virtually all of the items used in the cosmo-local studies to test for professional orientations and loyalty to the local institution have concentrated on concerns for students and administrative rules governing student affairs rather than on faculty needs for research facilities and ties with research networks within the local institution. It is therefore suggested that two areas of commitment exist. These commitments may be categorized as the business of teaching undergraduate students and the business of teaching graduate students and doing research work that partly depends on local referent contacts that, in effect, strengthen attachments to the local institution. Having adequate research facilities contributes to these attachments by providing the means to retain and perpetuate cosmopolitan statuses. Tenure also adds to the strength of these loyalties by providing job security and academic freedom to pursue research interests.

CHAPTER V

SUMMARY AND CONCLUSION

In general, empirical support has been found for all four of the hypotheses tested. Discussion of these findings in this chapter includes summary statements of the results and directions for fruitful applications of self investment theory. The findings corroborate the main propositions of self investment theory and, in addition, have given new meaning to the concept of cosmopolitanism. Moreover, a new finding concerning the relationship between frequency of contact with referent others and achievement emerged. Although our survey population consisted of academic professionals, the theory of self investment is intended to apply to the entire area of occupational achievement as a practical theory for understanding important social factors associated with work. Previous research conducted in industrial organizations has strongly suggested that interaction with colleagues is associated with high levels of performance in the laboratory. "There seems to be a consistent trend for those who exchange information with many people to perform at high levels" (Pelz and Andrews, 1966, p. 41). Because of the importance of social recognition for maintenance of self esteem, self investment theory is an important framework for comprehending the most essential interrelationships between personality characteristics and social structure.

We have attempted to avoid applications of lineal causal models to frame the variables of our study. Although self investment theory implies causal links between self investment, frequency of evaluation and recognition for achievement, it doesn't restrict analysis to independent, intervening and dependent variables. This does not negate the possibility of defining social psychological variables as being causally related, especially for heuristic purposes. It is more convenient, however, to treat social factors as reciprocally linked with one another without specifying a direction of causal relationships.

Achievement is the most important factor of our study mainly because frequency of contact with referent others and self investment are regarded as being dependent upon it. In this context, achievement may be defined as an independent variable. Alternatively, achievement may be treated as a dependent variable because self investment in work is essential for the attainment of success. To avoid unnecessary confusion, relationships among self investment variables are regarded as reciprocally related with achievement posited as the most important factor for our analysis.

Our findings clearly show that there is a direct relationship between self investment and levels of achievement. Relationships between the three research output variables and self investment in research are all clearly significant ($p = .001$). Moreover, to illustrate the impact of achievement on self investment, Table 5 shows that the mean for all self investment items in areas where there has been achievement

is 4.89 compared to 4.00 for the item in areas where there has been no achievement, which, overall, constitutes an 18 percent difference.

The effects of achievement on levels of self investment is also clear from our analysis of achievement with age (Table 6). Thus, failure to attain recognition for achievement in research activities tends to result in withdrawal of self investment with age ($r = -.45$, $p = .001$). These same withdrawal tendencies are found for those who fail to gain recognition for teaching ($r = -.43$, $p = .001$). The same type of relationship also holds for nonacademic activities ($r = -.34$, $p = .003$), but to a lesser extent. An interpretation of these findings is that failure to gain social recognition for achievement threatens self esteem resulting in less concern for achievement, which means lower self investment.

Changes in levels of self investment with age were minimal for those who have achieved. The obvious differences found between high and low achievement self investment categories may be due, in part, to the high levels of self investment of most of our subjects in professional activities. It is possible that these differences would not emerge to the same extent for nonprofessional occupational groups. For assembly line workers, as an example, other activities found outside of work may be more important and necessary for self esteem maintenance than work. Thus, leisure activities, commitments to fraternal organizations and the family may suffice as primary sources for self esteem maintenance.

As expected, frequency of contact with referent others in the research networks is significantly associated with self investment in research ($r = .30$, $p = .008$). Frequency of contact with referent others in the teaching networks is correlated with self investment in teaching ($r = .38$, $p = .001$). Failure for Hypothesis 2 to hold for the relationship between frequency of contact in the nonwork-related sociometric networks and self investment in nonwork-related self investment activities has been explained by noting that those who are most actively involved in the nonwork-related networks have high self investment in research but low self investment in nonwork-related activities at the high intensity level of contact ($r = .31$, $p = .006$); thereby establishing the strong link between the research and nonwork-related sociometric networks.

