ENVIRONMENT, GOALS AND STRUCTURE AND ACADEMIC DISCIPLINES: A STUDY OF TWO DEPARTMENTS IN TWO COLLEGES IN QUEBEC

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ABSTRACT

This thesis attempts to assess the effect of (1) the Quebec Department of Education regulations applying to all CEGEPs and (2) the somewhat different goals and structures of two English colleges on the structure and functioning of two departments in each college: physics and sociology. Several studies of organizations have found that the nature of the task determines the kind of structure an organization develops.

This study concludes that in the two colleges studied, the CEGEP system regulations had the greatest effect on structure of departments, followed by college goals and structures and that there was little difference between departments at each college, that could be explained by differences in the nature of the tasks of teaching physics and sociology. In classrooms, however, structure is primarily a reflection of the degree of certainty concerning the knowledge base, methods and problems prevailing in the two academic disciplines.

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INTRODUCTION

This thesis is a study of two departments in two Colleges d'enseignement général et professionnel, generally called CEGEPs in Quebec. It began as an effort to retest the findings of a study made in the United States of graduate departments in 80 universities by J. Lodahl and G. Gordon, called "Differences Between Physical and Social Sciences in University Graduate Departments." The authors found that the stage of development of a science, that is, the extent to which members of the scientific discipline agree about basic knowledge, principles and methods, was associated with the way in which professors related to students, how they felt about their work and how they organized their departments.

I have started with the same basic problem, the relationship between the nature of academic disciplines and the functioning and structure of departments, but have tried to contract it horizontally and expand it vertically. I reduced the number of disciplines from the four (physics, chemistry, political science, and sociology) used in the Lodahl-Gordon study to the two extremes only: physics and sociology. I also investigated the association between classroom structure and academic discipline. I expanded

their study vertically by asking whether the goals and structure of the college and the effects of being part of a CEGEP system would have an influence on the functioning and structure of departments as important as that of the nature of the disciplines.

A combination of methods was used involving observations, interviews and two questionnaire surveys, one concerning departmental decision-making; the other, classroom decision-making. As such, it offers an opportunity to compare the kinds of data which each method yields and to check inconsistences.

This thesis was also an effort to make an empirical study of a formal organization using open systems theory assumptions, particularly assumptions concerning the effects of the environment, goals and technology (or the nature of the task itself) on organizational sub-system structure and process.

Chapter I presents the theoretical background and some of the empirical evidence which bears on the problems of this thesis and presents the assumptions, definitions and hypotheses on which it was based. Chapter II describes the method of study and data analysis. Chapter III is a description of the CEGEP system in Quebec and the extent to which it constitutes an environment which limits and supports the organizational forms and activities of all the colleges. The material in Chapter IV is based entirely on the period of

observation in the two colleges studied: Middleton and Greenwood, and on intensive interviewing of teachers and administrators at both colleges. Some students who serve as class representatives in Middleton departments were also interviewed. The purpose of the chapter is to provide evidence for the original assumptions of the thesis: (1) that the two colleges had different goal priorities; (2) that they had different structures; and (3) that physics and sociology as disciplines would exhibit the same characteristics of paradigm development found in graduate schools.

Chapters V and VI are analyses of the data obtained from the questionnaires. Chapter V examines the results of the retest of parts of the Lodahl-Gordon study which concern departmental structure. Chapter VI presents the data on classroom decision-making obtained from students in physics and sociology classes at both colleges. The Conclusion is a summary of all findings and of some hypotheses suggested by this study.

The names of the colleges have been changed and pseudonyms are used throughout in order to assure confidentiality.

CHAPTER I

ORGANIZATIONAL STRUCTURES, ACADEMIC DISCIPLINES, GOALS AND ENVIRONMENT

The purpose of this chapter is to review the theoretical and empirical context in which this thesis is located, and, hopefully, to which it contributes. The first three sections describe the theoretical foundations of the Lodahl-Gordon studies of U. S. graduate departments which this study has attempted to replicate in part. That study was based on two theories which I will explain: the Perrow model of the relationship between technology and structure in organizations and the Kuhn conceptualization of differences between paradigm and pre-paradigm sciences. The Lodahl-Gordon study supported in most respects both Perrow's and Kuhn's perspectives and is summarized at the end of section C. In that study the goals and structures of the organizations (universities) were regarded as given. Furthermore, environmental effects on the university organization and on the departmental sub-systems (other than those arising from the community of scholars) also were not considered. In other words, Lodahl and Gordon seem to have assumed that the nature of academic disciplines alone can account for departmental structure and that non-academic influences from the

environment can be largely ignored. This thesis proposes to apply an "open systems" perspective on the assumption that structure and functioning of departments will be effected by (1) the structure and goals of the organizations of which they are a part, and by (2) interaction between the organization and relevant parts of the environment, in this case, the CEGEP system in Quebec.

Beginning with Part D, therefore, I discuss the "open system" theory of organizations and some of the empirical work in that perspective which demonstrates the importance of environment and organizational goals in this kind of organizational analysis. I will also suggest how these ideas apply to Middleton and Greenwood as examples of colleges in the CEGEP system in Quebec. Finally, we will present the hypotheses, the assumptions and the definitions on which this study proceeded. The purpose of the thesis was to retest the Lodahl-Gordon studies and to broaden the scope of their investigation of the relationship between academic disciplines and departmental structure by investigating (1) classroom structure as the actual academic task; (2) the influence of the goals and structure of the organization (college) on departmental and classroom structures and (3) the influence of the CEGEP system in Quebec on departmental and classroom structures.

A) Organizational Structures: The Perrow Model

Relationship between organizational goals, technology and organizational structure is so well explored and documented in industrial organizations that it hardly needs to be restated. Since very little has been done along these lines in educational institutions, I have tried to adapt some of the theory and method already developed with regard to work organizations to the comparison of the two CEGEPs, Middleton and Greenwood, which have different organizational structures, to some extent different goals, but the same technical processes.

Charles Perrow has developed a useful model for the analysis of people-processing organizations (a category including schools) which was used in the Lodahl-Gordon study to explain the association between academic discipline and departmental structure:[1]

	Raw material is uniform and stable	Raw material is non-uniform and unstable
Process not well understood	Socializing institutions (schools) (1)	Elite psychiatric agency (2)
Process well understood	Custodial institutions, vocational training (4)	Programmed learning school (3)

[1] Charles Perrow, Organizational Analysis: A Sociological View, Tavistock Publications Ltd., London, 1970, p. 79.

Perrow's basic thesis is that the organizational structure that is appropriate and effective for that organization depends on the nature of the task to be performed. If the raw material (in this case the recruits) is regarded as uniform and stable (for example, as all criminal) and it is believed that the process of rehabilitation is clear, then the process is capable of routinization and this will be most effectively achieved through a bureaucratic structure. An elite psychiatric agency, on the other hand, may regard each patient as unique and his cure as problematic, something to be discovered in each case. Such a people-changing task will require a loose, non-bureaucratic structure. In industry, mass assembly is an example of the first, R and D firms are examples of the second.

Within an educational organization, we might see that this would apply to the different parts of the school, or its different tasks. With regard to the teaching task, students may be perceived as uniform and stable (that is, the recruits are all alike, needing exactly the same information, training, discipline, skills, etc., and they might be pre-selected to insure this outcome) or non-uniform and unstable (not only different one from the other in important ways, but likely to change in composition from one term to the next). Also, the teachers and administrators may assume that the process of changing the students (or educating them) is clearly understood and can be routinized, or that it is uncertain in

results and constantly subject to change in content and approach. The four possible combinations for teaching task definition are: routine and stable, routine and non-stable, non-routine and stable, non-routine and non-stable. Perrow's theory is that the less is known about the process and the more the raw material is seen as unpredictable, the less routinization is possible. Problems must be solved on the spot which perhaps have not come up before and may not again. Loose structure, with a high level of lateral communication, few regulations and decentralized decision-making, then, is congruent with the task, since it allows the maximum flexibility and initiative in problem-solving at the level of the task. Routinization will actually impede the task. On the other hand, such a structure where the material to be processed is standardized and the process routinized, would be a constant and unnecessary irritant. It would be inefficient for a task that can only be efficient, since little creativity is possible when problems are mostly already solved.[2]

There has been no lack of models for measuring and analyzing organization structures,[3] but there has been more difficulty in finding indices of the technology or task. Perrow, himself, says: "Few organizations will characterize

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[2] Ibid.,.pp. 75-85.

[3] Richard H. Hall, Organizations: Structure and Process, Prentice-Hall, Englewood Cliffs, New Jersey, 1972. Chapter 2 has a good summary of these.

themselves as routine, and most employees emphasize the variability of their jobs and the discretion required."[4] This is certainly likely to be true among academics. What is needed is some objective criteria for determining the nature of the teaching task of college teachers with which one academic discipline can be compared with another along Perrow's continuum.

B) Academic Disciplines: Kuhn's Paradigm Concept

Kuhn's concept of "paradigm" provides such a set of criteria.[5] It was an attempt to distinguish the historical stages of the development of science, and at the same time, assuming a discipline to be moving toward a science, it can be used as a means of distinguishing sciences at a given moment in time. Kuhn defines a paradigm as the accepted theory and findings of the field, and it includes what is important to study and the method. It "stands for the entire constellation of beliefs, values, techniques, and so on shared by the members of a given [scientific] community," and "a paradigm is what the members of a scientific community

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[4] Charles Perrow, "A Framework for the Comparative Analysis of Organizations," American Sociological Review, v. 32, April 1967, p. 208.

[5] Thomas S. Kuhn, The Structure of Scientific Revolutions, Foundations of the Unity of Science; University of Chicago Press, Chicago, 1970.

share, and conversely, a scientific community consists of men who share a paradigm."[6] It follows from this that if a science has reached what Kuhn calls a "normal" science, there will be high consensus among the members of the discipline as to theory, methodology and problems. Kuhn goes on to discuss the situation of the social sciences as "pre-paradigm," a situation that existed in the physical sciences before 1700, in which there are competing schools of thought as to what is "proven" and about what the most important problems in the field are and by what method they should be studied. Only when one of these emerges as dominant enough to produce a high degree of consensus among all members of the scientific field has that field reached maturity.

C) The Lodahl-Gordon Study

Using Kuhn's concept, Lodahl and Gordon asked staffs of political science, sociology, chemistry and physics departments in a stratified random sample of 80 universities in the United States to rank several disciplines in terms of paradigm development.[7] The results showed that there was a high level of agreement within and between disciplines as to

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[6] Ibid., pp. 175-176.

[7] Janice Lodahl and G. Gordon, "The Structure of Scientific Fields and the Functioning of University Graduate Departments," American Sociological Review, vol. 37, Feb. 1972, pp. 57-62.

which sciences have a high paradigm development and which were low. Briefly, the ranking order was: physics, chemistry, biology, economics, psychology, with sociology and political science tying for last place.[8] Since the sample of university scientists was over-weighted on the side of high ratings of the institution on the Cartter Report,[9] it can be assumed that the judges were competent. Lodahl and Gordon chose to study physics, chemistry, sociology and political science departments as representative of the two extremes of paradigm development.

The members of the departments in the sample of universities were then surveyed as to their attitudes toward a number of aspects of their work, the basic assumption being (as predicted by Perrow, whose model they were using) that the more agreement about the knowledge base and about what should be studied and how, the easier the communication would be between colleagues and with students. This is because the department member is sure of what he knows and what needs to be communicated, and shares an extensive vocabulary with other members of the discipline. This being the case, high paradigm members should find working with

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[8] Ibid., p. 60.

[9] Allan M. Cartter, An Assessment of Quality in Graduate Education. This was a report prepared for the American Council on Education ranking all university graduate departments on a variety of factors.

students easier, teaching more rewarding, and agreement with colleagues as to course content and degree requirements easier than would faculty in low paradigm departments. This is, in fact, what was found. In terms of agreement over the content of survey courses, the rank order was, from high to low: physics, chemistry, sociology, political science. Physical scientists also reported more and easier agreement on requirements for degrees and had significantly more willingness to spend time teaching graduate students[10] than did social scientists. There were many other findings concerning different functioning and attitudes among the university graduate departments studied, but these are the ones which might have relevance to a CEGEP setting.

Having established the usefulness of the paradigm concept as a measurement of the differences between the social and the physical sciences and that these differences were reflected in the functioning of departments, Lodahl and Gordon then attempted to discover whether these differences were reflected in departmental structures. Faculty were asked how much influence the individual faculty member, a faculty group, the departmental chairman and the university central administration had on 11 different decisions which are essential to

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[10] Lodahl and Gordon, "The Structure of Scientific Fields and the Functioning of University Graduate Departments", pp. 61-62.

the teaching and research tasks at a graduate school.[11] It was found that in the physical sciences, departmental autonomy tends to be the rule, and that social science departments are characterized by more individual autonomy. Furthermore,

> "the physical science fields are led to employ different means (such as faculty committees) to rationalize decisions about the teaching process by the technological demands of teaching in their fields and because the rationalization of these decisions is possible without too much conflict."[12]

while "social science fields have more administrative influence, more individual influence, and less teaching-related faculty decisions than physical science fields."[13] It would appear, then, that there is support for Perrow's theory, at least at the university graduate school level.

Although Lodahl and Gordon suggest that the reward system of the university itself may be partly responsible for the different functioning of departments, no attention is paid to university structures and goals as independent variables. Since the administration of most universities is rather formalized, with administrative hierarchies wielding a fair amount of authority, we can assume that the 80 universities studied were of this sort of structure, but nothing is

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[11] Janice Lodahl and G. Gordon, "Differences Between Physical and Social Sciences in University Graduate Departments," unpublished draft for future publication in Research in Higher Education, 1973 (Table 4).

[12] Ibid., p. 17.

[13] Ibid., p. 15.

said about it specifically. Their goals are assumed to be uniformly oriented toward research and the training of graduate students to do research, with teaching a secondary, but also essential goal.

D) Open Systems Theory

The problem of how to define the boundaries of an organization, and of how to limit the area of study to manageable proportions has been a continuing one in the theory of organizations. Obviously, the narrower the definition, the fewer the variables that must be considered, and the greater the possibility of producing a clear, unambiguous picture of the relationships one wishes to understand. On the other hand, by so doing one may fail to see or understand activities which occur in organizations that are the result of attitudes and experience the members bring with them or of various environmental conditions.

Beginning with the classical school of management, through the Human Relations in Industry studies, the emphasis was on the work place, the shop or the work group. It was assumed that either the interaction of individuals in the process of working together at a given task or the structural requirements of the task itself accounted for the form of an organization and the relationship of parts to the whole. The goals of the organization were assumed to be the production of a product or service in the most efficient way

possible and the environment, including the technology necessary to the task, was considered to be stable, at least for the time being. However, as the rate of environmental change accelerated in industrial societies and as organizational research became more sophisticated, it became increasingly obvious that neither the goals nor the environment could be ignored or assumed as given.

Open systems theory, as contrasted with closed system assumptions, began in the biological sciences in an effort to explain certain obvious differences between the way organic or living systems function and the functioning of non-living systems (mechanical, chemical, etc.).[14] (See Koehler, 1938; von Bertalanffy, 1950; G. Sommerhoff, 1969). Katz and Kahn (1966) have summarized the subsequent efforts to apply open systems theory to social organizations as follows:

> Organizations as a special class of open systems have properties of their own, but they share other properties in common with all open systems. These include the importation of energy from the environment, the through-put or transformation of the imported energy into some product form which is characteristic of the system, the exporting of that product into the environment, and the re-energizing of the system from sources in the environment.
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> Open systems also share the characteristics of negative entropy, feedback, homeostasis, differentiation and equifinality. The law of negative

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[14] See W. Koehler, "Closed and Open Systems," (1938) in F. E. Emery, ed., Systems Thinking, 1969, pp. 59-70; L. von Bertalanffy, "The Theory of Open Systems in Physics and Biology," 1950, pp. 70-84; and G. Sommerhoff, "The Abstract Characteristics of Living Systems," in F. E. Emery, ed., Systems Thinking, 1969, pp. 147-202.

> entropy states that systems survive and maintain their characteristic internal order only so long as they import from the environment more energy than they expend in the process of transformation and exportation. The feedback principle has to do with information input, which is a special kind of energic importation, a kind of signal to the system in relation to its environment. The feedback of such information enables the system to correct for its own malfunctioning or for changes in the environment, and thus to maintain a steady state or homeostasis. This is a dynamic rather than a static balance, however. Open systems are not at rest but tend toward differentiation and elaboration, both because of subsystem dynamics and because of the relationship between growth and survival. Finally, open systems are characterized by the principle of equifinality, which asserts that systems can reach the same final state from different initial conditions and by different paths of development.[15]

One of the lines of research that has been at least influenced by open systems theory, if not directly descended from it, is that which has concentrated on the relationship between through-put and structure in complex organizations, of which Woodward, Harvey and Perrow are exemplars. Woodward's study of 100 unit, batch, mass assembly and process production industries in Britain found that "different technologies imposed different kinds of demands on individuals and organizations and these demands had to be met through an appropriate structure."[16]

Harvey followed this with a study of 43 American

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[15] D. Katz and R. L. Kahn, The Social Psychology of Organizations, Wiley, New York, 1966, pp. 19-26.

[16] Joan Woodward, Industrial Organization: Theory and Practice, Oxford University Press, London, 1965, p. vi.

industrial plants in which he conceptualized organizational technology as a continuum ranging from "technical diffuseness" to "technical specificity" and found these to be consistently related to the number of levels of authority and the number of specialized sub-units.[17] On the other hand, Hickson, Pugh and Pheysey, in a study of 52 work organizations of considerable variety, came to some conclusions that contradicted Woodward's, and they offered the possible explanation that "variables of operations technology will be related only to those structural variables that are centred on the workflow."[18]

This research, as well as that of the socio-technical school, represented by the work of Emery, Trist and Rice, is within the open systems theoretical framework, but these researchers have concentrated on a narrow spectrum: the input, throughput, and output level. Implicit in their work is the idea of equifinality (an organization may devise many different ways of producing the same output) and of differentiation (a given system may have many different sub-systems, each with a different task, and therefore a different structure, which may

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[17] E. Harvey, "Technology and the Structure of Organizations," American Sociological Review (April, 1968), v. 33, pp. 247-259.

[18] D. J. Hickson, D. S. Pugh and D. C. Pheysey, "Operations Technology and Organization Structure: An empirical Reappraisal," Administrative Science Quarterly, vol. 14; September 1969, p. 395.

be constantly changing in response to the needs of the total system, to other sub-systems or to the external environment). Both of these ideas are pertinent to the study I propose. However, they have managed to ignore many of the problems posed by open system research, particularly environmental give and take. They have looked for what J. D. Thompson in a study of the medium bomb wing of the Strategic Air Command of the USAF describes as a "highly protected organization [in which] structure primarily reflected technological contingencies."[19]

There is, however, another body of work which has attempted to deal with problems related to the environment within which organizations function. General systems theory assumes that organizations have a set of interdependent parts organized for the purpose of attaining a specified goal and ensuring survival. Talcott Parsons has described the "social system" as a network of interlocking systems and sub-systems whose functions meet each others' needs.

> "An organization is a system which, as the attainment of its goal, 'produces' an identifiable something which can be utilized in some way by another system; that is, the output of the organization is, for some other system, an input."[20]

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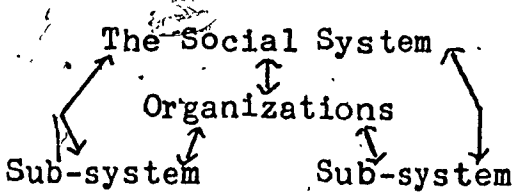
[19] J. D. Thompson, "Technology and Structure," in Marshall W. Meyer, ed., Structures, Symbols and Systems: Readings on Organizational Behavior, Little, Brown and Co., Boston, 1971, pp. 196-208.

[20] T. Parsons, "Suggestions For a Sociological Approach to Theory of Organizations," in Amitai Etzioni, A Sociological Reader on Complex Organizations, Holt, Rinehart & Winston, New York, 1969, pp. 32-46.

On the basis of this inter-relationship, the continued existence of an organization and its ability to procure the necessary resources to achieve its goals depends on the value of its output to the larger system. This may be illustrated in the following way:



Parsons therefore defines an organization as "the special type of social system organized about the primacy of interest in the attainment of a particular type of system goal."[21] Once having defined what an organization does, it is possible to distinguish it from other kinds of social systems on the basis that an organization has specific goals and boundaries that can be located by reference to objects or processes which limit or contribute to the organization's survival or its goal-attainment.