The relative isolation of the teaching networks from the research and nonwork-related networks is mainly the consequence of faculty members of Department SS2 being required to participate in scheduled curriculum meetings of their department. Most of our population have high self investment in research activities as well as being actively involved in the research networks of their departments. The strong link between the research and the nonwork-related networks can be attributed to the strong research climate of this university. Under conditions of a weak research climate, the most likely link will be between the teaching and the nonwork-related sociometric networks.

Again, the close associations between the research and nonwork-related sociometric networks explains why active participation in both of these networks is related to the three measures of research output (Tables 11-13). Failure of the teaching sociometric networks to be significantly related to the three research output measures of achievement at the high frequency level of association, which is the most dependable category of referent contact, supports our contention that the teaching networks are relatively isolated from the other two networks. This analysis has shown that frequency of contact with referent others, in addition to being associated with self investment, is also significantly associated with academic achievement.

Previously, Gouldner and others have concluded that cosmopolitanism is primarily associated with loyalty and commitments that are outside of the university. Our findings clearly show that cosmopolitanism is related to referent associations within academic departments as well as referent associations within disciplinary networks. Partial support for this assertion is found in Table 14 where self investment in research is associated with participation in disciplinary networks outside of the university in the category of "mostly exchanging ideas and papers" ($r = .20$, $p = .055$) and in the category of "mostly actively working with on research projects, articles, books, etc." ($r = .28$, $p = .014$).

Our contention that exclusivity of social contact is associated with similar levels of self investment is confirmed (Table 15) for professional activities in which there has been some achievement.

Failure for the teaching sociometric networks to form into exclusive group associations has been explained, in large part, as a consequence of the relative inertness of these networks compared with the research and nonwork-related networks. For the low achievement categories of activity, lack of exclusivity of contact, except for the nonwork-related networks (Table 16), may, for the most part, be explained by the absence of achievement associated with these categories, as already suggested. Although our analysis reveals that generally low achievement reduces exclusivity of contact, we also found that, in the absence of achievement, high self investment contributes to greater exclusivity of contact (Table 19). Thus, an important finding to emerge from our study is that exclusivity of contact with referent others is primarily associated with achievement and also high levels of self investment.

Taking into consideration both achievement and high levels of self investment, achievement appears to have the strongest impact on frequency of contact with significant others (Table 18). You would expect, on the basis of expressive needs alone, that those who have low self investment in activities will tend to form exclusive group associations to the same extent as those who have high self investment in those same activities. Evidence from Tables 18 and 19, however, refutes this expectation for our population. In the absence of achievement, for eight out of nine self investment categories of association, exclusivity of association is lower (Table 19).

This finding concerning the strong impact that achievement has upon frequency of contact with referent others may have broader consequences. In effect, these strong occupational reference group associations may facilitate the formation and perpetuation of powerful group conditions. Those who have achieved less and who are therefore at the bottom of the status hierarchy of society are generally more vulnerable to the control and influence of the more powerful social classes perhaps because their relative inactivity within occupationally-related social networks makes it more difficult for viable group coalitions to form. Active involvement in nonwork-related activities often provides compensation for self esteem lost at work, but for the most part, removes workers from sources of power and influence in society. Therefore this type of analysis is most fruitfully applied to occupations where most of the high status positions of society are located. The lack of membership participation in union activities as compared to management participation in business-related activities can also be partly understood as a consequence of the effects of high status and related high levels of self investment found among managerial workers as compared to unskilled and semi-skilled workers. Although as with any fledgling development of ideas, the general applications of our findings require further analysis and testing, we may begin to apply the principles derived from this study to other work settings as well as to most groups, institutions and organizations where wealth and power are maintained.

An important, but not unexpected, finding of our study is that self investment in particular activities is related to self investment in work in general. Furthermore, these relationships appear to be stronger under conditions where the status and rewards attached to that activity are greatest. Because each of the high and low achievement categories of self investment comprise a fraction of the total responses for that area of self investment, any correlations with the one item response for self investment in work in general is bound to reflect only part of the total picture. A more accurate picture emerged when we combined both high and low achievement categories for each of the three self investment areas. The result of these correlations with the combined categories is convincing evidence for our hypothesis. The relationships between self investment in work in general and self investment in research ($r = .46$, $p = .001$) and with self investment in teaching ($r = .41$, $p = .001$) are strong associations.