This will apply to the sub-systems within an organization as well. If sub-systems perform functions for the organization, then this system in turn meets the needs of higher-level systems, from which point of view it itself is another sub-system. To use a college as an example, there are at least three sub-systems: academic departments, maintenance

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[21] Ibid., p. 35.

and administration, each of which consists of people whose activities are consciously coordinated toward the achievement of some function required by the other two sub-systems and of the college as a whole. One might say that the administration controls the input and output of students and of personnel, whereas academic departments are concerned with the throughput, the training of students. In return for this service, the larger society provides money, buildings, students, and teachers which the school requires to continue to turn out CEGEP trained students. Finally, the activities of administrators, teachers and students create maintenance work (input) which when carried out by that sub-system (output) makes it possible for the other sub-systems and the college as a whole (organization) to achieve their function of educating students. This achievement, in turn, ensures inputs of needed resources from the Province of Quebec (environment).

It is perhaps easy to see that this functionalist approach leads sooner or later to the natural or open system approach, and that environment and goals must be included in organizational analysis. It is also clear that with such complexity of relationships and in a setting of change and heterogeneity, neither the goals of an organization's members nor environmental pressures can be assumed to be constant.

1. Environment

Studies of the relationship between organizations and

the environment have tended, in Silverman's terms, to stress either the "environment-input" or the "environment-output" concerns to explain organizational structure and processes.[22] The first category includes all those studies which stress technology and those which stress the rate of environmental change. The first group we have already discussed. The work of Burns and Stalker and of Emery and Trist, both of which relate organizational form to market pressures and competition, are examples of the latter. Burns and Stalker found that stable market conditions were associated with a "mechanistic" form (very close to the rational bureaucratic model) whereas a rapidly changing or unstable market was associated with an "organic" form of organization in which roles and processes are continually redefined in terms of particular tasks. Emery and Trist came to similar conclusions. I would also include Stinchcombe's study of Social Structure and Crozier's The Bureaucratic Phenomenon as further examples of the influence of environmental input on organizational form, since both are concerned with the effect of culture on organizational structure. Stinchcombe shows that organizations which appear at the same time have similar structural properties as a result of the norms and resources available

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[22] David Silverman, The Theory of Organizations, Heinneman, London, 1970, pp. 16-20.

at a particular period.[23] Crozier's study shows that the dominant French cultural norms and values determine organizational forms at all levels of the society.[24]

Studies of environmental output type are concerned with the relationship between the function of an organization and its environment, in the functionalist tradition. In these studies, the form of the organization is seen as determined by the part it plays for the social system as a whole. These include Merton's and other studies of unintended consequences of organizational behaviour such as Selznick's discovery of the displacement of goals which occurred in the TVA as a result of its grass roots policy,[25] as well as Parsons and Katz and Kahn who are concerned primarily with the intended consequences of organizational behaviour. David Sills found that many organizations have changed their goals or dissolved altogether when the need for their functions diminishes or disappears, or, as in the case of the National Foundation for Infantile Paralysis, the organization's goal of bringing infantile paralysis.

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[23] Arthur Stinchcombe, "Social Structure and Organizations," in Marshall W. Meyer, ed., Structures, Symbols and Systems, pp. 261-288.

[24] Michel Crozier, The Bureaucratic Phenomenon, University of Chicago Press, Chicago, 1964.

[25] Philip Selznick, TVA and the Grass Roots, Harper & Row, New York, 1966.

under control was achieved.[26] Lawrence and Lorsch also belong in this category. Their study of organizations in the food, plastics and container industries found that organizations in dealing with environmental requirements tend to differentiate and to assign adaptation problems involving relevant sectors of the environment to different sub-groups of the organization, thus developing different behavioural and attitudinal attributes among members of the sub-groups.[27] To apply this to our concerns, colleges assign to the Board of Governors the problems of legitimation in the client community, while administration handles high school guidance systems and governmental regulatory bodies. What is of significance to us here is that, as also predicted by March and Simon[28] this differentiation of function leads to differentiation of goals among sub-units which tend to regard their own function as paramount at any moment in time. Naturally, this may, if sub-unit goals are in conflict with each other or with organizational goals, lead to intra-organizational conflict and perhaps even to a deflection or displacement of

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[26] David Sills, "The Succession of Goals," in Amitai Etzioni, A Sociological Reader on Complex Organizations, pp. 175-197.

[27] P. R. Lawrence and Jay Lorsch, Organization and Environment, Harvard University Press, Cambridge, Mass., 1967.

[28] J. G. March and H. A. Simon, Organizations, John Wiley, New York, 1958, p. 41.

organizational goals.

2. Organizational Goals

This brings us to consideration of the goals of an organization which in open systems theory must be considered problematic for the reasons outlined above. Simon assumes that goals of an organization are multiple, often conflicting, and subject to change as a result of internal and external pressures.[29] To this list of characteristics, Andrew Gunder Frank[30] adds that organizational goals are often ambiguous and involve conflicting standards, which are selectively enforced. This state of affairs is the result of (1) private motivations and goals which individual members bring with them; (2) the tendency of sub-systems of an organization to develop their own goals; and (3) uncertainty and change in inputs from the environment and environmental needs served by the organization.

Such differentiation obviously requires some integrative force to keep the organization from flying apart. According to Simon, organizational goals, implemented effectively, act as a constraint or control on decision-making

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[29] H. A. Simon, "On the Concept of Organization Goal," Administrative Science Quarterly, vol. 9, Je. 1964, pp. 2-22.

[30] Andrew Gunder Frank, "Goal Ambiguity and Conflicting Standards: An Approach to the Study of Organizations," Human Organization, 17, #4, Winter, 1958-59, pp. 8-13.

within organizations. People are offered various inducements to contribute to achievement of organizational goals. In this trade-off of inducements and contributions, the organization as a whole, its sub-units, and its individual members are all constrained to consider the goals and interests of the others by the necessity to cooperate for goal attainment. The organization must accord some degree of recognition to the private member and sub-group interests and goals, in order to obtain cooperation. On the other hand, the overall organizational goals limit what the organization will accept in the way of motivational concerns of the participants. Applied to academic departments in a school, this means that the multiple goals of the individual members as well as their shared sub-system or departmental goals will be continuously limited by the organizational (the school) necessities, but that the college, in order to motivate the members to work for the overall goals, will accept compromises and try to meet member goals to some extent.

In summary, we may say that the input-throughput-output model of the relationship between technology and structure suggests that it is the nature of the task which determines the most effective structure. Kuhn has provided a perspective on academic disciplines which enables us to define the nature of the task of teaching physics as requiring greater routinization than does the task of teaching sociology. According to open systems theory, however, this

formulation is too restricted, since it does not allow for environmental inputs and outputs which, being crucial to the functioning of organizations, may possibly cause the organization to modify, change or displace its original goals, if not to disappear altogether. In other words, we cannot assume that the only or even the primary goal of an organization is the efficient production of an object or a service. This, however, is the basic assumption underlying the technology and structure argument. Open systems theory assumes that organizations have survival as a primary goal, and efficiency may be the means to that end under many conditions of environmental demand and supply. In addition, individuals and sub-groups may have many goals, some of which also represent adaptation to extra-organizational and extra-task contingencies. All these goals are subject to change as a result of the functional relationships between systems, sub-systems and individuals. The relationship between environment and organizational goals is a reciprocal one, and organizational or sub-system structure may develop to meet market demands or in response to cultural norms, for example, as well as because of the technology required to produce a commodity or a service.

If this is true of the relationship between organizations and the larger social system, it is also true of relationships between the organization and its sub-systems. I would expect, therefore, as suggested by open systems

theory that the nature of the primary goals of the college and the structures which develop to meet these goals will act as a continuous constraint on the activities and goals of the departments, and vice-versa, and that this feedback process will tend to modify the structure and functioning of departments in the general direction of the system goals -- even when this is contrary to the structural requirements for technological effectiveness in meeting sub-system goals.

3. The CEGEP System as Environment

The environment or the social system as a whole is too complex to treat except as a large number of independent variables from which one selects for consideration those which seem most important from a particular perspective. Lodahl and Gordon considered only the environment-input represented by the values and norms of the scientific community and the extent to which these tended to attract research funds. I have assumed that since CEGEP teachers were trained in academic standards (all must have at least a master's degree) and are preparing many of their students for university, that they belong to the community of scholars in their discipline, just as those at the university do. However, I have added to the Lodahl-Gordon formulation another environmental variable, namely, the CEGEP system in Quebec, or the relationship of the colleges to the Quebec Department of Education.

The importance of the CEGEP level in a retest of the Lodahl-Gordon study was first, that a different task (only teaching, and at the introductory level as compared to research and teaching at the graduate level) is required of members of academic departments. Secondly, colleges operate under a greater degree of governmental control than do universities. The assumption of this study was, however, that these environmental factors, being relatively remote, would have less impact on departmental structure and functioning than the goals and structures of the colleges themselves.

The environmental input in terms of the client population (students and parents) which the two colleges serve and the kinds of teachers they have hired is recognized but not investigated. This was a deliberate choice made in an attempt to limit the study to organizational rather than cultural variables. These questions will be discussed at length in subsequent chapters.

4. College Structures and Goals

We have expanded the Lodahl-Gordon study in two other ways. We have investigated classroom structure in addition to departmental structure and we have investigated the influence of different college goals and structures on academic departments and classrooms. If we consider departments as sub-systems and the college as the system or organization, then the nature of the college administrative structure, its

values and goals may have a very important influence on the structure of departments and classrooms, perhaps as important as the nature of the task itself. The Lodahl and Gordon study did not investigate the nature of the university structure in which departments were embedded, but since most universities are organized along fairly bureaucratic lines with administrative hierarchies, formalized rules and clear role definition, we can, as evidently they did, take this university structure for granted.

Greenwood and Middleton were in many ways alike in structure because they were subject to the same regulatory control of the Department of Education in Quebec and the basic goals of all CEGEPs had been defined by legislation. Nonetheless, the two colleges had developed at the time of this study differences in goal emphasis and structures which were recognized by members of both colleges. Greenwood emphasized academic excellence and subject-centred learning and was trying to develop a relatively formalized or "mechanistic" structure. Middleton emphasized student-centred learning within a humanistic education perspective and had developed an "organic" form involving fluid and indefinite roles, very little formalization, and decentralization of decision-making to the unit or individual directly concerned. The last included a commitment to democratic participation and student parity on all decision-making bodies.

Although Middleton had, at the time of the study, a

structure which had developed as a reaction to bureaucracy, defined in Crozier's sense of a form or organization characterized by "slowness, the ponderousness, the routine, the complication of procedures ... and the frustrations which their members, clients or subjects consequently endure"[31] there were nonetheless many bureaucratic elements in its structure, in the Weberian sense of rationalization of collective activities, many of them imposed by the Department of Education. On the other hand, although Greenwood was trying to become a more efficient bureaucracy, it was having difficulties with this, perhaps because of the fact that the majority of employees, as in any school, are professionals. Several studies have found that professionals, who have many rules and regulations built into their training, as well as the expectation of independent and creative work, are not easily supervised or regulated by non-professional groups or routine procedures.[32] In addition, both schools are structured to some extent by the Department of Education regulations and the top administrative posts and their job descriptions are specified by the Department. We have already mentioned that college goals are to a large extent stated by

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[31] Crozier, p. 3.

[32] William Kornhauser, Scientists in Industry, University of California Press, Berkeley, 1963; R. H. Hall, "Professionalization and Bureaucratization," ASR., v. 33. No. 1, February 1968, 92-104.

provincial decree for both colleges and that between the two that concern us here, student-centred learning and academic excellence, colleges may only choose which is of most importance. How, then, given the similarities, could organizational differences be identified which might be expected to influence the functioning of departments as my hypothesis suggests?

Using the Weberian rational-legal model of bureaucracy and assuming that the ideal-type is useful as a model for comparison rather than as an accurate description of any existing organization, I assumed with Hall and others, that bureaucracy in this sense can be regarded as a continuum and the two schools compared with each other on this scale. Of many elements found by different researchers to be present in organizations and agreed to be characteristics of bureaucracy (1) hierarchy of authority, (2) division of labour, (3) rules, (4) procedural devices for work, (5) limited authority of office, and (6) impersonality of personal contact were listed by most of them.[33] These have been refined by Pugh, Hickson and Hinings[34] to develop a scheme for

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[33] R. H. Hall, "The Concept of Bureaucracy: An Empirical Assessment," American Journal of Sociology, v. 69, No. 1, July 1963, 34.

[34] D. S. Pugh, D. J. Hickson, and C. R. Hinings, "An Empirical Taxonomy of Work Organizations," Administrative Science Quarterly, v. 14, No. 1, March 1969, 115-126.

classifying organizations according to the degree of bureaucracy present in their structures. The dimensions of bureaucracy which they found to be empirically useful are: (1) the structuring of activities, that is, the degree of standardization of routines, formalization of procedures, specialization of roles, and the extent to which behaviour is specified by the organization; (2) the concentration of authority, i.e. the centralization of authority at the upper levels of the hierarchy and in units outside the organization; and (3) the line control of workflow, or the degree to which the people actually doing the work control it as opposed to a control system based on procedures dictated by standardization.

I found this a very useful scheme for analyzing the structural differences between Middleton and Greenwood, because it seemed to encompass both the most important differences and similarities. The CEGEP system is very new. Middleton is the oldest English one and it is only five years old. For this reason, the colleges have undergone rather continuous and rapid change and have had continually new problems to solve. Pugh, et al found that both their dimensions one and three are subject to developmental sequence. Structuring of activities, for example, tends to go from little to much with increase in size over time, and in the same circumstances, line control, that is control of the workflow by members or workers tends to change toward impersonal or procedural control of the workflow. Both these

factors suggest that Middleton should be more structured than Greenwood since it is both older and bigger. A third dimension, the concentration of authority, on the other hand, does not necessarily change with time or size, since these patterns tend to be the result of historical factors and of the relationship of the organization to the environment or the auspices under which it operates. In this case, although the environment has specified certain aspects of the structure of both colleges, historical factors have been different and have produced different adaptations in the two schools.

To measure the difference in bureaucratization between the two schools was not the point of this study, and goes beyond its purpose, but to be able to establish that there were structural differences between the two schools and that the differences were capable of having an impact at the departmental level was necessary to test the second part of my hypothesis. This became more urgent as initial observations of departments suggested that the existence of student parity at Middleton was honoured by lip-service only in many cases (as one would predict) and that where it was actually in operation it seemed to have little effect on departmental functioning. Administrative statements, tables of organization and calendar announcements are, of course, known to be as often as not only "official" rather than "operative." In addition, then, to these indices of differences in college governance, an effort was made through interviews,

observations and questionnaires to probe for differences in the degree of bureaucracy in the two schools, bearing the Pugh scheme in mind. If the colleges were different in their degree of bureaucracy I assumed that this would be reflected in the work experience of departmental members, students and teachers, inside and outside the classroom. Exactly how this was done will be discussed in the section on methodology, but here I might say that I expected that teachers, particularly, would experience these differences in terms of such everyday problems as (a) whether one takes a problem to a person or to an office; how much authority, reward and power resides in offices as compared to persons, and whether teachers feel that authority and power is clearly and effectively limited by regulations or rules; (b) the extent to which a division of labour is observed -- that is, do people stick to their roles or does everyone do everything?; (c) the degree of successful routinization and smoothness of registration procedures, grade recording, timetabling and other routine activities, i.e. how often crises or unexpected deadlines occur around routine activities; (d) whether decisions are made, in general, on the basis of personalistic or universalistic criteria in such matters as hiring, firing, academic standards, breach of contract, student problems; (e) the degree of centralization of authority, i.e. the extent to which departmental or classroom decisions or controls are in the hands of top administrators (including

government) rather than decided by teachers and students.

Greenwood was chosen for study on the grounds that it approaches the university administrative model. Middleton was chosen because its structures and goals were NOT like those of the Lodahl-Gordon study, while in most other respects Middleton had the same organizational problems and task as all CEGEPs, including Greenwood. In short, the choice of colleges represents an effort to hold other variables constant, in trying to assess the effects of organizational goals and structure on academic departmental and classroom structures.

E) Assumptions, Definitions and Hypotheses

This study makes open systems assumptions about the relationship of environment, goals, structures and the task of the organizations studied. It assumes that departments at the two colleges may be regarded as sub-systems of the larger system which is the college, which in turn is a sub-system of the CEGEP system. These systems and sub-systems are all related to each other in such a way that the output of one is the input of the other, and all are engaged in some activity which meets the needs of the members, of the organization, and of the CEGEP system. They are all, furthermore, to be defined as formal organizations, as distinct from other social systems and I accept Parsons' definition of an organization as "a special type of social system organized about the primacy of interest in the attainment of a particular type of

system goal." At the same time, I would hope that the study shows that decisions, goals and organizations are made by people, by individuals, who act together through cooperation, competition, coercion, conflict or consensus, to reach some common definition of the situation and a set of role relationships which we call structure. In this connection, one of my assumptions is that the answers to questions which people give concerning who influences decisions is accepted as reflecting actual structure of classrooms and departments, not only perceptions of structure. I make this assumption for two reasons. In the first place, it was made in the Lodahl-Gordon study and I wish to stay as close as possible to the terms of reference of the work which I am attempting to replicate. In addition, I feel this can be justified on the further assumption that people act on the basis of shared meanings and that if the majority of members of a department or of a class share a common view of the roles and relationships within the group, the chances are that they act in terms of those perceptions. Where this proposition seems in doubt, triangulation has made it possible, in most cases, to check the accuracy of survey data with data from observations and interviews and to determine when perceptions of structure diverge from structure.

Perrow's theory and Kuhn's paradigm propose four possibilities with regard to the relationship between academic discipline, and how people will teach and the

decision-making structures they will evolve. Since I find Perrow's terminology awkward when applied to teaching as a task and to students as a raw material, I will describe students as having uniform or non-uniform needs, rather than as stable raw material, and the knowledge base as certain or uncertain, rather than as a well-understood or not well-understood process. Perrow assumes this relationship to be based on the teachers' perception of the student needs in relation to the nature of the subject to be taught: they may regard the student needs as uniform, or all alike in what they need to learn, and the subject as a certain body of knowledge; they may regard the student needs as uniform but the subject as uncertain; they may regard the subject as certain, but the students as non-uniform; and finally, they may regard the subject as uncertain and the students as non-uniform. Since I have taken the two extremes of the above spectrum, I would expect in accordance with Kuhn's concept of paradigm and pre-paradigm science that the sociology departments will fall into the uncertain and non-uniform category and the physics department in the certain and uniform category, and that the way people teach and the way they organize their departments will reflect this.

Academic excellence is measured by means of grades. Grades are used to indicate the amount of knowledge or skill a student has attained in a given subject. If knowledge is regarded as measurable, it must be viewed as certain and

students, since they are measured on a common scale, must be regarded as having uniform properties in relation to the task of teaching and learning. This logic can be regarded as the underlying assumption of traditional teaching roles and relationships and, as we would expect on the basis of Perrow's theory, it has led to a standardization of teaching methods: lectures, exams, grades. It also has led to a role relationship or classroom structure in which the teacher or school administration is the authority and source of the generally accepted and certain knowledge. All the decisions therefore are made by these authorities. Students' interests or preferences are secondary to the purpose of imparting basic knowledge of a subject. This is the logic behind the relationship between academic excellence or subject-centred learning and classroom structure. I will, therefore, assume that a primary emphasis on academic excellence is an index of subject-centred learning as a priority goal.

I will define student-centred learning as an effort to adapt the subject to the interests, needs and aptitudes of the student. In teaching, this should evidence itself in the amount of student influence on classroom decisions about content and method and should be higher in sociology departments. In the physics departments, I would expect to find subject-centred learning (defined as a concentration on getting across the basic knowledge to a student and an attitude that the student must or should adapt himself to the demands of the

subject) with little influence exerted by students on classroom decisions. In terms of departmental structure or decision-making about teaching and other administrative matters in the department, we should expect that physics departments would be more autonomous, but within the department there would be less individual autonomy and more committee or group decisions than in the sociology departments. In the latter, there should be less departmental autonomy, fewer decisions made by committees and more individual autonomy. That is, at least, what Lodahl and Gordon found with regard to departmental structure at the graduate school level.