In comparison to other occupational groups that are lower on the status assignment system for society as a whole, especially for those on the very bottom (e.g., janitors, laborers, etc.), professional occupations stimulate high levels of self investment in work as a result of the prestige and rewards attached to the positions. It is also likely that professional occupations attract those who have high self investment in work in the first place. Also, recognition in professional activities strengthens these commitments. During early career stages, before the demands of specialization dominate most professional activities, self investment in work probably became

manifested in other activities as well. For our population as a whole, however, the relationship between self investment in work and in nonwork-related activities is moderate ($r = .26$, $p = .019$). The fact that this correlation is lower than that between self investment in work and self investment in professional activities may be explained by the lower levels of self investment for our population in nonwork-related activities which, in part, may be the result of lower prestige and rewards attached to these activities.

Cosmopolitan orientations of our population are related to frequency of contact with referent others and also correspond to high levels of research output, as expected. Because of the strong research climate for this university in combination with the strong research orientations of our subjects, departmental research networks dominate most professional activities. Extent of participation in these research networks links up significantly with cosmopolitan orientations ($r = .32$, $p = .005$). Participation in nonwork-related sociometric network also links up with cosmopolitanism ($r = .21$, $p = .046$).

Moreover, departmental research sociometric networks link up significantly with the external research networks where the criterion of association is "exchanging ideas and papers" ($r = .48$, $p = .001$) and also with the external research networks where the criterion of association is "actively working with on research projects, professional articles, books, etc." ($r = .27$, $p = .016$). Thus, it is apparent that research activities, as reflected by participation in both internal and external research networks represent the degree of concern for

achievement within the disciplines as a whole. In this context, recognition for achievement among departmental faculty is as important for enhancement of self esteem as recognition for achievement from referent others outside of the university. Actually, disapproval by departmental colleagues is probably more likely to have negative consequences for self esteem maintenance than disapproval by referent others outside of the university unless departmental colleagues lack strong research orientations, in which case, their evaluations will have less of an impact on self esteem. The research climate of the university is an important factor for determining the frequency of contact and exclusivity of association in departmental research and social networks. The higher the research output of the faculty, the more likely will they have high self investment in research activities as well as possessing cosmopolitan orientations.

Several research goals have been incorporated into this study, the most important of which is validation of the theory of self investment. The results of our tests clearly corroborate the basic self investment propositions. Currently, Faunce is conducting a series of tests among a variety of work groups and other studies are planned for the future in other countries as well as the United States. This study is unique, however, because it centers entirely on the academic community. To date, this is the only known attempt to concentrate an entire study on academic departments that, in essence, constitute separate social environments influencing professional orientations. While several studies have been concerned with academic departments,

they have not conducted sociometric analysis within these departments, but, instead, they have either concentrated on specific academic disciplines or else total college or university environments. This may be partly the consequence of the reluctance of faculty members to participate in the type of study that we were fortunate enough to conduct. Further development of this study is necessary to obtain additional data and insight into the social factors influencing professional commitments, loyalties and research output. In particular, this research should be extended to other universities and colleges where different types of organizational climates exist.

A major reason underlying our heavy reliance on data regarding actual interaction processes among faculty members was to avoid the pitfalls of relying exclusively on attitudinal data regarding cosmopolitanism which has plagued research efforts in the past. Although some agreement between attitudes and social action is expected, there are also some distortions on account of normative responses derived from professional orientations, societal expectations, degree of self investment in the areas in question, and reactions to the status and demeanor of the interviewer. Some problems relating to these issues are unavoidable whenever personal interviews are conducted, but these effects may be reduced providing that care is taken to concentrate most questions on subjects that may be confirmed through vitae information and sociometric network analysis. It would be useful, however, to obtain attitudinal data from the same population, especially where there appears to be obvious discrepancies between cosmopolitan attitudes and actual reference group associations.

A large study of university settings encompassing referent associations outside of academic departments is necessary to gain a better understanding of different types of social and research networks influencing self investment and achievement. An obvious advantage in enlarging this research effort is that additional subjects, given variations in social environments, would allow for a more thorough testing of our hypotheses. Additional hypotheses may then supplement our study to include interdepartmental referent associations. Interdepartmental sociometric analysis is especially required in those universities and colleges where there are only a few faculty members in each department. Therefore, more interdisciplinary association is expected. It is also necessary to study interdepartmental referent associations in larger research-oriented universities. As an example Friedkin contends that in the area of the physical sciences interdepartmental social networks exert the strongest influence on research communication among faculty (Friedkin, 1978). Friedkin's study did not, however, deal with the relationships between frequency of contact with colleagues and academic achievement that we regard as crucial for the self investment process. Hence, what is required to gain a more complete understanding of the social processes associated with academic achievement is to combine the analysis of departmental collegial associations with collegial associations within interdepartmental networks as well as with those outside of the university.

In conclusion, we have found significant interrelationships among the most important self investment variables: level of self

investment, frequency of contact with referent others, exclusivity of referent contacts and recognition for achievement. Our analysis of cosmopolitanism has revealed that it is significantly associated with high self investment in research, high academic achievement, and referent contacts within academic departments as well as within research networks outside of the university. The theory of self investment places strong emphasis upon the status assignment system as the main impetus for social action vis-à-vis the prestige and rewards attached to social outcomes. For our study, faculty members relate to a unique status assignment system and, as Hagstrom (1965) has suggested, both informal and formal sources of recognition provide rewards for academic achievement. For those faculty members who are high achievers as well as having high self investment in research, frequency of contact with referent others is greater and more rewarding than for those who are low achievers. Also exclusivity of collegial association is greater for high achievers. This results in self esteem enhancement through social recognition sufficient to sustain efforts to achieve.

APPENDIX A

INTERVIEW QUESTIONNAIRE

APPENDIX

INTERVIEW QUESTIONNAIRE

I.D. #

Dr. Faunce has sent you a letter briefly explaining the nature of this study and why you have been selected to be interviewed. I will ask you the questions and record the information myself so that you do not have to bother with filling anything out.

An identification number appears on this questionnaire instead of your name to insure that the information obtained in this interview remains in the strictest confidence. You may rest assured that all of the information exchanged in this interview will be confidential. No one, not even members of my committee, will know which members represent which persons. The first set of questions pertains to yourself and your profession.

1. What is your age? _____

2. Marital status? _____ Number of children? _____ Their ages _____

3. Sex? (1) Male _____ (2) Female _____

4. Profession? _____

5. What academic degrees have you earned?

	Year Received	Institution
[ ] B.A. or B.S.	_____	_____
[ ] Ph.D.	_____	_____
[ ] M.D.	_____	_____
[ ] Other _____ (Specify)	_____	_____

6. Now I would like to know something about your occupational background. Have you any positions at this university that are substantially different from the one you have now? An administrative position, for example? If yes, what was that job and how long did you have it?

Position	Period of Occupancy
_____	From 19__ to 19 __
_____	From 19__ to 19 __
_____	From 19__ to 19 __

7. Beginning with the job you had prior to your present one, please list the full-time jobs you have had since leaving graduate school.

Employing Organization	Job	Period of Employment
_____	_____	From 19 __ to 19 __
_____	_____	From 19 __ to 19 __
_____	_____	From 19 __ to 19 __
_____	_____	From 19 __ to 19 __
_____	_____	From 19 __ to 19 __

8. Do you have tenure? yes ___, no ___. If yes, what year were you tenured? _____

9. Here is a card with a scale from one to ten on it. The scale is intended to represent the range in the extent to which success of failure at work affect our feelings about ourselves. A person for whom work is the most important thing in life and who must be successful at work in order to think well of himself (herself) would be at the extreme left end of this scale. The other end of the scale would represent a person who regards other things as being more important than work and who does not need to succeed at work in order to feel that he (she) is a success.

   ____ a. What point on this scale represents the importance of work to your feelings about yourself?

   ____ b. At what point would you say you were five years ago?

   ____ c. How about five years from now?

10. Have you published any articles in professional journals? yes ___, no ___. If yes, how many? _____. In what journals?

    _____, _____, _____,
    _____, _____, _____,
    _____, _____, _____.

11. Have you published any books? yes ___, no ___. If yes, how many of these were written? _____. How many of these were edited? _____.

12. Do you referee articles for any journals? yes ___, no ___. Which journals?

    _____, _____, _____.

13. Are you now doing or have you done any outside consulting work? yes ___, no ___. If yes, what is the nature of this consulting work?

14. Do you now hold or have you in the past held any elected offices with local or national associations? yes ___, no ___. If yes, which ones?

_____, _____, _____.

15. Have you presented papers at meetings of professional associations? yes ___, no ___. If yes, how many? _____ and which associations?

_____, _____, _____,
_____, _____, _____.

16. Have you obtained any research grants where funds were primarily external to the university? yes ___, no ___. If yes, what were the appropriate dollar values of these grants?