My hypotheses are: (1) that while the association between academic discipline and structure predicted by Perrow and confirmed at the graduate department level by Lodahl and Gordon will be found to be true at the CEGEP level; (2) the association will be much reduced at Middleton because of system goals requiring the physics department to adopt a looser, less routinized structure than they would otherwise find effective. The sociology department, on the other hand, should find the Middleton overall structure and goals consistent with its needs for looser structure and more individual autonomy. Findings at Greenwood should follow more closely those of the Lodahl-Gordon study; (3) physics classes will be subject-centred with students having little or no influence on decisions, while sociology classes will be more

student-centred and therefore provide more student influence on decisions; and (4) the goals and structures of the two colleges should act in such a way that at Greenwood the physics department will be strengthened in its effort to use traditional and routine classroom methods. The sociology department will be constrained to be more subject-centred than the nature of the discipline would lead us to expect. At Middleton, the sociology teachers will be supported in a student-centred stance appropriate to the nature of their discipline. Physics classes should be more student-centred than we would expect, as a result of college goals of humanistic education.

CHAPTER II

METHODS AND DATA

A) Observations and Interviews

The study was conducted over a period of a little more than a year, from May 1973 to June 1974. An exploratory period was spent in each school during which meetings of physics and sociology departments were attended, and administrators and teachers were interviewed. The administrators interviewed at each college were the director-generals, the directors of pedagogic services, the sector chiefs of science and of arts at Middleton and [redacted]cience and social sciences at Greenwood. In additio[redacted]tain others at both colleges were interviewed becau[redacted]ey were recommended by other informants as being knowledgeable about particular events or situations. The purpose of observations and interviews within the departments was to discover what it was like to teach and work in the two departments at each school. Interviews with administrators were intended to provide another perspective on the functioning of departments and a sense of the kinds of environment the college administration was trying to establish. Because of the lack of formalization of the organization at

Middleton, considerably more interviews were necessary before the essential character of the relationships there could be grasped, in spite of the fact that I was myself a teacher there and long familiar with, if not informed about, the uncertain terrain. All teachers who had been members of their departments during the previous year were interviewed, with one exception in the physics department at Greenwood. It was assumed that at least a year's experience as a member of the department would be necessary before a teacher would be a reliable informant about either the department or the college as a place to work. At Middleton, eight student representatives to sociology and physics departments (five from sociology, three from physics) were also included in the study.

Interview schedules are included (Appendices A, B, C). It should be noted, however, that interviews, while following these formats were always in-depth, taking a minimum of an hour and permitting, even encouraging, divergence on the part of interviewees, whenever I felt that by so doing I gained a better understanding of the experience of being a member of that department. Some interviews were for the purpose of getting detailed information on particular events or situations and in this case the interviews were structured only by the opening question: "What can you tell me about X?" An observation chart for meetings was also kept (Appendix D) and minutes for the past year studied for the same kind of data.

I found, however, that the most useful part of the chart were the general remarks I made at the time, which often contained clues to departmental relationships. Documents used were official publications, mostly calendars of each college which in addition to administrative interviews, verified the differences in college goals and structures.

In the early part of the research, the principal difficulty was that of managing the role of participant observer in all of its nuances. In the sociology department at Middleton, I had been a member of the group I wished to study for five years and now proposed to become more objective and less involved in departmental and college-wide issues. In this case I moved from what Raymond Gold has called the complete participant to the participant-as-observer and encountered not only the "going native" problem,* but also the suspicion accorded to any person who ceases to be "one of us" and becomes more remote and objective, possibly even disloyal in the eyes of members.[1]

In the Middleton physics department and to the administration, I was a participant who represented the sociology department. This group had enjoyed considerable notoriety the year before because of a split in the department, ending

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* A term meaning to develop sympathy for and identification with the group being studied so that one loses objectivity.

[1] Raymond Gold, "Roles in Sociological Field Observations," in N. K. Denzin, Sociological Methods, Aldine Publishing Co., Chicago, 1970, pp. 370-380.

in a non-renewal of contract proposal for one member by the department, a proposal rejected by the college appeal board. At Greenwood, I was also a participant-as-observer in Gold's sense of a researcher whose role as observer is recognized from the start by all concerned, who participates in the activities and life of the group for a time, obtaining Simmel's "intimate content" but who does not pretend to establish any intimate form of relationship with the members of the group. Besides the normal difficulties of this role, I had again to deal with the problem of being a representative of a rival college which was well-known for a particular style of administrative organization, one which Greenwood had tried and abandoned. To some informants and respondents this represented success, to others, failure and their reaction to me as a Middletonite reflected these feelings, especially in early encounters.

Everyone during the process or phases of the participant observer relationship[2] tested my motives and opinions on the assumption that as a sociologist, or as a Middletonite, I would have certain prejudices or preconceptions. I cannot say that I developed any formulas to handle this, except to try to have no prejudices or preconceptions and to reassure the respondent on this score by my manner, my questions, and

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[2] Olesen and Whittaker, "Role Making in Participant Observation: Process in the Researcher-Actor Relationship," in N. K. Denzin, Sociological Methods, pp. 381-397.

frequent assurances of confidentiality. I attempted to explain the basically non-threatening and non-judgmental nature of my research as another form of reassurance, but here the problem was to do so without giving respondents so much of the theoretical content and expectations as to produce a self-fulfilling prophecy. Accepting the respondent's suspicion as reasonable also helped.

These responses should not be exaggerated, however. On the whole the departments and the administrators at both colleges were most cooperative and helpful. Not a single interview was refused or "forgotten" and information was given freely and except in one or two cases without signs of stress or annoyance, in spite of the time-consuming nature of the interviews.

B) The Survey Questionnaire

At the end of this period of about two months in each college, a portion of the Lodahl-Gordon questions concerning departmental structure and, from another of their studies, some teacher attitude questions, were given to all faculty members of each department, and at Middleton, to student representatives. (See Appendix E). The Lodahl-Gordon questions were modified to include only questions related to the teaching function, eliminating all research-related questions as irrelevant to the CEGEP level. Also, the groups or individuals influencing decisions was changed to include the

different persons or groups which are known to influence decisions in the Quebec CEGEP system, but not in the U. S. private university.

I wished to add to the departmental structure investigation a study of classroom decision-making. I felt that the real differences between disciplines should appear in the classroom, since it is there, rather than in departments, that the task of the colleges is performed. A series of questions were devised using the same format as the departmental one (see Appendix F). Both questionnaires were then pre-tested with members of the psychology department at Middleton, students and teachers participating. Various suggestions, mostly concerning clarity and relevancy to Middleton procedures were incorporated in the final questionnaires. An earlier version included questions on who students and teachers thought should make the decisions, but this was dropped because it introduced another issue and extended the scope of the thesis too far.

All teachers in all departments being studied were then asked to chose one class they were currently teaching, preferably one which by their own standards was their most successful, and to ask the class to fill out the classroom questionnaire. As it turned out, teachers either managed to return both departmental and classroom questionnaires or they returned neither. The questionnaire return results were: physics, Middleton, 11/15, departmental, 189 classroom;

sociology Middleton, 9/10 departmental, 147 classroom; physics, Greenwood, 10/13 departmental, 186 classroom; sociology, Greenwood, 5/6 departmental, 89 classroom. This represents a return rate ranging from 73 to 90%.

C) The Analysis of Data

The statistical tests applied to the questionnaire data were Chi Square for significance and Cramer's V for correlation in the case of the classroom data, both appropriate for asymetric tables with large numbers and nonparametric data. The departmental data, where numbers were small (47 including students, 36 without), were dichotomized with the two lower influence levels (0=none, 1=some) given a value of 1 (little influence) and the two upper influence levels (2=moderate; 3=great) assigned a value of 3 (great). This was justified on the grounds that there were too many cells with 0 or 1 and that the respondent was likely to make his basic discrimination on whether a group or person has little or great influence rather than on whether he has some or moderate influence. In any case, no other possible dichotomy made any sense at all. Fisher's Exact test or the corrected Chi Square were used as tests of significant for the resulting tables and Phi for correlation as being appropriate for nonparametric, dichotomous data with small numbers. The Lambda correlation or predictive test was useful and tended to support the Phi score evidence in the departmental data,

but much less so in the classroom data. This may have been because of the dichotomizing process which strengthened differences in the departmental data, or because of the scattering of responses in the classroom data, which weakened differences.

This result may also be the effect of the measuring instrument itself. The questionnaires, both the replicated and the original were complex and required, I have reason to believe, more exact knowledge and experience than students usually have. They require difficult judgments even of faculty who presumably, after a year, have the knowledge and experience necessary. An attempt was made in this study to correct for this as much as possible by eliminating student responses from analysis of departmental questionnaire results (analyzing student responses in a different way) and in the case of classroom data, using only the observations which applied to decisions made by those actually in the classroom: teachers and students. Even so, we don't know how many of those who answered were really guessing and the low correlations in the classroom results suggest that answers are often somewhat haphazard, based on guessing rather than an understood set of role relationships. Of course, the low correlation may also mean that other variables are at work and that not only college administration and academic discipline are the cause of decision-making influence patterns in classrooms.

The method of this study, therefore, can best be

defined as triangulation, or the use of different strategies and types of data to substantiate or negate findings and to overcome the methodological shortcomings of each. The interview and observation data provided a sense of teaching in these colleges as a human experience and as a social process. It also provided clues to possible explanations of the survey material and acted as a check on inadequate or too narrowly defined and measured questionnaire material. The latter served, on the other hand, as a check against observer and interviewer bias and provided more solid grounds for causal analysis than the more impressionistic qualitative information. Both are necessary. I think, however, that questionnaire material should be based on information and impressions that grow out of the observational period, rather than imposed from another context.

This brings us to consider the problems of replication research. No two social situations are ever the same, but if knowledge is to be cumulative we need to act as though there were enough common elements to retest or extend the knowledge we have. In actual practice, however, one is aware of a questionnaire developed in another context as something imposed on the situation and there is a good deal of uneasiness, if one knows the situation well, as to whether it has much relevance to it. Since one often feels that these are not the kind of questions these people ask themselves, we may fear that the results we get are induced by the

questionnaire, not by the social facts we wish to understand. One of the advantages to triangulation is that, as in this case, if the data from the several methods seems to point to similar findings, one is reassured. If it doesn't, we may have a clue as to why.

There is another difficulty. Results, because all situations are different, are difficult to compare. In this research, I have mentioned in detail the ways in which the situation at the CEGEP level and in these particular colleges is different from that of graduate departments in U. S. universities used in the Lodahl-Gordon study. There was, however, an even more difficult problem in comparing our results with theirs and that was the fact that different statistical tests were used. The Lodahl-Gordon material was tested first with means of responses of all departments for all universities and then, controlling for academic discipline a factor analysis with varimax solution and orthogonal rotation was carried out. Since the data are nonparametric, that is, the variables are either nominal (colleges, departments) or ordinal (0=no influence to 3=great influence) these tests seem inappropriate and so were not used. Although we may be able to assume that gross patterns which emerge as significant in both sets of data can be compared, it does not permit analytic precision, and indeed, it was difficult to know whether we would have got the same results had we used the same methods of statistical analysis.

CHAPTER III

THE CEGEP SYSTEM IN QUEBEC

The Parent Report, published in 1964, recommended, among other fundamental changes in the system of education in Quebec, the establishment of a system of colleges d'enseignement general et professionel, generally known as CEGEPs. The recommendation was put into effect in 1967 in Bill 21, the General and Vocational Colleges Act. The colleges were intended to offer free post-secondary education, consisting of a general education stream (composed of pre-university and terminal students) and a technical and vocational stream, both leading to CEGEP diplomas. In this they are not different from the Junior or Community Colleges elsewhere in Canada or the United States except for one thing: in Quebec, unlike the community college, the CEGEP is the only route to university, the first or introductory university year having been phased out. All university-bound students are thus required to obtain the CEGEP diploma before they are eligible to enter the first year of the three year university programme leading to a Bachelor's degree.

The authors of the Parent Report believed that the

CEGEPs should be able to, through consolidation of resources, raise the level of pre-university academic training and at the same time, to be flexible and experimental enough to fit programs of study and method to the tastes and interests of students who otherwise would drop out of education by this stage. To quote the aims of CEGEP education as stated by the Report at one point:

> "We believe that at one and the same time, the quality of teaching will be improved; that all will be given a chance to extend the scope of their education; that a choice of studies based on tastes and aptitudes will be encouraged. Such are the principal aims we propose and which we believe are realistic."[1]

This statement, and in fact the whole Report, leaves room for interpretation, and colleges, whether of French or English language instruction, have developed a wide range of styles based on their view of how best to implement the intent of the Report. In terms of this thesis, it would seem that two of the goals laid down by the Parent Report were sufficiently antithetical or at least likely to be in conflict that they alone could account for quite different school climates and structures. They are that colleges (1) should offer student-centred learning, and (2) should strive for academic excellence. These goals were not put in any order of priority and in actual practice a teacher or school often finds them in conflict. When we add the further condition that the CEGEP

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[1] Report of the Royal Commission of Inquiry on Education, in the Province of Quebec, Part II, p. 167.

is intended to give the school drop-outs of society another chance, that it is also to serve as a centre for continuing education of adults with many different goals, from career changes to evening entertainment, we begin to see a situation in which each college has had to establish its own priorities in order to function at all in such a confusion of contradictory goals. It should not be surprising, then, that the colleges are varied. Depending on the original assumptions of the founding group on matters of educational philosophy and the structures necessary to carry out the Parent Report, the colleges tended to have different histories and traditions, if a tradition can be said to exist in less than five years.

Other differences which emerged mostly reflect different relationships between the environment and the particular college. College-sponsored studies at both Greenwood and Middleton suggest that students tend to attend the college closest to their homes, and therefore the geographical location of a college is an important determinant of the kind of student it gets and the kind of population it serves.

The input from the environment in terms of the kinds of teachers a college hires may also make an important difference. The CEGEP system was inserted between the university and the high school. Teachers were expected, though not always required, to have at least a Master's degree in the field they would teach. The people who sought positions at this new level were, predictably, high school teachers

with Master's degrees and students immediately out of a university graduate programme. The third major group consisted of people in business or professions who wanted to teach and who taught, for the most part, in the career programmes. Many of the high school teachers were people who wanted out of that system and hoped for more freedom. The CEGEP level also offered upward mobility for them. The university graduate student had usually had no teaching experience, except as a teaching assistant, and brought with him, instead, university professorial standards, images and expectations. It is clear that these three groups of teachers would have quite different personal goals, different views of what should be the college goals and different ideas of procedures. The particular mix of these kinds of teachers which a college hires will be an important factor in its organizational functioning.

Finally, there are differences in the number and kinds of vocational programmes offered among the colleges. This has been negotiated with the Department of Education in an effort to avoid overlapping and waste of resources. This, again, affects the way a college relates to its environment, both in terms of input (students, teachers and employer demands) and outputs (the kinds of training that must be provided). Returning to our open systems model, we can see that in all these ways the environment has imposed on each college a different set of problems, demands or inputs, which may

have required each college to establish a different set of priorities among the assigned goals and different structures to reach these goals.

On the other hand, the colleges are restricted as to choice of goals, structures and activities by a set of regulations which apply to all of them and tend to produce uniformity of structure. Bill 21 provides for a Board of Governors, consisting of specified numbers of representatives of parents, teachers, students, and the community, an Academic Council and an Executive Committee, the former as an advisory group on pedagogic matters to the Board, the latter to carry on the "ordinary administration" of the college. The only offices provided for specifically are that of Director General and Academic Dean, whose terms of office and method of selection are specified, but not their job descriptions. This act also provides for negotiations of working conditions with employees of the college, through a recognized bargaining agent, union or non-union. Most CEGEPs operated under collective bargaining agreements, embodied in orders-in-council, which had been negotiated by unions, college administrations and the Department of Education, and which established very strict regulations governing relations between a college and its employees. However, at the time of this study, neither Greenwood nor Middleton had union affiliations, so that this factor, while lurking in the background and possibly influencing structures and relationships in the two colleges, was not

actually operative.

What were operative, in addition to the basic offices and bodies named in Bill 21, were the Regime Pedagogique and the Regime Budgetaire, which laid down in a general way, rules, regulations and procedures for all colleges. Regime Pedagogique specifies what courses may be taught in each discipline, what course content shall be, assigns course credits and states course requirements for each course of study, suggests evaluation procedures and student admissions policy and the requirements of the college calendar -- number of days, holidays, beginning and end of terms to be observed. The Regime Budgetaire establishes nine group budgets under which monies to colleges are allotted and specifies how they may be spent, i.e. the budgets are divided into operating and capital expenditures. These two sets of regulations between them tend effectively to control structures and activities within colleges, or at least to make it very difficult to resist fairly traditional forms or organization and procedures. With fairly limited budgets (and CEGEPs are certainly not affluent) there is no specific budget for innovations or experiments, so that emergency funds available to the Director General or the Dean must be used, or departmental budgets squeezed, if these cost any money. Similarly, although it is possible not to organize academic work through departmental units that follow the traditional divisions among disciplines, it is much easier to continue

to do so because the Cahier (the annual catalogue of courses that may be offered in each subject and of requirements for diplomas, published by the Department of Education) and other Regime Pedagogique regulations are organized by discipline.

Given these areas of enforced similarity of structure, what areas of internal college discretion remain? To begin with the goals, as we have seen, a college can decide what priorities to assign to the goals set forth by the Parent Report. After that, although the Board, the Academic Council, the DG and the DSP (Directeur des Services Pedagogiques, or Academic Dean) are specified for every college, the exact way in which these functions shall be carried out and the relationship between them and other bodies or individuals are not specified, nor does the Act lay down what other bodies and offices a college may establish or how they will fulfill their functions, or how members will be recruited and from what groups. At the level of the task of teaching, although content, method, evaluation and texts are suggested, there has been no effort, so far, to impose the suggestions and in any case, a teacher may be able to interpret them in his own way. Finally, he may choose what courses he wants to teach within the limits of the department's obligation to offer required courses, and provided the course of his choice is listed in the Cahier.

This situation is considerably different from the

circumstances of the eighty university graduate departments investigated by Lodahl and Gordon. In what they call "the decisions traditionally considered the prerogatives of professors" of which I have selected five which seem applicable to the CEGEP level in the departmental questionnaire and five in the classroom questionnaire, considerable autonomy was found either in the department (Physics) or among individuals (Sociology). We would certainly expect much less of either type at the CEGEP level. In addition, many of the Lodahl-Gordon questions were eliminated altogether which were applicable to the principal task of graduate schools: carrying out research and training students in research, but not applicable to the only task at the CEGEP level: teaching at the introductory level.

In summary, the most important differences between the university graduate level and the CEGEP level of education which are relevant for this study are that the CEGEPs are characterized by: (1) greater environmental pressure and control of internal activities and procedures, i.e. of goals, structures and of the task itself; and (2) a different task, i.e. teaching students at the introductory level, rather than training them in research at an advanced level. It could also be postulated that two other differences may be important, namely that (1) at the CEGEP level teachers are less committed to their subject matter and more committed to their students; and (2) that students are being taught who

are not committed to the discipline, as can be assumed in the case of graduate students. But these speculations would be difficult to prove and their relationship to the task even more difficult to establish. It is therefore the first two differences which I have tried to demonstrate and describe and against which I have tried to retest the Lodahl-Gordon findings. Throughout, the attempt was to discover how strong the relationship is between structure and the nature of the subject-matter or the discipline which was found by Lodahl and Gordon. Does it persist even when the immediate task is different or must be carried out under different structural conditions?

CHAPTER IV

GOALS, COLLEGE STRUCTURES AND ACADEMIC DISCIPLINES AT MIDDLETON AND GREENWOOD

This study focused on two English CEGEPs, Greenwood and Middleton which, it was assumed, had developed at that time, different structures and different goal priorities. In view of the amount of structuring already present as a result of various decrees and legislative acts applying to all CEGEPs, it was not easy to establish and verify the differences in organizational and administrative style which one felt and which employees at both colleges asserted to exist between them. As the analysis in Chapter III shows, there are two areas of possible differentiation, where colleges have some freedom to develop their own approach to the problems of collegial education. One of these is in the internal administrative structure: role relationships, structuring of activities, the division of labour and/or authority, formalization of rules. The other area is in classroom activities, or the task itself, which I assume is an extension of the goals and structures -- the teaching activity which implements the goals and for which the structure exists. The questions which concern us here are: (1) are the colleges different and, if so (2) will the differences in academic departmental

functioning found by Lodahl and Gordon persist or will the interchange between departments and the college produce changes in the department as open systems theory would suggest?