$_____, $_____, $_____, $_____, $_____,
$_____, $_____, $_____, $_____, $_____.

17. What courses do you normally teach? _____, _____,
_____, _____, _____, _____.

18. How many credit hours are you teaching this term? _____. How many credit hours are you obligated to teach this year? _____.

19. Are you a member of any committees at the college level? yes ___, no ___. If yes, which ones? _____, _____,
_____, _____, _____.

At the university level? yes ___, no ___. Which ones? _____
_____, _____, _____.

Do you chair any of these committees? yes ___, no ___. Which ones? (numbered above).

20. For how many graduate students do you serve as principal advisor? _____. At the M.A. level _____. Ph.D. level _____.

21. How many of these students are actively working with you on their theses or dissertations? M.A. level _____. Ph.D. level _____.

22. Now I have some questions of a different sort. We are interested in the kind of criteria that are used in collegial evaluations in this department. We are not so much interested in the formal criteria used in making tenure decisions as we are in the everyday evaluations that colleagues make of each other's work. Different people may use different bases for making those evaluations. What are the criteria for evaluation that you personally regard as most important?

Are there any others? (probe)

23. You have mentioned (repeat all criteria). Now would you please rank these criteria in order of importance. Which is the most important? Which next? (etc.)

24. How much agreement would you say there is in this department regarding the way you have ranked these criteria?

    Almost complete _____, some _____, little _____, very little _____.

25. (If less than almost complete) Would you say that a majority of members of your department share your view? yes ___, no ___.

26. If no, what are the differences in criteria used?

27. How certain are you about how you are evaluated by your collegaues in the department?

    very certain ___, certain ___, uncertain ___, very uncertain ___.

28. (If less than certain) Is that a result of the differences in criteria being used? yes ___, no ___.

29. If no, why?

30. Now here are a set of cards containing categories commonly used in universities for evaluating performance. Please rank order them in terms of the importance of each category for how you personally evaluate your colleagues in the department.

    _____ publishing books
    _____ teaching undergraduate students
    _____ receiving research grants
    _____ editing books
    _____ teaching graduate students
    _____ publishing articles
    _____ consultation work external to the department
    _____ community service activities.

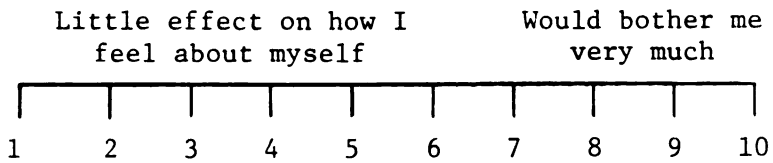
31. How much agreement would you say there is in this department regarding the way you have ranked these criteria?

    almost complete _____, some _____, little _____, very little _____.

32. (If less than almost complete) Would you say that a majority of members of your department share your view? yes ___, no ___.

33. If no, what are the differences in criteria used?

The next set of questions relates to how much you are concerned or bothered by the possibility of failure with regard to certain outcomes of your life. Here is a card with a scale of responses to the following items. Please tell me the number which corresponds with your responses to each of the following situations.



Response categories for questions 26-42

a. If yes, this question is read and the subject's response from the scale is recorded.

b. If no, this question is read and the subject's response from the scale is recorded.

34A. (If subject has published a book.) You said you have published a book. Did it receive a favorable evaluation by others in your field? yes ___, no ___.

___ a. How would you feel if you published another book, but this time it did not receive a favorable evaluation by others in your field?

___ b. How would you feel if you published another book which again did not receive a favorable evaluation by others in your field?

B. (If subject has not published a book.) You said you have not published a book. How would you feel if you published a book which did not receive a favorable evaluation by others in your field.
___

35A. (If subject has belonged to a professional association.) You said you have held an office in a professional association on your field.

___ a. How would you feel if you never again were elected to a professional association in your field?

B. (If subject has not belonged to a professional association.) You said you have not held an elected office in a professional association of your field.

___ b. How would you feel if you were never elected to such an association?

36. Do you have a reputation for being active in political affairs in your community? yes ___, no ___.

___ a. How would you feel if you were never again recognized by anyone as being active in political affairs of your community?

___ b. How would you feel if you were never recognized by anyone as being active in political affairs of your community?

37. Are you generally recognized by your colleagues as an especially good teacher? yes ___, no ___.

___ a. How would you feel if you were never again recognized as an especially good teacher?

___ b. How would you feel if you were never recognized as an especially good teacher?

38A. (If subject has received a research grant.) You said that you have not received a research grant.

___ a. How would you feel if you never again received a research grant?

B. (If subject has not received a research grant.) You said that you have not received a research grant.

___ b. How would you feel if you never receive one?

39. Do you own a home that others compliment you about? yes ___, no ___.

___ a. How would you feel if you never again received compliments about your home?

___ b. How would you feel if you are never complimented about a home that you own?

40. Are you recognized by your colleagues as an especially creative and productive scientist? yes ___, no ___.

___ a. How would you feel if you never again received recognition as an especially creative and productive scientist?

b. How would you feel if you never received recognition as an especially creative and productive scientist?

41. Are you sought out by colleagues for advice concerning matters of teaching? yes ___, no ___.

___ a. How would you feel if you were never again sought out for advice concerning matters of teaching?

___ b. How would you feel if you were never sought out for advice concerning matters of teaching?

42. Have you published an article in a leading journal of your field? yes ___, no ___.

___ a. How would you feel if you never again publish an article in a leading journal of your field?

___ b. How would you feel if you never publish an article in a leading journal of your field?

43. Do you have some hobby or leisure activity that others regard you as especially good at? yes ___, no ___.

___ a. How would you feel if you were never again recognized as being good at that activity?

___ b. How would you feel if you were never recognized as being good at any hobby or leisure activity?

44. Have you been selected to an important college or university committee assignment? yes ___, no ___.

___ a. How would you feel if you were never again selected to an important college committee assignment?

___ b. How would you feel if you were never selected to an important college committee assignment?

45. Do you have a reputation for being successful at counseling students? yes ___, no ___.

___ a. How would you feel if you never again received recognition as a successful counselor?

___ b. How would you feel if you never received recognition as a successful counselor?

46. Are you recognized by others as being active in a local community or fraternal organization? yes ___, no ___.

___ a. How would you feel if you were never again recognized as being active in a community or fraternal organization?

___ b. How would you feel if you were never recognized as being active in a community or fraternal organization?

47. Have you been elected to the (department advisory committee)? yes ___, no ___.

___ a. How would you feel if you were never again elected to the department advisory committee?

___ b. How would you feel if you were never elected to the department advisory committee?

48. Have you been getting good responses from students in classes? yes ___, no ___.

___ a. How would you feel if you never again got good responses from students in classes?

___ b. How would you feel if you never got good responses from students in classes?

This next set of questions is intended to ascertain how you allocate your time with regard to your profession.

49. a. Are you writing a book? yes ___, no ___. If yes, _____ hours per week.

b. Are you editing a book? yes ___, no ___. If yes, _____ hours per week.

c. Are you writing an article for a professional journal? yes ___, no ___. If yes, _____ hours per week.

d. Are you currently involved in preparing a research proposal? yes ___, no ___. If yes, _____ hours per week.

50. Are you revising or preparing a new course? yes ___, no ___. If yes, _____ hours per week.

51. Approximately how many hours per week do you normally spend preparing for your courses? _____ hours per week.

This last set of questions is intended to ascertain the nature and frequency of your contacts with members of your department. Here is a card showing categories of contact (1 = very frequently, 2 = frequently, 3 = infrequently, 4 = never). I will first read to you the faculty member's name. Please tell me the number for each of the three categories that best reflects your level of contact with this colleague. We will proceed in this manner through a list of faculty members of your department.

Names of faculty	Exchanging ideas on research projects, papers, articles or books	Exchanging ideas on course related material	Getting together mainly for nonwork-related reasons

52. Excluding former colleagues and students, are there people in your field outside of this university with whom you exchange papers or correspond about work-related matters? yes ___, no ___. If yes, how many? _____. How often do you do this?

What is the nature of your correspondence?

When was your last contact? _____

Are these contacts increasing ___, decreasing ___, remaining about the same ___.

53. Are there (name of social science) outside of this university with whom you are working on research projects, professional articles, books, etc.? yes ___, no ___. If yes, how many (name of social science) are there? _____. How often are you or have you done this? _____

_____

When was your last contact? _____

What is the nature of your correspondence?

Are these contacts increasing ___, decreasing ___, remaining about the same ___.

54. Please think of five families with whom you or your family (if married) most often get together on social occasions. What is the occupation of the principal wage earner of each family? Please be specific (e.g., professor of botany). If any of these friends are colleagues from your department, please identify them by name.