Since the purpose is to establish that there are differences in goals and structures in the two colleges rather than to measure the degree of difference, I chose, from documents, observations and interviews, only those examples which demonstrate differences in that they have appeared at one college and not at the other, and which the people working at the two colleges regard as indicative of the climate of the schools. Perhaps the easiest way to do this is through a point by point comparison. On the assumption that structures are built to facilitate tasks and that tasks are for the purpose of reaching some goal, let us consider first the goal priorities.

A) The College Goals

The college calendars suggest in their formats and in their wording a difference in emphasis between the two primary goals of the Parent Report (which we have defined as academic excellence at the college level and student-centred learning) and by implication a difference in attention to the third goal, free and more democratic educational opportunity to people of all backgrounds.

The Middleton calendar for 1973-74, takes almost four

small-type pages to explain the Middleton community concept and how it works. Although both goals: academic excellence and student-centred learning, are espoused in the first paragraph, the former goal is never again mentioned except in that Middleton is described as a community of learners on a basis of equality -- that teachers learn from students as well as vice-versa and that administrators learn from both. What is emphasized most strongly is the political style and organization of Middleton, i.e. decentralized decision-making and student-parity and the calendar states that:

> Throughout growth and changes, several characteristics have tended to dominate.
>
> Middleton has encouraged students, faculty members and staff to participate actively in shaping all phases of college life of concern to them -- to share in determining the character and direction of the college.
>
> Middleton has striven to have its academic life influenced primarily by faculty members and students, rather than by administrators.
>
> Middleton has tried to find continually better ways of having decisions made by those people who will be most directly affected by these decisions ...
>
> Middleton has encouraged honest and open interaction among its members, whether student, faculty member, staff member, or concerned citizen.
>
> Middleton has claimed that one's whole experience at college, rather than merely what goes on in classrooms and laboratories, should be educational.
>
> With such ambitions, Middleton has not been -- and is not -- a tranquil place. Nor has it found the formula for ideal operation. In fact, Middleton is frequently hectic, turbulent, frustrating. A sense of potential, of movement toward excellence, of openness to change, however, have sustained the college and tempted many

of its members to continue a struggle for improvement.[1]

The phrase, "merely what goes on in classrooms, etc." certainly suggests a greater concern for the person, for student growth on an affective or personal level, than for academic subjects or skills. In fact, one could get the impression from the calendar that Middleton is primarily an experimental community with religious overtones (one official document proposes that the College government should be mission-oriented)[2] with more concern for the emotional, spiritual and civil growth of all its members, especially teachers and students, than for purely cognitive growth and skills. The same document, as well as a Report of the College Council on Governmental Amendments, which was passed by referendum in 1972, states: "The humanity of the College is more important than the efficiency," and "Creativity must often take precedence over clerical details," statements that refer more to government than to the classroom, but help to convey the spirit of the college. This student-centred or humanistic view of education was also supported by a statement made by Phil Grant, the current and original Director General of Middleton College. While asserting that his first goal was to turn out students of as high academic

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[1] Community, Middleton College Calendar, 1973-74, p. 5.

[2] Pattern for Middleton College Government, 1970-71, p. 1.

competence as any other school at this level, he remarked about his original goals:

> "I was committed to the notion of general education for college students. I felt that most of our universities brutalized students in an effort to make them academically competent, whereas I was interested in the 'total experience' of the student. I also felt that one of our goals must be to offer new alternatives for students who were not going to the university."[3]

The Calendar for the same year at Greenwood contains considerably less information about goals and style than Middleton's does. Brief sentences in various sections describe the purposes or goals of career programmes, pre-university or continuing education, always in terms of academic skills or knowledge which will meet student needs. The only general goal stated is in its entirety, as follows:

> Greenwood College as a learning community offers wide opportunities for human growth where each student can reach for the ideal -- the development of individual potential. The <u>people</u> focus of the College depends for its success on the group and individual interaction which is fostered in each department. Greenwood offers its students an opportunity to develop their skills, attitudes and opinions while growing in ability and responsibility.[4]

At both schools, the Director-Generals have attempted to state and get support for college goals. The statements from various documents quoted above about the Middleton priorities are in tone and substance the same as have appeared

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[3] Interview, July 18, 1973.

[4] <u>Greenwood College Calendar</u>, 1973-74, p. 14.

in a number of memoranda bearing Phil Grant's signature which have circulated in the college from time to time. One of these, dated August 21, 1972 and entitled "The CEGEPs and Middleton College" states on page 5:

> Middleton prides itself on its commitment to students and applicants who would otherwise be disadvantaged. Middleton accepts the fact that all students do not come to the college equally prepared; it attempts to acknowledge this fact by adjusting its activities and programs, its instructional techniques, its sources of motivation, and its styles of learning and teaching to the individuality of its students and student groups.

This seems to reflect, again, student-centred learning as a primary commitment.

Byron Mackey, Director General of Greenwood, has also issued at least two documents which attempt to define and get agreement on goals. One, entitled "A Conceptual Framework for Collegial Education," (unpublished manuscript, August, 1973) is an effort to devise a model for the educational process that is multi-dimensional and will integrate the various hitherto conflicting goals of collegial education. The emphasis is on helping students to formulate and pursue their academic or career goals through curriculum development, vocational guidance and academic advising. The need for information and skill in order to reach the student's goal is stressed as the primary function of the pedagogical activity and an important role is assigned to human development in the model. Just as the means of achieving academic excellence in the Middleton milieu is left very vague, so at Greenwood one feels

that the means of achieving human development is undefined, except to say that it requires "a demanding, but non-threatening environment." B. Mackey regards provision of human development as a particular function of the CORE English and Humanities courses through their subject-matter and through special attention to study skills, remedial reading and motivational analysis when a student's development seems to be blocked. Clearly here one is engaged in adjusting the student to the environment, rather than the environment to the student and human development has a strong cognitive bent. In the other document, "Greenwood College Objectives" circulated through the college in January, 1973, and which according to B. Mackey met with "thundering indifference" and according to a Greenwood teacher was so general that nobody could disagree with it, the following objective appears:

> Greenwood College will provide a meaningful system of feedback on students' performances to:
>
> -- enable the students to assess their progress towards their objectives, and
> -- enable others to assess the student's probability of success in further pursuit of his educational goals.

This is one of only seven objectives listed in the one-page document, but is the one which has not and would be unlikely to appear in a Middleton statement of goals. It suggests that grades or other forms of evaluation play a very important role in the student experience at Greenwood. It may be compared to the statement in the CEGEPs and Middleton

College: (p. 14)

Middleton expects the evaluation techniques to be related

> to the content and objectives of specific courses and, exceptionally, to the particular program load of students in particular cases ...
>
> Middleton confers on the individual faculty member and department, rather than on the college administration, the responsibility of adjusting course content, instructional techniques and learning environments to the particular need of students. (p. 13)

This difference in definition of the goals implies a different role relationship between student and teacher and a different set of criteria for success. That this is in fact the case was suggested by interview material. Mackey stated that the best teachers at Greenwood were, by and large, the ex-high school teachers and went on to add that the more successful of them were very much oriented to university standards and requirements and that such teachers and their departments were very proud of their students' university acceptance rate and achievements.[5] Ron Graham is an administrator who often chafes at the Middleton style, but in responding to the question about who are the best teachers, his answer was: "The best teachers are those that are effective in reaching and bringing out the best in students, who are not rigid or insecure and who can blend effective teaching with an honourable life style and can take part in

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[5] Interview, October 23, 1973.

the life of the college."[6] It would be hard to find a more clear-cut statement of the different definitions of success which flow from the difference in goal priorities between a school devoted to academic excellence and one devoted to humanistic education.

Finally, evidence of the importance of academic excellence at Greenwood as compared to Middleton's emphasis on student-centred learning is to be found in the sections on admissions in the two college calendars. Greenwood's emphasizes the competitive nature of admissions (the word does not appear in the Middleton calendar) and "marks" as the decisive factor. (p. 32). There are four types of admission decisions which a student may receive and these are clearly laid out. Aside from specific entrance requirements of different programmes, Middleton has more indefinite statements about admissions, suggesting that "Middleton is striving to obtain the widest possible cross-section of people from the Montreal community into its student population," and that, "the Admissions Office shall assure that each applicant's qualifications are carefully and fairly examined, and an appropriate decision made." (pp. 14, 15).

It may be and probably is that many of the same criteria are used by both schools for selective processes, but the tone of the two documents is quite different. When

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[6] Interview, November 2, 1973.

combined with the above-quoted statement of Middleton's willingness to adapt to students whose backgrounds may be inadequate in various ways, this statement of admissions policy suggests that there is more of an 'open door' at Middleton than at Greenwood. There is other evidence that this is true, that Middleton takes more students whose mother tongue is not English, who are first-generation immigrants, and who have not finished high school than does Greenwood. Statistics on this year's students were not easily available, but Denis' study of Middleton showed that in 1972, 30% of Middleton graduates did not have English as their mother tongue,[7] whereas administrators and teachers at Greenwood have stated that the student population there is almost entirely middle-class, English-speaking Canadians.

This study also shows that in the physics and sociology classes studied there is a definite difference in ethnic background of students at the two colleges. Table 1 shows that on three counts: place of birth, mother tongue and religion, there is considerable difference between the two schools. The differences are small between the two departments at each school, except that at Middleton sociology classes have more Canadian born students than physics classes have. However, there are important and large differences between the two colleges. To choose some interesting points:

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[7] Ann Denis, Middleton (not correct name) Graduates, 1972, A Summary Report of Findings, p. 6.

the proportion of students whose mother tongue is English varies from 66.9% at Middleton to 88.3% at Greenwood; 89.1% of Greenwood students were born in Canada as compared to 71.7% at Middleton and more than half of the Greenwood students are Protestants as compared to a little more than one-quarter of Middleton students; although Middleton classes had 15.5% Jews (22.8% in sociology classes), Greenwood had only .4% and none at all in the sociology classes. There was little difference between the two schools in the number of students whose mother tongue was French or whose religion was Roman Catholic. In summary, it appears, insofar as these classes are representative, that Middleton has considerably more students who were not born in Canada, are neither Roman Catholic nor Protestant and whose mother tongue is neither English nor French, in short, of immigrant groups and native born Jews, although the data cannot tell us this in any precise way. The first is suggested, however, by the near correspondence between the proportion (26%) at Middleton who have neither English nor French as their mother tongue, and the number who were not born in Canada (28.3%). The latter is suggested by the fact that the rather large proportion of students in sociology classes who were born in Canada (79.5% compared to physics' 65.6%) is not reflected in a difference in the mother tongue data, but <u>is</u> reflected in the number of Jewish students in sociology classes.

To the extent that this is a reflection of

administrative policy, it suggests that the two schools take a different view of the third goal of CEGEP education: to offer free, post-secondary education to the previously disadvantaged and the drop-outs of society. This, however, ignores the effect of geography and the social environment. Middleton is an inner-city school in location, being scattered over the center of downtown Montreal in old buildings not designed as schools and mostly in depressed areas of the city. Greenwood is situated in the West Island suburban area on two well-located campuses surrounded by English-speaking, middle-class families who exert considerable pressure on the college. In fact, they regard it as 'theirs'. The colleges naturally reflect to some extent the goals and problems of the communities they serve.

Without getting too involved in the reasons for the differences, I think it is legitimate to suppose that there is a different priority of goals in the two CEGEPs, even though the goals must be and are the same. One would expect that this would lead to there being a difference in structures at the two schools.

B) The College Structures

It should be noted here that Greenwood, founded in 1971, two years later than Middleton, had as its first Director General a man who had been a teacher at Middleton, and who had tried to set up a school following the Middleton

model. Benjamin Bruce, now a Humanities teacher at Greenwood, explained that he had the same advisor as Phil Grant, and started with the same idea of the open community, student parity and decentralized decision-making, although "parity was never officially stated as policy."[8] This lasted only a year, which Bruce attributes to there being no issues to force the college to develop a community spirit and too much homogeneity and complacency among the students which produced a total disinterest on the part of the majority of students in participation in decision-making. Finally, he foresaw that the growth in size which Greenwood would experience would make the Community Council idea unworkable. At the time of the study, students hadn't even been able to form a student association. Student representation is at the moment working effectively only in the Humanities department and on those bodies where it is required by law -- the Academic Council and the Board of Governors. The college has in general given up the idea. Student opinion is sought where pertinent, but not participation in decision-making on most matters.

Nancy Semple, chairman of a committee given a mandate to propose new college government structures, after Bruce resigned in the first year, stated[9] that the early structures

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[8] Interview, February 19, 1974.

[9] Handbook of Greenwood College: Who, What, Where and Stuff, September 1973, p. 12.

broke down because of lack of support for the Community and Academic councils, their large size (80 people on the Academic Council) the lack of definition of their powers and roles, all of which tended to deliver power into the hands of a dedicated, but not necessarily representative, few. As noted in its Calendar, Middleton was not deterred, though often turbulent, as the result of some of the same difficulties.

Both colleges were re-examining their structures in the second year of their existence. For Middleton this was 1970-71; for Greenwood, it was 1972-73. At Middleton, the original philosophy of Phil Grant as stated in The Middleton Approach (1969), which was basically a statement of the goals we discussed in the last section, remained unchanged. Greenwood adopted a more traditional administrative structure. The Pattern For Middleton College Government was ratified by the college community in Spring, 1972, and Greenwood gave up its Middleton model structure only some months later in November, 1972, the year 1973-74 was probably optimal in the life of the two colleges for observing the effects of different structures and goals. Under the pressure for unionization, community disapproval (particularly by the English-Canadian, Protestant, middle-class community of Montreal) and the department of education's efforts to standardize all the CEGEPs, Middleton was clearly going to change in the direction of Greenwood's structure and goals whether it wanted to or not.

It was imperative in terms of the research to catch as much of the original Middleton as possible for comparison and so the research on Middleton was done first, during the Spring, Summer and Fall of 1973. It is believed that the changes had not yet affected the basic functions and structures of the college. Greenwood was studied in the Winter of 1974.

At Greenwood, the Report of the College Government Review Commission, (October 1972) proposed the structure reproduced in Chart I and subsequently agreed to by the Board of Governors. The Revised White Paper, presented to the Middleton Community by the Negotiating Committee for Structures (May 1970) proposed the structure shown in Chart II, which was, except that college-wide councils were reduced from three to one, approved by the Middleton Community in referendum.

Many things might be said about the differences in these two tables of organization, but one of the more elementary from the point of view of this study is that the hierarchy at Greenwood is the traditional one, with the administrators at the top, the task performers at the bottom, whereas Middleton's suggests that the principal action and the primary decisions be made by the task performers and fed down to administrators and college-wide bodies.

Another equally important structural difference is that at every level at Middleton there is student representation, at parity or better with other groups. Although this

may not be clear from the chart, it is made clear in the report. At Greenwood, student representation is required only on those bodies which are stipulated by Bill 21: the Board of Governors and the Academic Council (or whatever college-wide legislative council exists). However, both the physics and sociology departments at Greenwood did invite student representatives to sit on the Hiring Committee of the departments, making a special effort to find students who would be present during interviews with prospective candidates for teaching positions.

Returning to the two college calendars, this is confirmed in statements about college government. In the Middleton Calendar for 1973-74, the emphasis is on freedom and self-government, particularly at the lower level, since the principle that the administration serves but does not control was and is a firm Grant point of view and has been labelled by some within the school as 'democracy by the king's command'. The words 'free' or derivatives occur four times; the words 'self-government' or derivatives occur five times. Neither of these words occur in the Greenwood Calendar description of its own government which consists of three paragraphs, the second of which, dealing with internal government is quoted in its entirety: (p. 19)

> In its first year of operation, the College adopted a Community Council format with specific interest work-shops, assuring all members of the College an equal opportunity for decision-making participation. Idealistic, like Greenwood itself, the format proved

unwieldy and was found to demand excessive time and energy. Interest fluctuated and withered away when there was neither crisis nor conflict. A Government Review Commission composed of staff, students and Board members proposed a more structured system for the consultation and decision-making processes. Its recommendations accepted by the community and presently in operation, established a Tribunal for internal government and jurisdictional issues; described the membership of the elected Academic Council (required by Bill 21); as well as the consultative committees to advise both the Academic Council and the administration. General forums may be called by the Tribunal on suggested topics of college-wide interest or importance.

Middleton's description of its style of governance covers almost two pages, but two paragraphs are central to the differences between the two schools: (p. 6)

> People of similar interests, attitudes or goals are encouraged to associate freely for their common ends, all the while respecting the rights and prerogatives of others to associate freely. This notion is translated for the academic life of the college into the formation of "departments" with a significant measure of self-government in important matters such as budgets, curriculum development, performance evaluation, and staffing. Within each academic department, government policy and decision-making are shared equally by faculty members and students as an application of the principle of "student parity". In non-academic matters, clubs and organizations, made up largely but not exclusively of students, apply the principle of self-government and cooperation with other organizations.
>
> Central to the Middleton approach to self-government is the principle that administrators and support personnel provide services, animate, co-ordinate, and inform rather than 'direct' in a traditional sense. Administrators are expected to establish parameters for self-government, to provide information, to propose alternatives, and to persuade rather than order. Chairmen of academic departments are accountable to department members and rarely act without departmental consultation; service "departments" have the difficult task of providing services to all other departments equitably and efficiently; sector co-ordinators inform and assist

academic departments which group for common purposes rather than manage the affairs of such departments.

The specification of the requirement to have student parity at the departmental level is clear and at the time of the study, there was, so far as I could discover, no department at Middleton which did not have some form of student participation at departmental meetings, however minimal and token, and many departments had regular and active input from student representatives in all departmental matters. There is another structural difference which is brought out in the last sentence of the Middleton statement on its government. At Greenwood, the sector coordinators are appointed by the administration and regarded, according to James Hartt, DSP at Greenwood, as administrative representatives. At Middleton, the sector coordinators are elected by the sector and regarded as the representative of the departments and accountable to them.

From these differences, there follows a number of other tendencies, not always successfully carried through and often resisted by some strong groups at each college, but which typify the two colleges. At Greenwood there is a tendency to accord authority and responsibility to offices, not persons, and to use proper channels. James Hartt states that he makes a point of working through channels and expecting others to do so also. Only seven people report to him directly: the three sector chiefs and four service heads.

If he hears a teacher is not fulfilling his contract, to take an example which Hartt provided, he takes the matter up with the sector chief, who takes it up with the department chairman, who then must deal with the situation and report back to the sector head, etc. He is rigorous about supporting the authority and decisions of his subordinates and asserts that the Director-General is also.[10]

At Middleton, persons are more important than offices, and channels were honored, at the time of the study, more in the breach than in the observance. Ron Graham, DSP, described his job as that of a fire-fighter, running around putting out fires (problems) that start up between departments and waiting endlessly for departments and other groups to make decisions that "could better be made in five minutes by a trained administrator."[11] Graham had, at the time, direct contact with departmental chairmen and this meant that as many as twenty-eight people felt that they could and often did report or try to work directly through him. Grant always encouraged people to come to him with problems and this personal touch was characteristic of the way all problems were solved. If anyone had a problem, they "went to Grace Mason, or to Ron (Graham) or to Phil,"[12] very often by-passing their

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[10] Interview, April 30, 1974.

[11] Interview, April 27, 1973.

[12] Interview with Richard Parks, Adjoint-DSP, Middleton, May 6, 1974.

departmental and sectoral heads and college-wide governing bodies. Later, these personal decisions often turned out to be binding on the legally constituted groups and officials, even if they did not approve of them. A campus manager at Middleton dubbed this "the end-run" and describes it as the method whereby people at Middleton get around the decisions of authorized persons or bodies. They simply go to Grant and get a different decision.[13]

Grant is notorious for not supporting his administrators. For reasons which may have to do with his long career as a teacher in the Catholic school system, he explained in an interview that, in setting up the college, he was particularly concerned with the tendency of administrators to lose contact with the task and the people doing it and use their position to wield power.[14] Also, as indicated in many of his papers and statements, Grant was resistant to defining roles in any clear-cut way, or encouraging people to be experts. He said repeatedly that administrators should teach and teachers should be involved in administration and students should be part of both. James Hartt, on the other hand, believes firmly in clear role definition and specialization and says, "having everybody do everything is demoralizing to the people who do have

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[13] Interview with Marshall Smith, May 30, 1974.

[14] Interview, July 18, 1973.

expertise and is inefficient besides."[15] Predictably, at Greenwood, the turnover among administrators has been very low, while at Middleton it has been very high: only two administrators remain of the group that started in 1969, one of whom is Grant.