	Occupations	Name, if in the Department
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

APPENDIX B

DISTRIBUTION OF FACULTY BY AGE

APPENDIX B

DISTRIBUTION OF FACULTY BY AGE

Table B.1 Age Distribution of Faculty by Academic Department

Academic Departments	Age			
	26-34	35-44	45-54	55-64
SS1	N = 10	N = 5	N = 1	N = 5
SS2	N = 2	N = 9	N = 2	N = 6
SS3	N = 7	N = 7	N = 4	N = 9
Total	N = 19	N = 21	N = 7	N = 20

Table B.2 Distribution of Research Output for Department SS1 by Age

Research Variables	Age			
	26-34	35-44	45-54	55-64
Books	4	5	1	13
Books edited	0	0	2	1
Journal articles	55	32	15	48
Papers delivered	23	29	5	19
Grants received	7	4	1	7
Dollar amount of grants received	470*M*	193*M*	25*M*	60*M*

Table B.3 Distribution of Research Output for Department SS2 by Age

Research Variables	Age			
	26-34	35-44	45-54	55-64
Books	0	1	0	3
Books edited	0	0	0	4
Journal articles	6	25	9	58
Papers delivered	5	47	19	46
Grants received	2	3	0	3
Dollar amount of grants received	13*M*	59.5*M*	0	42*M*

Table B.4 Distribution of Research Output for Department SS3 by Age

Research Variables	Age			
	26-34	35-44	45-54	55-64
Books	4	3	11	31
Books edited	1	4	0	5
Journal articles	34	93	138	227
Papers delivered	21	110	46	19
Grants received	6	3	7	7
Dollar amount of grants received	162*M*	400*M*	70*M*	171*M*

APPENDIX C

FREQUENCY DISTRIBUTION OF VARIABLES

Table C.1 Frequency Distribution of Self Investment in Research Activities

Level of Self Investment	Self Investment Composite Variables by Department					
	Department SS1 (N = 21)		Department SS2 (N = 19)		Department SS3 (N = 27)	
	Achievement	Nonachievement	Achievement	Nonachievement	Achievement	Nonachievement
High						
36-40[a]	--	1	--	--	--	--
31-35	1	--	--	--	--	1
26-30	4	1	1	2	3	--
21-25	2	--	1	3	6	1
16-20	2	6	3	2	7	2
11-15	5	5	1	1	3	6
6-10	5	5	6	9	4	4
0-5	2	3	7	2	4	13
Low						

[a]Categories represent total of self investment responses for all five items of each variable.

Table C.2 Frequency Distribution of Self Investment in Teaching Activities

Level of Self Investment	Self Investment Composite Variables by Department					
	Department SS1 (N = 21)		Department SS2 (N = 19)		Department SS3 (N = 27)	
	Achievement	Nonachievement	Achievement	Nonachievement	Achievement	Nonachievement
High						
46-52[a]	--	--	1	--	--	--
41-45	--	--	3	--	1	--
36-40	--	--	--	--	2	--
31-35	1	--	4	--	1	--
26-30	2	1	7	--	5	--
21-25	6	2	1	2	1	1
16-20	4	3	2	1	10	--
11-15	4	3	1	1	3	2
6-10	3	8	--	5	3	8
0-5	1	4	--	10	1	16
Low						

[a]Categories represent total of self investment response for all six items of each variable.

Table C.3 Frequency Distribution of Self Investment in Nonwork-Related Activities

Level of Self Investment	Self Investment Composite Variables by Department					
	Department SS1 (N = 21)		Department SS2 (N = 19)		Department SS3 (N = 27)	
	Achievement	Nonachievement	Achievement	Nonachievement	Achievement	Nonachievement
High						
36-40[a]	--	--	--	--	--	--
31-35	--	--	--	--	--	--
26-30	1	--	--	--	--	--
21-25	--	--	--	1	1	1
16-20	1	1	1	--	1	1
11-15	2	2	2	1	5	1
6-10	2	4	4	5	5	9
0-5	15	14	12	12	15	15
Low						

[a]Categories represent total of self investment responses for all four items of each variable.