There are exceptions to all this, and the systems did not work in either college in the simplistic way which this analysis may suggest. At both colleges there exist counter currents which tend to counteract the thrust of the dominant style. At Greenwood, teachers who regard themselves as professionals with their own standards and rights to autonomy, resist authority when it concerns their own activities or when it conflicts with their view of their task. As James Hartt says, "I can only persuade, I can't order," and some teachers stated that they regarded him as dangerous in his emphasis on control and efficiency. One teacher remarked that if Hartt were DG, Greenwood might be in trouble with its teachers. Departments tend to resist either covertly (by ignoring suggestions) or overtly (by making public protests)[16] what they regard as administrative interference in departmental affairs. The difficulties of running an efficient organization in face of regular assertion of "academic

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[15] Interview, April 30, 1974.

[16] Examples of both were observed in meetings of departments at Greenwood.

freedom" by teachers was mentioned voluntarily several times by both Mackey and Hartt in interviews.

At Middleton, there is an informal system that exists as a substitute for rules and not as an effort to get around them. It is "informal" in the sense that it has no formal sanction. More than one administrator reported that he felt he had more power at Middleton than he would have at a more regulated school. Power at Middleton is defined and limited not by rules but by personalistic criteria, and accrues to persons with information, credibility, charm, persistence, connections or aggressiveness. The result is a kind of system of feudal lords surrounded by their retinues, competing for position, money (what little there is) and power. As one administrator said: "Its like the Wild West. The guy with two guns wins."[17] It must be noted, however, that this state of affairs is much more upsetting to administrators than to teachers, at least in the two departments where interviews were conducted. Teachers complained of inefficiency in administrative and pedagogic <u>services</u> at both schools, but at Middleton teachers did not, in Spring to Fall, 1973, complain of administrative interference in departmental matters or of a threat to "academic freedom." On the contrary, the majority interviewed felt that they had all the freedom and autonomy they needed.

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[17] Interview with Marshall Smith, May 30, 1974.

In this connection, we should perhaps add that in terms of "quality of life" indicators, there was more spontaneous expression of mutual confidence and trust in colleagues to maintain professional standards and act responsibly at Greenwood than at Middleton. What one noticed was that difficulties and frustrations experienced by teachers at Greenwood tended to be blamed on the administration. At Middleton, blame was more diffused and tended to become a general distrust of colleagues. This was possibly because it was hard to pin responsibility on anyone, roles and authority being so loosely defined.

Another illustration of how decisions are often made at Middleton on the basis of personalistic, rather than universalistic, or personal rather than impersonal, criteria are the numerous stories that circulate at Middleton of students who manage to get around the rules of the registration procedure (an area where routinization and regulation seems essential) by going directly to coordinators or to Phil Grant and pleading their case. These stories have been confirmed in an interview with an administrator.[18] This also illustrates the extent to which routinization of what are regular, repetitive parts of the task of teaching is more difficult at Middleton than at Greenwood. One of the informal indices which were used in interviews to assess whether there was a

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[18] Interview with Richard Parks, May 6, 1974.

difference in this dimension of bureaucratization between the two colleges was the extent to which decisions about such matters as grade reports, budgets, course descriptions for the calendar, etc., are made on an emergency basis because of too short notice of deadlines. My question was, "How often in the past year did a routine matter have to be handled as a crisis in your department because of short notice?" The question was asked of departmental chairmen and the answers ranged from "too many" (Physics, Middleton) to "were there any other kind?" (Sociology, Middleton) to "we get barely adequate notice" (Physics, Greenwood) and "I only remember one" (Sociology, Greenwood).

Finally, as one might notice from the tables of organization of the two schools, the organization of disciplines and departments is slightly different in the two schools. At Greenwood, technologies are in the same sector as their related academic disciplines (social work with social science, for example, or mechanical technology with physics). The three sectors are then: Science and Science Technologies; Arts and Arts Technologies; Social Science and Social Science Technologies. At Middleton, all technologies are in one sector, and social sciences are under the Arts sector. There are, therefore, three sectors: Science, Arts, and Technologies.

Departments also are differently organized in the two schools. In what appears to have been partially an effort to

cross-fertilize kindred disciplines and partially an effort to lessen departmental power, many of the disciplines at Greenwood are organized into joint disciplinary departments. Both the departments studied here were members of such organizational units. The physics department is part of the Math-Physics department, and the chairman of the larger sub-group, mathematics, is chairman of the department, whereas the physics chairman is vice-chairman of the department. Sociologists work in a department of Anthropology-Sociology-Geography, with two chairmen, one of whom is an anthropologist and one a sociologist. In the first case, because the Math-physics group is so large, physics teachers meet separately much more often than they meet with the larger group. In the second case, since the total group is small, the anthropologists, sociologists and geographers normally meet together, although the sociologists have a kind of caucus which meets sporadically to settle problems which they have that do not apply to the others. There were numerous signs during the observation period that both these amalgams were unstable, producing frustrations more often than inspiration and exchanges of ideas. The tendency to break down into separate caucuses, which would be departments in the usual case, illustrates the point.

To return to the analysis of Pugh et al, it would appear that both colleges are what Pugh calls personnel bureaucracies. They are furthermore a particular case,

"heteronomous professional," that is, they employ a large number of professionals who actually perform the technical task of the organization, but the organization itself or the professional sub-units are not autonomous. Rather, they are either embedded in an organization that exerts considerable control over their activity or this control is exercised by a governmental or other outside body. Pugh et al describe such organizations as "being well above the mean on line control of workflow and considerably below the mean on structuring of activities" because professionals govern their activities by professional standards, but when employed by governments or other outside bodies, such organizations are high on centralization of authority.[19] In personnel bureaucracies, those characteristics most commonly ascribed to bureaucracy by students of organization appear largely in connection with personnel procedures, where hiring, firing, salaries, conditions of work, etc. are regulated. In summary we may say that because of leeway granted to each college to define goal priorities and internal structures as it sees fit, Greenwood has developed academic excellence as its primary goal and a structure that is close to the traditional public educational institution; where structuring of activities is, while low, at least higher than at Middleton and line control (i.e. decision-making at the level of the task) while high, seems lower than

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[19] Pugh et al, p. 119.

Middleton's. Middleton developed a decentralized, student-parity model, where the primary goal of learning is growth in the humanistic sense. There has been at Middleton deliberate non-structuring of many activities, for example in resistance to role definition, to routinization, to rules and regulations and to impersonality and an official effort to keep teachers and students as the primary pedagogical and governmental decision-makers, thus increasing high line control. There seems little doubt that there were differences in structure between Greenwood and Middleton of sufficient importance to justify the assumption that the task of teaching in the academic departments under consideration, physics and sociology, was carried out in different environments in the two colleges.

C) The Academic Disciplines

There remains one final assumption to consider before turning to an analysis of the results of our replication of the Lodahl-Gordon study. This is whether at the CEGEP level we can assume that the differences between the disciplines of physics and sociology are those suggested by Kuhn and confirmed by Lodahl-Gordon at the graduate school level. Interviews were conducted with all members of the physics departments and sociology departments at both schools who had been at the college for one year, and with departmental chairmen and the relevant sector chiefs in an effort to confirm this.

Although there were individual exceptions, the general direction was clearly in conformity with the findings on the graduate school level. All physics teachers in both colleges reported little difficulty in agreeing on texts and felt that there was little room for improvisation or change in the content of the courses, which, as many pointed out is laid down by the Cahier. Method was fairly uniform, although one teacher at Middleton and two at Greenwood offered students some choice of method (how many tests or labs to do and on what, or group problem solving in labs). The department at Middleton had also experimented with a form of modular independent study in one course, although this had been discontinued. This kind of modular instruction was also proposed in the physics department at Greenwood for a remedial course. Reactions of the teachers, observed during the meeting when the proposal was presented, suggested that it would be tried. The physics departments at both schools organize course committees for the large introductory courses which have multiple sections. Students are sometimes represented on these committees and the teachers involved agree on texts, content of course, lab problems, and exams as well as the term schedule for these things in all sections. In the physics department at Middleton the chief controversy in the realm of method was about whether a final three-hour exam should be compulsory for all courses. All teachers agree that students can have little or nothing to say about any of this except possibly

the method of evaluation, which some teachers regard as negotiable, strictly within limits. As one Middleton teacher said, "one of the nice things about teaching physics at this level is that students cannot question what you say." In terms of the Lodahl-Gordon study and of the Kuhn paradigm, there was no doubt that the physics teachers at both colleges agreed as to the basic knowledge in the field, and what should be transmitted to the student. There was not even very much difference in attitude about method. No one suggested at either school, for example, eliminating labs or problems or tests. There was searching for better ways to interest students and to communicate the material, and some concern about how high the standards should be kept, particularly for students in technologies. There was little or no disagreement about what the pre-university student in the sciences needs. At Greenwood there were two teachers who mentioned that they did not give final exams, only tests, during the term and one of them allows students some choice of method in that students may choose, say, five out of seven labs or problems, and the department at Middleton has considered and sometimes allowed the waiving of exams if a student's average is high enough for the rest of the course.

It was noticeable at both colleges that physics teachers enjoy teaching. The majority spontaneously expressed their pleasure in their work and in working with students. This was even more marked at Greenwood than at Middleton.

Several teachers volunteered comments such as that of one of them, "I must say our students are a pleasure to deal with" and would go into considerable detail about their own particular methods or approaches to classroom or individual teaching. At Middleton, there were three out of eleven who did not volunteer any comments about their feelings about students or teaching. This does not necessarily mean that they did not enjoy them, of course. In any case, the majority were clearly dedicated and interested and felt little sense of frustration or conflict in their work. As a Middleton teacher said, "I think that this confidence in being able to do something well (teach physics to students) is a very important part of my job and something in which I pride myself in being able to instill in students." This was one of the findings of the Lodahl and Gordon study -- that teaching and working with students is more pleasurable for the teacher when he belongs to a paradigm science, where the knowledge base is one in which he can have confidence and there is a shared and well-understood vocabulary which facilitates communication with students.

Sociology departments at both schools also showed the expected syndrome of the pre-paradigm science. The department at Greenwood is only half the size of the one at Middleton (5 to 10) and this may partly account for the greater degree of disagreement and the variety of views about the field and how it should be taught which are present at Middleton. However, at both schools the sociologists "are known for their

inability to get along with each other," as one Greenwood administrator put it. At Middleton, however, the expected divergence is either exaggerated or encouraged by the sense of freedom reported by all Middleton teachers. Many, in fact, felt that the freedom had gone too far. In any case, of the seven sociologists who had been in the department for at least a year who were interviewed, six stated that they did not feel that any one method could be offered to a class in sociology because the students were so different in goals, interests and abilities. They all offered multiple choices of method and evaluation and several even permitted students some choice of what he would learn, within the limits of what the course could contain. Furthermore, taking the department as a whole, of the ten members of the department, only two were offering what I defined as "traditional" method courses: lectures, texts, exams and/or term papers. Two teachers were entirely engaged in modular instruction, with successful completion of tasks leading to an automatic grade of 95; one teacher was developing and using a program of independent, individualized instruction, one specialized in teaching through sociodramas and asked students to evaluate their own work, another made extensive use of audio-visual materials, and another emphasized direct contact of the student with sociological material through experience, bringing the student to field situations or inviting guests of all kinds to classes. There was no effort, except briefly in connection with setting up a modular

course, to come to any agreement about texts and in the Fall of 1973, no two teachers were using the same text. One of the major issues for two years in the department was "what is sociology?" and the department produced two lengthy reports which produced heated and long meetings on this subject, without reven[illegible]eaching agreement either on what to teach or how to teach it. In fact, the department had split rather seriously in 1972-73 and this issue played prominently in the affair.

In neither sociology department, Greenwood or Middleton, has there been much effort to form teams or committees of teachers teaching the same course in order to achieve uniformity. As one of the departmental chairmen at Greenwood (there are two because nobody wanted the job) said, "One of the continual issues is just getting together for a meeting and getting anybody to do anything ... and even when we get together there's no way we can agree on anything very basic." Interviews with Greenwood sociology department members indicated that teachers had agreed recently on a text for the introductory course, with each teacher choosing his own extra reading materials, but that was as far as it went. As one teacher said, "We have had debates about the problem of what the student needs in the Introductory courses but finally have come to the conclusion and accepted the idea that conflict is a good thing, and in any case it is inevitable in this field, and so we've allowed each teacher to sort of go his own way hoping that professional standards will

keep him in line." It should be noted, however, that there was much less experimentation with method and less variety of views about sociology at Greenwood than at Middleton. I was unable to find any teacher who deviated very far from the traditional mode, so far as methods and evaluation were concerned.

In observing meetings of the departments of sociology and physics at both colleges, it was evident that all four have splits about pedagogical matters, although it seems to cause less difficulty to physics teachers than to sociology. The disagreement comes to light in the discussion of content of introductory courses and, in physics, around the issue of standards in service courses. Several teachers defined this split as that between the professional and the teacher in the field; or as some defined it, the university-oriented teacher and the humanistic or student growth-oriented teacher. At Greenwood it was also seen as the high-school (experienced) teacher view of the task versus that of the recent product of the graduate school approach. As we have seen, this split is inherent in the goals of the CEGEP system.

There was a sense of tension about their work in the remarks of almost all sociology teachers at both schools. At Greenwood, one teacher remarked, "If I had students interested and eager for knowledge, then I might be able to be a good teacher, but they seem to have no commitment to anything." Complaints about the students as apathetic, lacking the skills

of reading and writing needed for social sciences, were common, the latter more common at Middleton. At Greenwood, the principal complaint was that the students, being all of the English-Canadian middle class persuasion were too lethargic and insular. One Middleton teacher remarked, "If I really get interested in something and work hard on preparing a good lecture, I'm in trouble - it turns the students off." Although there are undoubtedly people in both sociology departments who find great satisfaction in their jobs, the general enthusiasm was markedly lower than in physics departments and in fact, I failed to get one thoroughly unambivalent remark about the joys of teaching from a sociologist.

There was one unexpected finding in the interviews. One of the questions asked in the interviews was what was rewarded or actively supported at each college by administrators and colleagues. As it turns out, there are no established and dependable rewards in either college for anything, and no promotional system in the CEGEPs. What is interesting is the difference in the reactions of teachers in the different departments to this fact. Sociology teachers, in most cases, in both schools, were aware of this and found it disturbing and distressing. They offered various suggestions as to what should be rewarded, from innovative or excellent teaching to support for research or other outside activities, but the majority felt that there should be some reward system. Physics teachers had, in general, not thought about this and

when it was brought to their attention they either thought that there should be no system of rewards (because it leads to competition about the wrong things) or they said simply that the rewards they get from teaching and the responses of students is and ought to be enough. Again, this would seem to support the Lodahl-Gordon findings that the paradigm sciences, being more confident of their knowledge, are able to draw more satisfaction from their work with students. Sociologists, feeling doubtful of what they know and having difficulty in achieving recognition from colleagues or the outside world, also feel less satisfaction from teaching and need more concrete support and reassurance from the environment.

Part of this study retested the Lodahl-Gordon questions on teacher attitudes toward spending time with students. (See page 4, for teachers only, of the Departmental questionnaire, Appendix Ca). Table 2 presents the results. It should be noted that the only part of the breakdown of hours spent with students that is presented is office hours and total hours. Hours spent in classes and labs are set by teacher contracts, course requirements and the teacher-student ratio, as established by regulation for all CEGEPs. A full-time teacher teaches so many students so many hours per week, but because part of this is lab time in physics, it is difficult to compare hours spent by teachers in their contracted time. Office hours, however, are more flexible, harder to control

and subject to no upper limit. Therefore, it was assumed that they reflect more accurately the teacher's attitude toward spending time with students. Stated attitudes can be checked against the total time spent, especially the question as to whether the teacher would like to spend more, the same, or less time with students than he now does.

The table shows that teachers at both colleges feel that time spent teaching is time well spent or that teaching is a rewarding activity (which might have been a better way to ask the question) although there seems to be slightly more disagreement about this among Middleton teachers than among those at Greenwood, especially in the sociology department. In fact, as one might predict, the sociology departments at both schools show less agreement among themselves than physics teachers. Another striking datum is the high degree of agreement among physics teachers at Greenwood that they find their teaching satisfactory, combined with the number of hours actually spent with students, which is markedly higher than in the other three departments. Even so, three Greenwood teachers would like to spend more time with students.

In general, the two physics departments and the Middleton sociology department have given the responses which Kuhn's theory and the Lodahl-Gordon study would lead us to expect. The Greenwood sociology department, however, is somewhat inconsistent. It is difficult to interpret the response of some of the members that they would like to spend more time

with students when the departmental average of hours spent is so low. That is, one wonders why, if they want to, they don't. It was observable that there were fewer students sitting in faculty offices or working in the general area in the sociology department at Greenwood than in any of the three departments. Why this should be so was outside the purpose of this study. What we can say is that the amount of time actually spent with students (not mentioned in the Lodahl-Gordon study) is, however, quite different in the departments, with a noticeable spread between departments at Greenwood and no difference between departments at Middleton.

This general review of the physics and sociology departments in the two colleges makes it clear that we may assume that Kuhn's definition of the differences in physics, as a paradigm science, and sociology, as a pre-paradigm science, found to be true at the graduate school level by Lodahl and Gordon and to have certain effects on the task performance in academic departments, holds true at the CEGEP level as well. Specifically, we can assume that there is a greater agreement among members of the physics departments than among sociology departments as to the content, method and texts for introductory courses and a resulting greater ease in organizing the task and dealing with students.

This being the case, we may assume that the differences between physics and sociology department structures found by Lodahl and Gordon should be found also in the two

CEGEPs through the replication questions which apply to these structures. The differences should also appear in classroom structure in the teacher-student role relationship, and in the decision-making process, where one would expect more decisions of all kinds to be made by faculty committees or departments as a whole in physics than in sociology and more by teachers in sociology. Students in sociology classes should have more influence on decisions than in physics classes. If these findings are not true or if they vary from one college to the other, it may suggest that the structure of the college, as an environment, is forcing change on the departments, so that they are adopting structures not congruent with their tasks or the nature of the discipline taught.

D) Summary

Interviews and observations in the physics and sociology departments at Middleton and Greenwood Colleges confirmed the original assumptions on the basis of which they were chosen for this study. The colleges, apparently, have different goal priorities, Greenwood emphasizing academic excellence and Middleton emphasizing student-centred learning. They also had different administrative structures, with Greenwood attempting centralization of authority, a clear division of labour and role definition, and as much routinization and regulation as seems politically practical. Students were involved in decision-making only in the

Academic Council, the Board of Governors and on departmental Hiring Committees, the latter on an ad hoc basis. Middleton was attempting to decentralize authority to keep roles flexible, with routinization and regulation at a minimum and student parity on all decision-making bodies. Finally, the departments chosen seemed to exhibit the characteristic qualities of paradigm and pre-paradigm sciences, by Kuhn's definition. Physics teachers showed high agreement as to what constitutes the basic knowledge, methods and problems of their discipline and tended to use traditional methods of teaching, suggesting a view of students as uniform in their needs and the process of teaching them physics to be well-understood or certain. Sociology teachers showed low agreement on what constitutes the basic knowledge, methods and problems in their field and tended to assume that students' needs were not uniform and that there was no best way to teach the material. In spite of these expressions of opinion, there was nonetheless little difference in how sociology teachers really taught their courses at Greenwood, but a considerable variety of method at Middleton. Physics teachers at Greenwood seemed slightly more flexible in method than those at Middleton.

CHAPTER V

THE DEPARTMENTAL STRUCTURES AT MIDDLETON AND GREENWOOD

At the end of the observation and interview period, a questionnaire, based on the Lodahl and Gordon study, was presented to all the members of each department. This was the replication part of the thesis, and was intended to test whether the departmental structures at the CEGEP level in colleges having different goals and structures would reflect the same differences based on academic discipline as had been found in the university graduate departments in the U.S. As mentioned in Chapter II, the findings of the Lodahl-Gordon study were, briefly, that departmental autonomy tended to be high in physics departments, that is, that university administrators tended to let them handle their own affairs to a greater extent than in the case of sociology departments. Physics departments handled departmental business through committees largely, and because agreement was easy about most matters, individual autonomy was low. Sociology departments had high individual autonomy, since agreement was very difficult, and as a result the administration more frequently intervened in departmental affairs, producing a situation of low departmental autonomy.

The questionnaires used are presented as Appendices E and F. In analyzing the results of both questionnaires I have assumed that all decisions are equal, that is, that they represent the same level of importance and are comparable in assessing total influence of a particular group. I know of no theoretical basis for distinguishing between them and to invent one would have been outside the scope of this study.

It is quite difficult to compare the responses to our departmental structure questionnaire with those of the Lodahl-Gordon study for several reasons. First, the sample size of this study was very small and different kinds of statistical tests were used. The latter was not only because of the size of the sample, but also because serious question was raised about the appropriateness of the Lodahl use of means and factor analysis with nonparametric data. In addition, many of the questions referring to graduate department decisions, particularly those related to research, could not be included in our questionnaire and others which seemed of importance were added. Finally, the number of levels of decision-making which had to be included were thought to be much greater in a public education system than in private universities, although, as it turned out, many of these could have been eliminated, since respondents did not always know how much influence people at the more remote levels had.

Unlike the Lodahl-Gordon study, students were included

because they are members of all decision-making bodies at Middleton. Finally, because of very small numbers in the cells, the responses were grouped so that 0 (no influence) and 1 (some influence) = 1 or little influence; 2 (moderate influence) and 3 (great influence) = 3 or great influence, an adjustment not necessary in the Lodahl-Gordon study where numbers were large.

All of these differences mean that this study can only be regarded as a replication of the Lodahl-Gordon study in the sense that it started from some of the same premises and used some of the same questions in a similar questionnaire design. We cannot here talk about "autonomy" whether of individuals or departments, since these were categories resulting from the factor analysis and consisting of clusters of components, whose exact definition is not very clear even in the original study. We can, however, compare our findings with theirs in the pre-factor-analysis stage, in a general way. Although they used means of standardized scores and we have used median scores, these were reported for all departments in the eighty universities studied, before being factor-analyzed and it is possible to obtain some idea of how our departments compare with theirs in degree of influence wielded by different groups.

Before beginning an analysis of the results, a word should be said about the student respondents at Middleton. Eleven students at Middleton, eight class representatives

serving in the sociology department and three in the physics department filled out these questionnaires. Because the student responses showed evidence of guessing, included very many "don't knows" and, as a result, tended to obscure patterns, they were separated from faculty responses for purposes of statistical analysis.

There was much uncertainty in student responses. In nineteen questions, one or the other groups of students divided at or near 50-50 in their responses and there was a high "don't know" rate about decisions made beyond the level of the department chairman. However, the most interesting and important finding about student participation is that, in spite of Middleton administration's serious effort to foster student parity and the fact that student attendance at meetings and work on committees in the sociology department was, at the time of the study, as regular and as large as that of faculty, there is little difference in the influence of students in the affairs of either college or all four departments. This is not surprising at Greenwood, where the effort to involve students in college government on any wide scale had been given up. It is somewhat more surprising at Middleton where such serious efforts had continued over a period of five years and where observations had shown that all departments had given some attention to the problem. Admittedly there was considerable variety in what was called "student parity," but in the sociology department, at least,

over a year's period of observation, there were often more students than staff at meetings and students played very important roles on several committees. They carried a good deal of the work load of these committees, even if their decision influence was not large.

Interview material was useful here as well as observations. The relative lack of information which students have (also clear from the questionnaire results), the short period which students stay on as class representatives, and their lack of long term involvement, all of which are related, mean that students are inevitably less able to influence decisions than faculty members. It is, on the other hand, often observed at Middleton that students who remain active are becoming very effective by the end of the second year, and some who stay for three years and are continually involved begin to take on serious college responsibility, sometimes of an uncomfortable sort, such as publishing course guides. But even those students who do not stay that long and who answered that students had little or no influence on decisions said, in interviews, with only two exceptions, that student parity had been an exciting growth experience for them and they were aware that if they had the time and inclination they could have influence.

Why did student parity seem to work, at least to the extent of involving a number of students regularly and actively, in the sociology department at Middleton and not

in the physics department? This was probed in interviews. One possible explanation consistent with our theory is that sociologists who, because of the uncertain knowledge base from which they work, are more prepared to consult students in the classroom about interests, methods of learning and other decisions, also find it easier to consult them about departmental matters. On the other hand, the sociology teachers at Middleton were perhaps the most disillusioned teachers I interviewed on the subject of student participation. With one exception, all of them felt that students could not really have as much influence as teachers on any decision, for the reasons outlined in the preceding paragraph. And one must assume that they speak from experience. In any case, one of the findings of this study is that student parity at Middleton has not increased student influence on decisions in departmental affairs to any degree greater than at Greenwood. In fact, the single instance of high student influence occurs at Greenwood and even there only in new faculty appointments to the sociology department.

Let us now turn to an analysis of faculty responses. Table 3 is a comparison of the responses of the members of the physics and sociology departments at Middleton to the questionnaire included as Appendix E. The original four-value scale of degree of influence (0=none; 1=some; 2=moderate; 3=great) has been reduced to two: 0 + 1 equalling 1 or little influence and 2 + 3 equalling great influence. When more than

50% of departmental members in both departments agreed as to which category of influence applies to a group on a decision, that number appears in the cell. Where there is disagreement between departments, both departments are shown in the cell. If the disagreement is at a level of significance of .05 or less, there is an asterisk beside it. Table 4 gives the same data about the departments at Greenwood. Tables 5 and 6 then examine these disagreements in detail, showing the number of responses in each category in each department, the median of these responses and the results of the statistical tests, when the differences were significant. Table 7 then presents the results when we ask whether there are significant differences between colleges, with academic discipline held constant.

A) Departmental Structure and the Academic Disciplines

If we examine Table 3, we notice that there is no discernible difference in the amount of influence that faculty in physics and in sociology have on decisions. The two departments agree on every point except how much influence they have on new faculty appointments, where physics teachers are more certain that they have great influence than are sociology teachers.

However, there is considerable differences in the amount of influence departmental chairmen and departmental committees have in the two departments. Departmental

committees in the sociology department have great influence over decisions concerning new faculty appointments, how to allocate departmental funds, who will teach what courses, what courses will be offered, and whose contracts will be renewed in sociology. In physics, committees have little influence on who will teach what courses and what courses will be offered, but great influence on who will assume what administrative duties. However, the differences between the departments at Middleton are not as great as the differences between the colleges as we shall see later.

The major difference between the departments at Middleton lies in the amount of influence or power the department chairman has. The physics chairman has <u>great</u> influence on all decisions except new faculty appointments, who the new chairman will be, and admission policy. The sociology chairman has <u>little</u> influence over any decisions except how to allocate departmental funds, what courses will be offered and who will assume what administrative duties. In short, the sociology chairman scores only three out of ten possible "greats" as compared to seven for the chairman of physics.

The <u>significant</u> differences between the departments at Middleton concern the level of chairman versus committee influence and revolve around the decision concerning who will teach what courses. The difference, rather surprisingly in terms of our theoretical expectation that physics will be high on committee influence, is that the chairman has most influence

on this decision in physics and a committee has most influence in sociology. Interview and observation data confirm this finding in the physics department, where the chairwoman explained that teachers hand her their first three preferences as to courses and hours and she does the best she can to satisfy these requests. Teachers feel that this gives her a great deal of discretion in the matter. In the sociology department, however, observation and interview data conflict with the response of faculty that a departmental committee has great influence on who teaches what. A departmental curriculum committee exists and should perform this function, but does not. What actually happens is that teachers report what they would like to teach and this is ratified by the department as a whole. We will discuss this discrepancy and possible reasons for it later.

At Greenwood, the differences in departmental structure suggest that students are much more influential on the sociology department hiring committee than in the physics department. (See Table 4). This was borne out in interviews with teachers in sociology who felt that students' opinions or impressions of the prospective teacher, that is, whether the students could "relate" to him was taken very seriously by faculty. Physics, as we would expect, were more concerned with competence and credentials than relationship and did not feel that students could judge these. In the other two cases where differences of influence were

statistically significant, the sociology department viewed faculty as being greatly influential in deciding on space allocations and on whose contracts would be renewed within the department. The physics faculty feels it has little influence on these decisions. There was also a non-significant difference in the influence on allocation of departmental funds by departmental committee, such a committee having greater influence in physics than in sociology. Otherwise, the main areas of disagreement were in the amount of faculty influence, with sociology faculty having great influence over all decisions except what hours classes will meet and admission policy. Physics faculty responded that it had little influence over two other decisions: space allocation and whose contracts will be renewed, both differences significant at the .05 level. What is interesting about these responses is that in the two areas of disagreement between the departments, both faculties also respond that college-wide or secteur bodies have great influence, but the sociology teachers feel that they also have great influence, whereas physics teachers do not. This suggests that physics teachers are more convinced of the power of sector or administrative groups, especially since they also say, unlike the other three departments, that sector or college bodies have great influence over what courses will be offered. Again, there is some observational and interview data which suggest an explanation for this difference. As Tables 3 and 4 both show, there are

four decisions on which bodies hierarchically above the department have great influence at both colleges. However, the sector chiefs, as we have mentioned, are appointed by the administration and regarded as middle management at Greenwood. They have, formally therefore, some power. However, the Science sector chief is regarded by administration and faculty alike as a strong, very effective administrator and by faculties in other sectors as a tough and aggressive fighter for his sector. The Social Science sector chief, on the other hand, is regarded by all those interviewed as somewhat ineffectual. In this situation, perhaps it is not surprising that physics teachers would be very aware of the power of groups beyond the department level and of their own lack of influence whereas sociology teachers have discovered that they can and must fight a number of their own battles, since as one of the departmental chairmen reported, "we don't have a sector chief who can do much for us."

B) Departmental Structures and the Colleges

At both schools, faculty has considerable influence on what courses will be offered, on who will assume what administrative duties, and at Middleton, on whose contracts will be renewed. The faculty has little influence over decisions about whose contracts will be renewed in physics at Greenwood, but great in sociology and the same difference refers to faculty influence over space allocations. In the

latter decision, the influence of faculty in physics at Greenwood and in both departments at Middleton was small. In general, in both schools, in both departments, faculty has great influence over at least six out of ten decisions. Exceptions at both schools are decisions about what hour classes will meet, space allocations and admission policy, all of which are decisions made largely by the college administrations.

Department chairmen at Middleton in both departments show a pattern of more influence than they do at Greenwood. While both departments there report that their chairmen have little influence over all decisions, at Middleton the chairman has great influence on several. When we examine Table 7, showing the statistically significant differences between departments of the same discipline in the different colleges, the importance of the role of the chairman of the Middleton physics department emerges as the most consistent part of the pattern of differences. These results might be regarded as evidence that both departments at Middleton, especially physics, feel the need for more structure and control than the Middleton milieu provides or that they have accepted considerable chairman authority in order to handle the large number of administrative decisions about which they are expected to contribute opinions. (Either or both would be re-enforced by the fact that sector chiefs are elected and relatively powerless to regulate relationships between departments). The same

hypotheses may also apply to the relatively large influence of departmental committees at Middleton as compared to Greenwood. Observation data in the sociology department, at least, suggested that committees have been regarded as an important and necessary alternative to too many and too long departmental meetings. Such meetings were the result of too many administrative decisions required of a department that could not come to easy agreement on anything. In both departments at Middleton, observations and interviews suggested that an energetic and active chairman has been regarded as necessary to the defense of departmental interests in the large struggle for scarce resources among Middleton academic departments and other groups. If true, this suggests that in the conflict of goals between sub-units (departments) whose members regard their task to be teaching a particular academic discipline and an administration which is attempting to involve the sub-unit members in administration, the departments are developing a structure which enables them to control and limit the effects of the organizational or college goals.

It is more difficult to interpret the findings at Greenwood. If one examines faculty responses in Table 4, one of the interesting things about the pattern of influence is that only faculty and sector or college-wide bodies have great influence over any appreciable number of decisions. This college is only three years old and has had major administrative changes during that time, so that clear patterns of

influence may not yet be clearly developed. Although the faculty at Middleton have great influence on as many and the same decisions, in the absence of any influence from other groups, one might assume that faculty influence at Greenwood is more decisive. Clues provided by observations and interviews suggest, and this can only be a tentative hypothesis, that in actual practice the administration at Greenwood and the faculty are still working out their power and influence relationships, with the struggle appearing as one over "academic freedom" or professional autonomy of teachers versus administrative efficiency and accountability. As we would expect, in view of the differences between the disciplines in our theory, there is a slightly greater tendency for the physics department to accept standardization and accountability as defined by sector and college-wide bodies and for the sociology department to assert academic freedom. These are only tendencies suggested, however, both by Table 4 and by Figure 1 below, which show influence by bodies outside the department to be slightly greater for physics, and the influence of faculty to be slightly less than in the sociology department at Greenwood.

The major picture is, of course, the lack of many significant differences in departmental structures between disciplines, and even between colleges, which may reflect the fact that the regulations and restrictions under which the CEGEPs operate impose very similar structures on all

departments. The latter is suggested by the patterns of agreement between the departments at the two colleges. As Tables 3 and 4 show, the majority of teachers in physics and sociology agree that on most decisions, the same people or groups have the same amount of influence in their departments at both colleges. This suggests that within each college the structure and functioning of physics and sociology departments are different only on a few points.

As we have noted before, the advantage of triangulation is that it enables us to check inconsistences in the data. Three cases in point occurred in the departmental structure data. The first is that the only difference in student influence at a level of significance occurs in the physics department at Middleton and the sociology department at Greenwood. We might assume that the requirement of parity for elections at Middleton has produced significantly more student influence on who is chairman of the physics department than is the case in the Greenwood department. The influence of students in the Greenwood sociology department hiring committee on new faculty appointments has been confirmed by the fact that teachers interviewed said that they take very seriously student impressions of candidates for teaching positions. But why does this result appear in these two departments rather than in the Middleton sociology department? It seems strange when interviews and observations revealed that neither of these two departments has had very successful

or long experience with student representation. In fact, students are conspicuously uninvolved in the affairs of both. Faculty in the sociology department at Middleton as well as the sociology student representatives themselves report that students have very little influence over any decisions, whereas at the time of this study students were very much involved on all committees and often outnumbered staff at departmental meetings.

The third case is that the majority of members of the sociology department at Middleton assert that a departmental committee has great influence on who teaches what. The inconsistency here is between this survey response and the observed, and re-checked, fact that although a Curriculum Committee exists, in fact it doesn't perform this function, although formally it should. In fact, this decision is made entirely by individual faculty members who announced what they want to teach. These preferences are then negotiated with other teachers in departmental meetings in such a way that the requisite number of "bread and butter" or required courses are offered, after which everyone teaches what he likes and what students seem to want.

Perhaps the best explanation which seems to apply to all three of these cases is that the distinction which the questionnaire required people to make between formal and informal decision-making probably was not easy to make and at times broke down altogether. The instructions said: "In the

following series of questions we are trying to determine the range of actual discretionary power exercised in your college. By discretionary power, we do not mean prefunctory or routine authorization. We are rather seeking to determine the amount of influence persons or groups in the college in a variety of kinds of decisions." (See Appendices E and F). In each of the three cases of discrepancy, the group (students or a committee) had formal, but not informal power, at least as far as I was able to determine. To put it another way, to link it to the material in student interviews, these were all cases where people thought the group indicated was supposed to have influence on certain decisions and were answering the question in these terms. The question then is, how do we know that respondents did not make this mistake throughout the questions? The only assurance we have, it seems to me, is that to the other nearly 100 items, the responses were at least reasonably congruent with the reality observed by the researcher and reported by people interviewed.

C) Comparison With Lodahl-Gordon Findings

The questions which our study had in common with the Lodahl-Gordon study were a, b, c, d, e, f, and j in Appendix E. These referred to the following kinds of decisions: new faculty appointments, how to allocate departmental funds, who will teach what courses, what hours classes will meet, space allocations, who new department chairman will be, and

admission policy and selection of students. The decision-makers on both studies were: faculty, department chairman, and college administration. Before making a factor analysis of the results by department, Lodahl and Gordon first took the means of responses for all departments, thus presenting a kind of composite view of who influenced what decisions in universities in general. We may begin by comparing Tables 3 and 4 with the Lodahl results for all departments.

1. Faculty Influence

Of those items that were the same in the Lodahl study and in this one, the means of all faculty responses in four departments in eighty university graduate departments showed strong faculty influence (influence level over 2) on the following decisions: new faculty appointments, student admissions, who will teach what courses, who the new department chairman will be. The majority of teachers in our study also saw faculty as having considerable power (2 or 3) in all these decisions except student admissions. In the Lodahl study, faculty had little influence on hours classes meet or on space allocation, but great influence on admission of graduate students.

The major difference between the Lodahl findings and ours is that college faculties have more influence over allocation of departmental funds than graduate faculty have over allocation of departmental research funds and less influence

over admission of students. Otherwise, both studies found faculty influence to be high on all decisions that the two studies had in common. The differences in department structure at Greenwood is closer to the Lodahl findings than are differences at Middleton, so far as faculty influence is concerned. On two decisions, whose contracts will be renewed and on space allocations, physics teachers have significantly less influence at Greenwood than sociology teachers, perhaps supporting the Lodahl finding of greater autonomy of teachers in sociology departments.

2. Department Chairman Influence

Our results showed that at Middleton the chairmen of both departments had considerable influence, compared to the Greenwood chairmen, especially in the physics department. The physics chairman has great influence on all decisions except new faculty appointments, who the new chairman will be and admission policy. This is even more power than the means of faculty responses in the Lodahl study where out of eleven decisions, department chairmen had great influence on six. Of the decisions the two studies had in common, the only differences are that in the Lodahl study, department chairmen were found to have great influence on new faculty appointments and on student admissions, whereas at Middleton they have little in either department.

It is difficult to interpret this since the Lodahl

study did not find any significant differences by discipline in chairman authority. Rather, this seemed to be related to departmental reputation such that the higher the quality rating of the department, the lower the chairman authority, in all four disciplines. (Ibid., Figure 1). In only one case, i.e. the influence of the chairman over who will teach what courses, is the difference between the Middleton departments at a level of significance, the other differences representing very small response differences, and there is no reason to believe that there is any important difference in the reputation of the physics department at Middleton and the one at Greenwood, nor that the college administrations feel that the reputation of one of their departments is higher or lower than the other.

3. Administrative Influence

Both colleges show, in Tables 3 and 4, very much the same pattern of administrative influence. It is small on all decisions except what hours classes will meet, space allocations, whose contracts will be renewed and admission policy, that is, four out of ten decisions, with a slight disagreement at Greenwood as to how much power the administration has over what courses will be offered. Even so, this is more power than is reported by graduate departments. Of eleven possible decisions, graduate faculty responded that the central university administration had moderate to great

influence on only two: faculty raises (not included in our study because these are automatic and determined by union agreement and civil service contract) and who new department chairman will be. We thus see that, although the college does not have much power over many decisions, it is, as we would expect, more controlling than are university administrations. If we added the controls exerted by the provincial department of education, the area of discretion for college departments would be smaller than that found by Lodahl and Gordon in university graduate departments.

There is one other matter to consider in relation to administrative influence which may throw some light on differences between the Lodahl findings and ours. The Lodahl-Gordon study found that many of their results seemed to be modified by or contingent upon (1) the allocation of research funds, and (2) the quality ratings of departments. For example, administrative interference, or conversely, departmental autonomy were a function of favourable "visibility of consequences," meaning that departments were more likely to be independent and to get money for research when the administration felt confident that the money would produce good or reliable results and the department was made up of competent people. This is much easier to judge in the case of paradigm sciences than in non-paradigm, and in research than in teaching. The absence of research as a factor and of any means of evaluating the work of departments or colleges may

make an important difference between organizational structures at the two colleges and those of the universities in the Lodahl-Gordon study. It may be that it is not the difference in level per se (introductory versus graduate training) that influences structure, but that this level difference involves a difference in tasks (research versus teaching). Lack of visibility of results of teaching, as compared to research, produces quite a different set of environmental contingencies for the two disciplines at the college level. Since teaching cannot be so easily evaluated, physics teachers may be much closer to sociologists in CEGEPs than they are in universities in terms of their ability to bargain for sub-group goals with administrators or the Department of Education. This may help to explain the fact that we found all departmental structures to be more alike than different.