Table C.4 Frequency Distribution of Sociometric Links for the Research Sociometric Networks by Department

	Reciprocal Links	Academic Departments		
		Department SS1 (N = 21)[a]	Department SS2 (N = 19)[b]	Department SS3 (N = 27)
Frequency of contact at all frequency levels	26-30	--	--	--
	21-25	--	--	--
	16-20	2	--	11
	11-15	5	5	8
	6-10	7	11	4
	0-5	5	2	4
Frequency of contact at high intensity frequency levels	26-30	--	--	--
	21-25	--	--	--
	16-20	1	--	6
	11-15	1	--	4
	6-10	8	11	8
	0-5	9	7	9

[a]The total number of possible reciprocal links is two less than the faculty population because of missing data for this department.

[b]The total number of possible reciprocal links is one less than the faculty population because of missing data for this department.

Table C.5 Frequency Distribution of Sociometric Links for the Teaching Sociometric Networks by Department

	Reciprocal Links	Academic Departments		
		Department SS1 (N = 21)[a]	Department SS2 (N = 19)[b]	Department SS3 (N = 27)
Frequency of contact at all frequency levels	26-30	--	--	--
	21-25	--	--	1
	16-20	--	--	10
	11-15	1	11	6
	6-10	10	7	8
	0-5	8	--	2
Frequency of contact at high intensity frequency level	26-30	--	--	--
	21-25	--	--	--
	16-20	--	1	1
	11-15	--	5	3
	6-10	4	6	9
	0-5	15	6	14

[a]The total number of possible reciprocal links is two less than the faculty population because of missing data for this department.

[b]The total number of possible reciprocal links is one less than the faculty population because of missing data for this department.

Table C.6 Frequency Distribution of Sociometric Links for the Nonwork-Related Sociometric Networks by Department

		Academic Departments		
	Reciprocal Links	Department SS1 (N = 21)[a]	Department SS2 (N = 19)[b]	Department SS3 (N = 27)
Frequency of contact at all frequency levels	26-30	--	--	--
	21-25	--	--	5
	16-20	--	--	7
	11-15	5	3	7
	6-10	8	8	2
	0-5	6	7	6
Frequency of contact at high intensity frequency levels	26-30	--	--	1
	21-25	--	--	2
	16-20	--	--	4
	11-15	--	--	6
	6-10	5	3	6
	0-5	14	15	8

[a]The total number of possible reciprocal links is two less than the faculty population because of missing data for this department.

[b]The total number of possible reciprocal links is one less than the faculty population because of missing data for this department.

Table C.7. Frequency Distribution of Self Investment in Work by Department

Self Investment in Work		Academic Department		
		Department SS1 (N = 21)	Department SS2 (N = 19)	Department SS3 (N = 27)[a]
High	1	1	3	--
	2	4	6	9
	3	8	3	4
	4	4	4	4
	5	1	1	4
	6	2	--	--
	7	1	2	2
	8	--	--	2
	9	--	--	1
Low	10	--	--	--

[a]The total number of reciprocal links is one less than the faculty population because of missing data for the department.

Table C.8 Frequency Distribution of Cosmopolitanism by Academic Department

Cosmopolitanism		Academic Department		
		Department SS1 (N = 21)	Department SS2 (N = 19)	Department SS3 (N = 27)[a]
Low	-5-0	8	12	9
	1-5	11	3	10
	6-10	1	2	3
	11-15	1	1	3
High	16-21	--	1	1

[a]The total number of reciprocal links is one less than the faculty population because of missing data for the department.

Table C.9 Frequency Distribution of Research Total by Department

Research Total		Academic Department		
		Department SS1 (N = 21)	Department SS2 (N = 19)	Department SS3 (N = 27)
Low	0-25	12	15	11
	26-50	4	3	3
	51-75	4	1	4
	76-100	--	--	4
	101-125	--	--	1
	126-150	--	--	1
	151-175	--	--	1
	176-200	--	--	1
	201-225	--	--	1
High	226-255	1	--	--

Table C.10 Frequency Distribution of Research Average by Department

Research Average		Academic Department		
		Department SS1 (N = 21)	Department SS2 (N = 19)	Department SS3 (N = 27)
Low	1	4	10	5
	2	7	5	4
	3	2	3	2
	4	3	--	6
	5	3	1	1
	6	1	--	4
	7	--	--	2
	8	--	--	--
	9	1	--	2
High	10	--	--	1

Table C.11 Frequency of Research Trend by Department

Research Trend		Academic Department		
		Department SS1 (N = 21)	Department SS2 (N = 19)	Department SS3 (N = 27)
High increase	1	2	--	3
	2	5	5	3
No change	3	4	5	10
	4	2	1	4
High increase	5	3	--	2
Minimal productivity	6	--	6	2
Two years or less	7	5	2	3

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