D) Summary of Findings

We may summarize the results of the departmental structure part of our study as follows: the difference in departmental structures between disciplines, predicted by the theoretical assumptions of our paper and found by Lodahl and Gordon have been modified more by centralization of authority outside both colleges, in the department of education, than by college administration policies. This inference is made on the basis of the similarity of influence

patterns in the schools, in spite of different administration policies. It is interesting how few departmental members realize how much the structure of departments and the structure of the colleges themselves are determined by fiscal and educational regulations made in Quebec -- probably because these decisions are negative ones, rather than a positive limitation; for example, these regulations more often limit activities, structural possibilities, etc. than define what they must be. But the goals and structures of the college do have a certain minimal effect. Differences between the colleges center on departmental chairman influence in the physics department, and to a lesser extent the influence of departmental committees, which is high in both Middleton departments as compared with Greenwood. There is no important difference between colleges in the amount of or the kinds of decisions made by students and college-wide bodies. As Figure 1 shows, there is also no important difference in the amount of faculty influence. The majority of teachers report that in their departments, out of ten decisions, faculty has great influence on:

Figure 1

	Middleton	Greenwood
physics	7	6
sociology	6	8

Of these decisions, physics and sociology faculty at Greenwood had different levels of influence which were

significant in two cases (see Table 6) which gives the differences there stronger support than in the other cases. None were significant between the departments at Middleton, nor between the colleges when academic discipline was held constant. (Tables 5 and 7).

Departmental Committees are reported as having great influence on the following number of decisions (out of 10):

Figure 2

	Middleton	Greenwood
physics	4	2
sociology	5	1

Figure 2 includes only one decision over which departmental committee influence was significantly different in the two departments at Middleton (Table 5). This same decision was influenced by departmental committee at a level of significant difference between the sociology departments at the two colleges.

The greatest difference between the colleges appears in the amount of chairman influence. This is also the single greatest difference in influence patterns between the departments at Middleton. Out of ten decisions, the chairman has great influence on:

Figure 3.

	Middleton	Greenwood
physics	7	0
sociology	3	0

Of these, one difference in influence of chairmen between departments at Middleton is significant at the .05 level; four are statistically significant between the colleges with discipline held constant.

Since the Department of Education does not specify how departments shall be organized, and since we have found no consistent differences between the departments that can be explained by the nature of physics as a paradigm science or sociology as a pre-paradigm science, we must assume that among the variables considered in this study, the college goals and structures are most likely to be the cause of the differences we have found. At Greenwood the differences between the departmental structures point in the direction of slightly less faculty influence and more use of departmental committees in physics than in sociology, a result consistent with the theory, if the trend continues long enough to develop any real differences in the departments there. At the moment, all we can say about the effect of Greenwood's administrative style is that it has resulted in very little differentiation of structure, with all decisions made either by faculty or by administration and with few intermediary bodies or offices, such as committees or chairmen with any power.

At Middleton, where the same basic college goals and structure had been in existence for four years at the time of the study, results are more definite. The departmental structures are not at all related to the theoretical expectations

based on characteristics of the academic disciplines, but we find both departments have developed a structure in which department chairmen (especially in physics) and departmental committees have great influence on a number of decisions, as does faculty in general. In other words, there exist a number of groups and levels where influence is exerted on any given decision.

The differences still seem less impressive, even if more interesting than the similarities, but both suggest the usefulness of the application of open systems assumptions in this study. Our findings have suggested that structures which would be expected to emerge in conformity with the nature of the task have been suppressed by the nature of the environment (the CEGEP system and the regulations of the Department of Education) in which all the departments must operate. In the interchange between the college and the departments, the structures and even the goals of the departments have been modified more by college goals and structure than by the paradigmatic status of the discipline. At Middleton, the departments seem to have adapted to college goals and structure in such a way as to protect their interests, (or ensure sub-group survival and goal attainment) in an ill-defined structure where many administrative decisions are referred to departments, by developing strong chairman and committee influence. At Greenwood there is only a tendency, not yet very developed, for faculty to compete with

administration for influence, probably in an effort to resist standardization and structuring of professional activities by administrators, especially in the sociology departments. On the other hand, the departments have done this within the necessities of college goals and structures. The Middleton result can be regarded as within the intent of the decentralized structure which encourages sub-groups to make their own decisions in terms of their own goals. And the close similarities of departmental structures at Greenwood suggest that activities are more structured (and therefore more standardized) as implied by the goal of efficiency and subject-centred learning.

CHAPTER VI

THE CLASSROOM STRUCTURES AT MIDDLETON AND GREENWOOD

It is in the classroom that differences in role relationships, the building blocks of social structure, can be seen most clearly. Here the teacher is least subject to outside interference or pressure from the environment. In a paradigm science, where the knowledge base, the problems of the field and the methods of solving them are agreed upon, the task of imparting this knowledge is much more certain and it can be standardized or routinized. We can expect that physics is likely to use traditional classroom structure and activities: lectures, labs, problems, exams, with subject matter training as paramount and the teacher as authority, or some colleague group -- the point is that knowledge authority exists and is respected. In pre- or low-paradigm sciences where knowledge, methods and problems are not certain or agreed upon, it is normal and necessary for teachers to keep searching for new methods and more certain knowledge, inside and outside the classroom. In this case, we would expect that sociology would be more likely to be non-traiditional as to methods, flexible as to content, and that the teacher would be likely to share decisions with students and adapt the course to their interests.

Teachers were asked in this study to give the classroom questionnaire to the class which they felt to be their most successful during that term, by their own standards. It was assumed that in this way the sample of classes obtained would most closely reflect the ideal type of classroom structure and procedure for that teacher, and when added together, for teachers in that discipline and that college. Tables 8 to 10 show the results of these questionnaires.

An interesting pattern appeared in the data with regard to the degree to which decisions were influenced by groups outside the classroom. Except for the question as to what influence the teacher had on prerequisites for the course, to which 16.8% of students in Middleton sociology classes answered that they did not know, all questions about decisions made by people within the classroom yielded very low, if any, number of responses of "don't know," usually between 0 and 2%. Beginning with the three questions concerning what people outside the classroom might have influence on, the proportions of "don't knows" became suddenly excessively high, as Table 8 shows. This was so consistent that the data about influence on decisions by people outside the classroom situation have not been used as a statement of the actual classroom structural relationships. Rather, I have assumed that students in classes in both departments at both schools cannot answer these questions in sufficient numbers to make the questionnaire results valid measures of actual structure.

There are, however, some interesting patterns in these responses which on a purely speculative basis may be useful. Two things are immediately noticeable in Table 8. The first is that the proportion of students in sociology departments who say they don't know is consistently higher than the proportion in physics departments and the second is that the percentage is in every case higher at Middleton than at Greenwood.

There are a number of guesses one might make to explain these differences, such as that the ethnic mix at Middleton produces more students who do not understand how the institution works. Explaining the physics-sociology difference, one might speculate that sociology students either actually know less, or are less intelligent, or are more willing to admit and more conscious of their ignorance than physics students. From the point of view of the theory on which this paper is built, however, another possibility is more interesting. It is that physics teachers have less autonomy in the classroom than sociology teachers, as our own and the Lodahl-Gordon data suggests, and that they make this clear to their students, so that physics students actually are more aware of decisions made by persons outside the classroom and that actually more influence is wielded by people outside physics classrooms than outside sociology classes.

Two things which appeared in the interview and observation period suggest this as a possibility. One was that

physics teachers very often volunteered the comment that students had very little choice about course content because "it's determined by the Cahier" and that matters such as texts, exams and labs were determined by course committees or departmental agreement. One might assume that if these statements are made as a matter of course to the interviewer, they are probably also made in classrooms. Such comments were not made by sociology teachers, among whom the dominant attitude seemed to be that the Cahier descriptions of courses was sufficiently broad and general to include a very wide range of interpretation and possibility for content, method, evaluation, texts, etc. These different views of the Cahier also suggest a difference in readiness to take guidelines and instructions from colleagues on the DIGEC advisory committees who compile the Cahier, and can be seen as symptomatic of the nature of the disciplines. Physics teachers, sharing a more certain knowledge base and less ambiguous vocabulary and more agreement as to appropriate and effective methods of teaching might be expected to accept the guidelines laid down in the Cahier because they agree with them anyway, on the whole. They would be inclined to follow the requirements literally and scrupulously. Sociology teachers who do not agree among themselves about the basic knowledge, method and problems of the field will not agree with Cahier guidelines as often nor will they be likely to accept the opinions of their colleagues in the DIGEC committee as necessarily final or authoritative.

Therefore, not only must they find their own way and invent their own courses to a greater extent, they must also make many classroom decisions in conjunction with students and will have no reason to fall back on decisions made elsewhere in dealing with student interests or demands. Students in sociology classes, therefore, are less likely to be aware of the influence of people outside the classroom on what happens in the classroom because they don't hear their teachers refer to such influence. And in fact, there is less. Their response that they don't know may mean in many cases, "I don't know of any."

The same hypothesis might apply also to the Middleton-Greenwood differences. The general feelings which was expressed in interviews by all Middleton teachers of having all the freedom they wanted in their work may be communicated to students as classroom autonomy -- no one outside need be consulted. At Greenwood, where teachers sometimes worry about academic freedom, this impression is not as likely to be conveyed to students.

A) Differences Between Disciplines

The Tables 9a to 9e show the significant differences in classroom structure between disciplines within each college. The number of responses are given in each category of influence on each decision and by whom. The statistical data is the median class of responses in each category and the

correlation (Cramer's V) and the significance level of the differences in responses. It should be noticed in all these tables and in Table 10 (which shows results of holding discipline constant and measuring for differences between the colleges) that differences in totals are accounted for by "don't knows," reported separately in Table 8. With regard to the median of responses in any category, it should also be observed that when the median number falls in the same class of responses for both departments, and the difference is statistically significant, I have indicated the nearest decile percentages answering in that class or in that class and its nearest extreme. For example, in Table 9a, both the physics classes and the sociology classes at Middleton indicated that students as a group had "some" influence on what the student will learn, or the course content. The median response was in both cases "1." However, the "none" and "small" responses in the physics department represented 80% of the total responses, as the table shows, whereas in sociology only slightly more than 50% of students gave this response. In such a case, it is the distribution of responses which accounts for the significance level.

The first point to observe with regard to Tables 9a to 9e and Table 10, in addition to the large number of significant findings, is that there are many more significant differences between physics and sociology, i.e. between the disciplines than between the colleges. There are fifteen

decisions which are influenced in different degrees by students, individually or as a group, and by teachers. For every decision about which the student could judge, i.e. those decisions made by people within the classroom, there were significant differences between classroom structure in the two disciplines, in one college or in the other. In twelve decisions, the classroom structure is different at a level of .05 in both colleges. In three cases, the difference in structure is statistically significant only between the two disciplines at Middleton, there being no significant difference between the Greenwood physics and sociology classes. Thus, our first finding is that the disciplines are different in classroom structure and that the number of differences are slightly larger at Middleton than at Greenwood.

Our second finding is that the differences are, on the whole, in the expected direction, in terms of Perrow's and Kuhn's theory, and of the Lodahl-Gordon results. The tables showing significant differences in classroom structure between disciplines in the same college (Tables 9a to 9e) show that students and teachers in sociology have more influence on classroom decisions than do physics teachers and students. Students, individually or as a group, had more influence on decisions as to course content, method of study, choice of texts or other teaching-learning tools, evaluation of students' work, and prerequisites in sociology classes than in physics classes at Middleton College. At Greenwood,

they had more influence on these classroom decisions in sociology than in physics classes, except in the case of course prerequisites. This does not mean that they have great influence. In most cases, their influence was little or none, but the responses were scattered, as the tables show, and there were always more sociology students who felt that they had moderate or great influence on these decisions than did physics students. The only decision on which students have influence as high as "moderate" is on methods of learning in the sociology classes at Middleton. (Table 9b).

It is interesting the note the kinds of decisions which students in sociology classes influence as compared to physics classes. In soeiology classes students influence decisions concerning course content, methods of learning, texts or other tools of learning, and course prerequisites at both schools and in addition, at Middleton on how the students' work will be evaluated. The only example of more student influence in physics classes than in sociology classes is at Greenwood with regard to how students' work will be evaluated. Thus, we see that sociology teachers consult students about matters concerning the knowledge base itself, as well as teaching methods and tools. Both the knowledge and the process of learning it are matters the teachers share with students. In physics this is not the case, and this is consistent with the nature of the two disciplines as pre-paradigm and paradigm sciences.

Teachers in sociology classes also have more influence on classroom decisions than do physics teachers, a finding which is in line with the necessities of the teaching task in sociology. Although teachers have moderate to great influence on all decisions, except course prerequisites, the tables show that the difference between physics and sociology classes is significantly in the direction of a higher proportion of responses from sociology than from physics classes that the teacher has great influence. In two cases in sociology classes at Middleton, that of teacher influence on prerequisites and teacher influence on course content, the median response is a point higher on the scale than in the other three departments.

So far, then, our findings are, in the classroom, that students and teachers have more autonomy in the sociology classrooms than in physics classes. If both have, then we must assume that the relationship is a cooperative or a consultative one. Students see teachers in sociology classes as having the power to make most decisions, and believe that they share this power with students.

An exception is in the case of prerequisites where teachers are seen as having less influence. In fact, teachers in both sociology departments have spent some time discussing this and it is very often considered by the whole department. In some cases prerequisites are also included in the Cahier, as well as in course lists at registration, all of which

probably explains the students' impression that outsiders, or at least not only the teacher of a particular course, decides on prerequisites.

It should be observed that the associations as described by the Cramer's V test are in many cases rather low. This appears to be caused by the data distribution, which in many cases is rather erratic and in others is spread unusually evenly. It perhaps reflects student uncertainty or even lack of information, even within the classroom. It may also reflect quite different individual experiences, an explanation that seems more likely in view of the low 'don't know' response rate in regard to people actually making decisions in the classroom. Teachers are related not only to fairly small classes, but to individual students, and this is especially true at the college level in Quebec; probably far more than at either high school or university level. There is therefore no decision in the classroom that some individual students, but not necessarily the group as a whole, may not have found they could influence by going directly to the teacher.

B) Differences Between Colleges

What of the second part of our hypothesis? Is the difference in the overall goals and structures at Middleton and at Greenwood sufficient to significantly affect this difference between the disciplines? Do we find, as expected, that students and teachers, where decentralized, parity

decision-making and student-centred learning is an administration policy, actually results in more classroom autonomy for students and teachers than when it is the opposite?

Table 10 shows the differences in classroom structure between colleges holding discipline constant. In the first place, there are only six decisions rather than 15 which show any significant difference in influence level within classes between the two colleges. We see, in the first place, that there are fewer differences between the physics classes (only two) than between the sociology classes (4) at the two colleges. The second point to be observed is that in all the significant differences in classroom structure between the sociology departments at the two colleges, the difference is in the direction of more influence wielded by students as individuals or as a group (on course content, on choice of texts or other teaching tools) at Middleton than at Greenwood. Also, the one difference between them as regards teacher influence (on how the student's work will be evaluated) shows that although teachers have great influence on this at both colleges, it is higher at Middleton in the sociology department.

Students, however, have less influence in Middleton physics classes than in those at Greenwood. In the decision as to how the student's work will be evaluated, students, both as individuals and as a group, have more influence in the Greenwood physics classes than at Middleton. It was

observed and interviews confirmed that, as a matter of fact, there was more interest in innovation, especially in new methods and evaluation procedures among Greenwood physics teachers than in the Middleton department. (See Chapter IV). Two teachers reported that they give students a number of choices as to how they will be evaluated and one teacher in the department had been given a half-time research appointment (i.e. released time from his teaching) to investigate new methods of handling certain make-up problems that students have, demonstrating interest in flexible or new approaches in that department. This interest was certainly not as high as in the Middleton sociology department, but higher than either the Greenwood sociology or the Middleton physics departments.

I was unable to find out why this was the case. However, the observation is here borne out in the classroom responses. We could speculate that this is further evidence of being comfortable in an environment that is congruent, but that seems to be stretching the theory a bit, and besides may contradict it, since at this level, there is little reason for a physics department to be acting in this way. The most plausible explanation seems to be that this innovative activity is a result of the leadership of the Science Sector chief, a man much admired by members of the physics department and the administration, who actively encourages new pedagogical solutions to old and new problems. It is also to

be remembered that sector chiefs at Greenwood are administration representatives, and effective ones can have considerable influence in both directions, that is, both up and down in the hierarchy. We can make a graphic summary of our findings. Beginning with data on students, we can total all the decisions on which students, either individually or as a group, have influence. Since there are five kinds of decisions, this means that there are ten combinations of circumstances in which students may have influence. We have already noted that in only one case do students in any classes have more than some (1) influence. That exception is in sociology classes at Middleton where students as a group have moderate (2) influence on method[redacted] learning. If we take from Tables 9a to 9e the number [redacted]cisions on which the median of responses show that s[redacted]ts have some (including the moderate influence reported above) influence in classes, we arrive at the following:

Figure 4

	Middleton	Greenwood
physics	3	3
sociology	7	7

Here we see the amount of student influence to be in the expected direction.

Students report that teachers have great influence (3) on five decisions as follows:

Figure 5

	Middleton	Greenwood
physics	2	2
sociology	4	3

Here we find very little difference between the departments, although sociology teachers have, as we would expect, slightly more influence or autonomy in classrooms than physics teachers but this difference is minimal.

Now comparing colleges, as shown in Table 10, and asking in how many decisions is student influence higher in physics classes at one college than at the other, we find that students have a higher level of influence in two instances both concerning evaluation at Greenwood and one at Middleton. Since the differences are statistically significant in the case of greater influence in Greenwood physics classes and not in the case where the Middleton physics students have greater influence, I will assume that this suggests that with regard to evaluation of their work, students have greater influence in Greenwood physics classes than in those at Middleton. When we compare sociology departments at the two schools, we find three cases in which students have more influence on course content and on teaching tools in classes at Middleton, all at a level of significance. There are no cases in sociology classes at Greenwood where students have greater influence than at Middleton. This suggests that there is a larger difference between student influence in sociology, in

the direction of more student influence in the Middleton classes.

In summary, then, we may say that the differences between disciplines in classroom structure persist and are in the expected direction and that the nature of the discipline is more important than the structure and goals of the college in determining what happens in the classroom. The college administration goals and structure are not without effect, however. The following model suggests the differences between the classroom structure and procedures in the two disciplines in the two colleges.

Student Influence

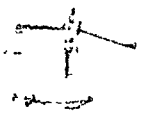
Low		to	High
Physics Middleton	Physics Greenwood	Sociology Greenwood	Sociology Middleton

It would seem that decentralization at Middleton has allowed teachers in classrooms to develop or even exaggerate the task definition, the process and the structure inherent in their disciplines, since in every case within classrooms, we find teachers in physics and in sociology at Middleton functioning in the best traditions of their disciplines and quite in accordance with Perrow's theory and expectations. At Greenwood, the two departments are more alike, although still in the expected relationship to each other in terms of the task of teaching the two subjects. Although students

have more decision-making influence in the classroom in sociology classes than in physics, the difference is considerably smaller than at Middleton. Furthermore, we have noticed a considerable spread between the student influence in Greenwood sociology classes and those at Middleton.

The college goals and structures offer, among the variables considered here, the most likely explanation of these differences. The emphasis on decentralization and on student-centred learning has produced high student influence on those decisions that concern the knowledge base and the methods of teaching, as is theoretically appropriate to the uncertainty of the task in sociology. Physics remained subject-centred, probably because decentralization or high line control has permitted the department to develop a structure consistent with the task of teaching a paradigm science, in conflict with organizational goals of student-centred learning. At Greenwood, again it is difficult to interpret the findings except to note that subject-centred learning has, again, resulted in the departments being closer together than they are at Middleton. Whether this actually leads to academic excellence is some thing this study cannot judge, but our theory would lead us to ask whether the sociology teachers are teaching as though their discipline were, in fact, a paradigm science, when interview material clearly indicates that they know it is not. This double frustration may help explain why sociology teachers at Greenwood spend

so little time with students. Not only are they unsure of their knowledge base and of their methods, but they are constrained in the interest of academic excellence and subject-centred learning to act as though they were sure.



CHAPTER VII

CONCLUSION

The hypotheses with which we began this study were as follows: (1) while the association found between academic discipline and departmental structure, as predicted by Perrow and confirmed at the graduate department level by Lodahl and Gordon, will be found to hold true at the CEGEP level, (2) this association will be much reduced at Middleton because of the system goals requiring the physics department to adopt a looser, less routinized structure than it would otherwise find effective. The sociology department, on the other hand, should find the Middleton overall structure and goals consistent with its needs for looser structure and more individual autonomy. Findings at Greenwood should follow more closely those of the Lodahl-Gordon study, with regard to classrooms, (3) physics classes will be subject-centred with students having little or no influence on decisions, while sociology classes will be more student-centred and therefore provide more student influence on decisions, (4) and the goals and structures of the two colleges should act in such a way that at Greenwood the physics teachers will be strengthened in their efforts to use traditional and routine methods. The sociology department will be constrained to be more subject-centred than the nature of the

discipline would lead us to expect. At Middleton, the sociology teachers will be supported in a student-centred stance appropriate to the nature of their discipline. Physics classes should be more student-centred than we would expect, as a result of college goals of humanistic education.

Taking these hypotheses one by one, we may see that they were too simple and too general. Most of them are true and not true, and by introducing college goals and structures and the CEGEP system as environment, we have complicated the picture considerably, as well as shown that differences are more specific and less easy to formulate as generalizations than our hypotheses suggested.

(1) The association found between academic discipline and departmental structure found by Lodahl-Gordon was not well supported by this study, although some points of similarity exist. In our study, decision-making influence patterns are more alike in the departments, in both disciplines and both colleges, than they are different. This led us to make another hypothesis, namely, that the structure imposed on all CEGEPs by provincial legislation and regulation is more important in determining departmental structure than are differences in academic discipline.

(2) There were some differences in departmental structures, especially between colleges. The effect of the system goals and structures at Middleton did <u>not</u> have the effect of producing looser, less routinized structure in the

physics department as hypothesized, nor particularly support laissez-faire in the sociology department. Rather, the physics department chairman has great influence over most decisions, and the sociology department members report that departmental committees have considerable power. At Greenwood the findings were somewhat closer to the expected finding in that sociology teachers had more influence on more decisions than physics teachers, but there were few more efforts to rationalize decisions by resorting to departmental committee decision-making in physics (as expected) than in sociology. And at Middleton, this latter feature of departmental structure was more marked in the sociology department than in physics, when the opposite was the Lodahl-Gordon finding and our theoretical expectation. This led us to hypothesize that at Middleton the decentralized, loosely structured, participatory model of organization and student-centred goals led to high chairman influence in an effort to protect departmental interests and relieve the burden of administrative decisions on teachers. Differences between departments were minimal at Greenwood, but since two of the differences between departments in the amount of influence faculty has were at a level of significance and these as well as other responses indicate that the sociology faculty has influence on more decisions than the physics faculty, and since this is roughly the expected direction of difference, we might assume that this part of the second hypothesis is supported. That is to say

that the findings at Greenwood follow more closely those of the Lodahl-Gordon study than do findings at Middleton. They do not follow it in any other respect, however.

(3) In classrooms, physics classes were found to be subject-centred with students having little or no influence on decisions, and sociology classes were more student-centred and provided more student influence on decisions. This was the hypothesis which was best supported by the data.

(4) The goals and structures of the two colleges did result in (a) the sociology classes at Greenwood being more subject-centred than were the sociology classes at Middleton and (b) did support the student-centred stance appropriate to the discipline at Middleton. However, the goals and structures of the colleges did not have the expected result in physics classes. In the Greenwood classes, physics students had more influence than did students in Middleton physics classes, especially as regards evaluation procedures, and physics teachers did not adopt a student-centred approach at Middleton, in spite of college goals, but were, instead, more subject-centred than at Greenwood. The hypothesis which we proposed to explain this unexpected finding at Middleton was that decentralization tends to develop differentiation, and as March and Simon propose,[1] causes greater elaboration of subunit ideologies. Our proposed explanation or hypothesis

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[1] March and Simon, p. 42.

explaining the student decision-making in Greenwood classes was the influence of a strong Science sector chief, who continually fosters innovative efforts.

In sum, we must reject most of the original hypotheses, not in order to accept the null hypothesis that there is no difference between disciplines, departments or colleges, but that the relationships expected seem to have been oversimplified and the causal relationships inaccurately understood. The research, as is often the case, has raised more questions than it has answered, and suggests the need for more investigations of the relationship between task, structures and environment in different kinds of organizations. Specifically in schools, it suggests the need to dichotomize the primary task from the secondary one of departments, that is, teaching from departmental business in assessing the effects of administrative policies and goals, and the necessity to go into classroom situations in order to find out what the task really is and how structure reflects it. This research has also opened up all the enormous complexity of goals, system and sub-system and environmental and individual, which come to bear on any school organization and the need to start discovering the ways in which goal priorities are set or chosen at all levels and how this relates to the task of teaching a particular discipline. In terms of organizational theory, the results at Middleton, where a deliberate policy of non-bureaucracy has been followed, are very interesting,

and it would be interesting to know whether other organizations which have tried to destructure activities and decentralize decisions have evolved the same patterns.

Summary of Findings

1. The expected differences in physics and sociology as paradigm and non-paradigm sciences persists at the CEGEP level in the classroom structure, in spite of centralized authority in the Department of Education in Quebec.
2. This is not very much affected by college goals and structure; but those differences which are significant between colleges, for the same discipline, suggest that:
   a) decentralized decision-making results in polarization or high development of characteristic differences in classroom structures and processes between physics and sociology. Student-centred learning as a priority organizational goal does not effect classroom structure except when it is consistent with the nature of the teaching task.
   b) Subject-centred learning and academic excellence tend to produce traditional or routinized classroom structures in both disciplines and to reduce differences between them, at least when structuring of activities is administrative policy.
3. Departmental structure, because the task is primarily administrative, is determined more by the general

administrative regulations applying to all CEGEPs than by academic discipline, so that departments and colleges are more alike than they are different. To the extent that they are different, college goals and structures seem to be more important than the nature of the academic discipline in producing these differences with the following tendencies resulting:

a) Decentralization, or high line control, and very low structuring of activities as administrative policy produced high chairman authority in physics and high committee influence in the sociology department.

b) Where administrative policy has tried to structure and standardize activities, sociology teachers tended to have more faculty influence than physics teachers on more decisions.

4. Administrative policy, in the interchange with the teaching goals of a particular discipline, does not always have the intended result, and members and sub-groups establish their own goal priorities and structures. Physics at Middleton has not developed student-centred learning and faculty at that college tend to turn over authority to chairmen in what appears to be a defense against too little authority outside the department and too many administrative decisions imposed on teachers. Furthermore, students have gained more influence in sociology classrooms but very liftle in departmental matters, in spite of

student parity. At Greenwood, administrative efforts to structure activities in some areas may have produced resistance in teachers and a struggle to maintain what Pugh et al call line control, especially in the sociology department. On the other hand, sociology teachers evidently find it difficult or unsafe to be innovative and non-traditional in the classroom, which may hamper their teaching effectiveness, given the lack of paradigm in their discipline.

5. Even though most of the specific hypotheses on which this study was based must be rejected, the basic thesis or assumption of the paper is supported. Application of open systems assumptions has shown that the effect of that part of the environment with which we are concerned (the CEGEP system) plus the influence of the college goals and structures account for more of departmental structure than does academic discipline. It is only in the classroom, where conditions come as near to closed system assumptions as one is likely to find in social organizations, that academic discipline has primacy in determining structure in the two colleges studied.

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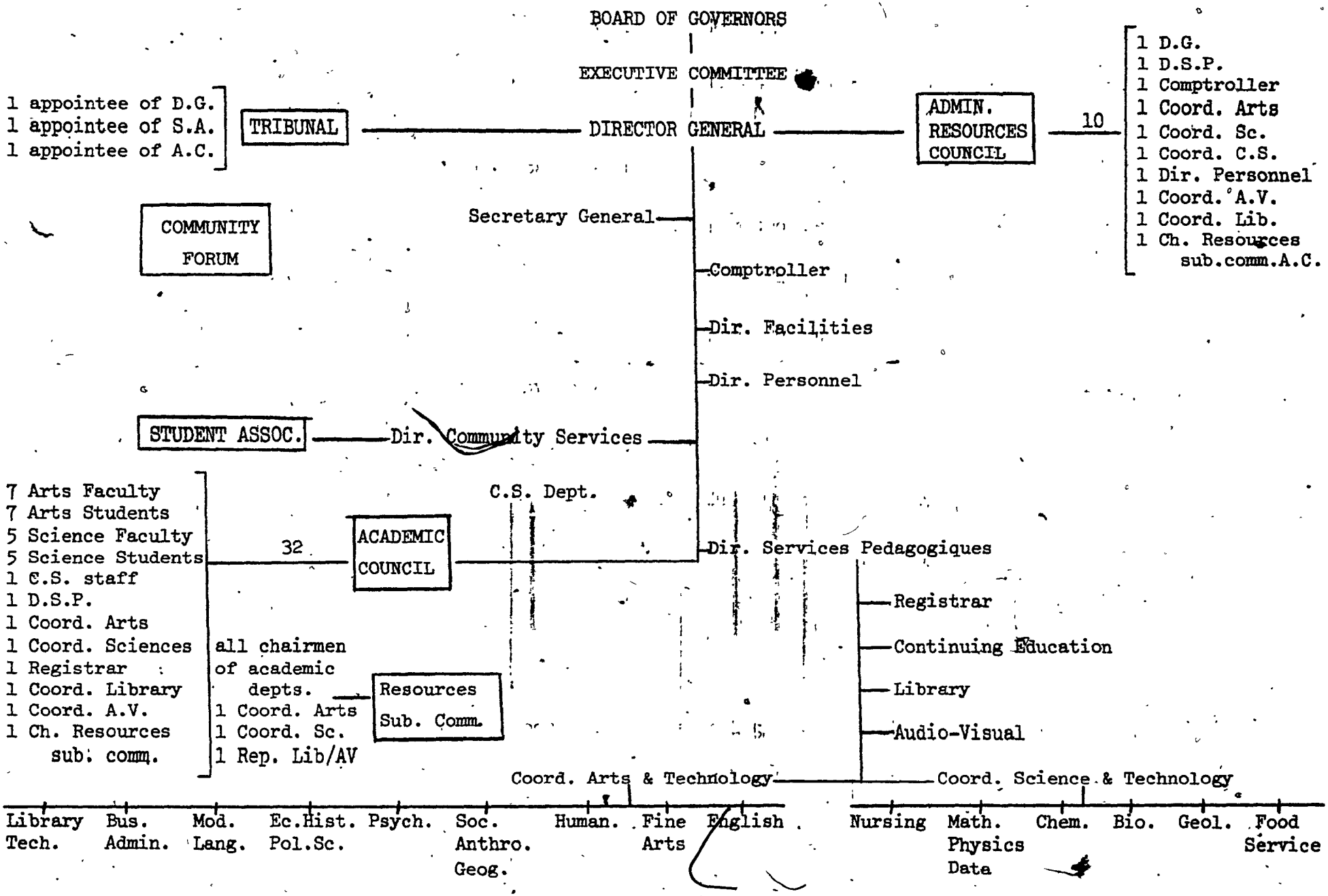
CHART I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1 appointee of S.A.
1 appointee of A.C.
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ADMIN. RESOURCES COUNCIL
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1 D.S.P.
1 Comptroller
1 Coord. Arts
1 Coord. Sc.
1 Coord. C.S.
1 Dir. Personnel
1 Coord. A.V.
1 Coord. Lib.
1 Ch. Resources sub.comm.A.C.
COMMUNITY FORUM
Secretary General
Comptroller
Dir. Facilities
Dir. Personnel
STUDENT ASSOC.
Dir. Community Services
C.S. Dept.
7 Arts Faculty
7 Arts Students
5 Science Faculty
5 Science Students
1 C.S. staff
1 D.S.P.
1 Coord. Arts
1 Coord. Sciences
1 Registrar
1 Coord. Library
1 Coord. A.V.
1 Ch. Resources sub. comm.
32
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Ec. Pol.Sc.
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Psych.
Soc. Anthro. Geog.
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CHART II

PROPOSED POLICY-MAKING STRUCTURE FOR MIDDLETON COLLEGE

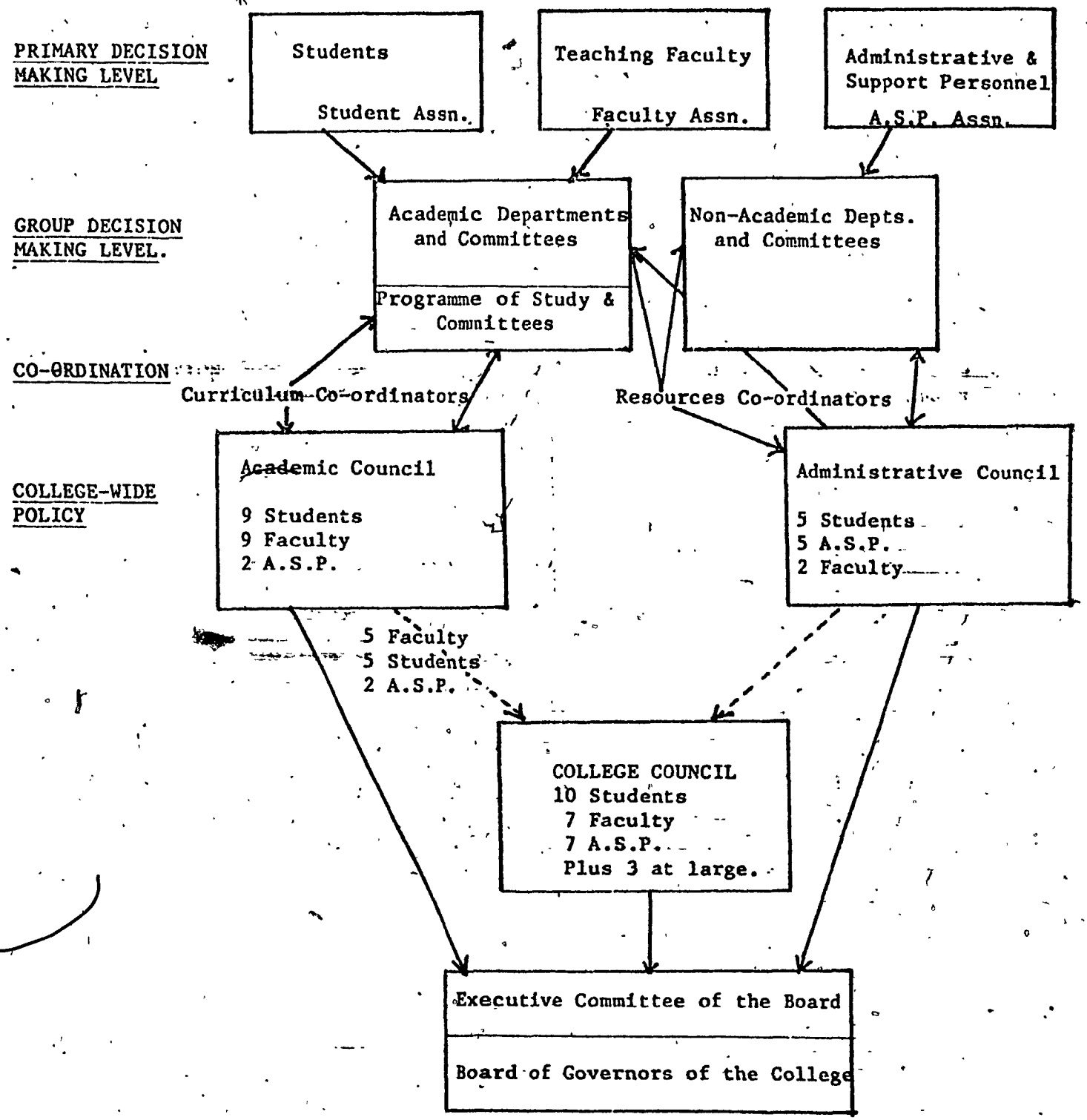

TABLE 1

ETHNIC BACKGROUND OF STUDENTS IN PHYSICS AND SOCIOLOGY CLASSES AT MIDDLETON AND GREENWOOD

	Middleton			Greenwood		
	Phys. %	Soc. %	Total Phys.-Soc.	Phys. %	Soc. %	Total Phys.-Soc.
Place of Birth						
Canada	65.6	79.5	71.7	87.0	93.3	89.1
Other	34.4	20.5	28.3	13.0	6.7	10.9
Mother Tongue						
English	63.4	71.2	66.9	87.6	89.9	88.3
French	6.6	7.5	7.0	5.9	7.9	6.6
Other	30.0	21.3	26.1	6.5	2.2	5.1
Religion						
Protestant	29.0	25.5	27.4	53.5	47.2	51.5
Catholic (Roman)	36.6	36.6	36.6	30.3	41.6	33.9
Jew	9.8	22.8	15.5	.5	0.0	.4
Other	4.9	4.8	4.9	1.1	0.0	.7
None	19.7	10.3	15.5	14.6	11.2	13.5

TABLE 2

TEACHER ATTITUDES TOWARD TIME SPENT WITH STUDENTS

	Middleton				Greenwood			
	phys.		Soc.		phys.		soc.	
	No.	%	No.	%	No.	%	No.	%
A. Do you regard time teaching as time well spent?								
1. usually	9	81.8	4	44.4	10	100	4	80
2. sometimes	2	18.2	3	33.3	-	-	1	20
3. rarely	-	-	2	22.2	-	-	-	-
Totals	11	100.0	9	100.0	10	100	5	100
B. Do you find students stimulating?								
1. usually	1	9.1	2	22.2	-	-	2	40
2. sometimes	10	90.0	6	66.7	10	100	2	40
3. rarely	-	-	1	11.1	-	-	1	20
Totals	11	100.0	9	100.0	10	100	5	100
Fisher's Exact Test, significant at $<.05$								
C. Compared to time now spent with students, would you like to spend:								
1. more	1	9.1	4	44.4	3	30	3	60
2. the same	10	90.9	5	55.6	7	70	2	40
3. less	-	-	-	-	-	-	-	-
Totals	11	100.0	9	100.0	10	100	5	100

Time Actually Spent with Students (average no. of hours/week)

	Middleton		Greenwood	
	phys.	soc.	phys.	soc.
1. Office hours	9	9**	19*	6.6**
2. Total time spent, includes classes, labs, and office hours	19.36	17.1	32.6	17

* Includes one half-time teacher
** Includes two half-time teachers

TABLE 3

COMPARISON OF RESPONSES, PHYSICS AND SOCIOLOGY DEPARTMENTS, MIDDLETON. CODE: 1=little influence; 3=great influence when more than 50% of departmental members in both departments agree

Kinds of decisions	Students: individuals or as a group (a)	Faculty as a group (b)	Departmental Committees	Dept. Chm.	Secteurs or College-wide bodies (c)	DIGEQ or Dept. of Education
a. new faculty appointments	phys. 1; soc. --	phys. 3; soc. --	3	1	1	1?
b. how to allocate departmental funds	1	3	3	3	1	1?
c. who will teach what courses	1	3	phys. 1;* soc. 3	phys. 3;* soc. 1	1	1
d. what hours classes will meet	1	1	1	phys. 3; soc. 1	3	1?
e. space allocations offices)	1	1	1	phys. 3; soc. 1	3	1?
f. who new department chairman will be	phys. 3; soc. 1	3	1	1	1	1?
g. what courses will be offered	1	3	phys. 1; soc. 3	3	1	3
h. who will assume what administrative duties (d)	1	3	phys. 3; soc. 1	3	1	1?
i. whose contracts will be renewed or not renewed	1	3	3	phys. 3; soc. 1	3	1?
j. admission policy and selection of students	1	1	1	1	3	1?

(a) Including students in committees
(b) NOT including committees or the chairman
(c) Including college administration
(d) Within or representing the department
* significant at .05 level or less
? more than 30% "don't knows" make responses unreliable
-- means department is split 50-50.

TABLE 4

COMPARISON OF RESPONSES, PHYSICS AND SOCIOLOGY DEPARTMENTS, GREENWOOD. CODE: 1=little influence; 3=great influence when more than 50% of departmental members in both departments agree

Kinds of decisions	Students: individuals or as a group (a)	Faculty as a group (b)	Departmental Committees	Dept. Chm.	Secteurs or College-wide bodies (c)	DIGES or Dept. of Education
a. new faculty appointments	phys. 1;* soc. 3	3	3	1	1	1?
b. how to allocate departmental funds	1	3	phys.3; soc. --	1	1	1?
c. who will teach what courses	1	3	1	1	1	1
d. what hours classes will meet	1	1	1	1	3	1?
e. space allocations (offices)	1	phys. 1;* soc. 3	1	1	3	1?
f. who new department chairman will be	1	3	1	1	1	1?
g. what courses will be offered	1	3	1	1	phys. 3; soc. 1	3
h. who will assume what administrative duties (d)	1	3	1	1	1	1?
i. whose contracts will be renewed or not renewed	1	phys. 1;* soc. 3	1	1	3	1?
j. admission policy and selection of students	1	1	1	1	3	1?

(a) Including students in committees
(b) NOT including committees or the chairman
(c) Including college administration
(d) Within or representing the department
* significant at .05 level or less
?=more than 30% "don't knows" make responses unreliable
-- means department is split 50-50.

TABLE 5

STRUCTURAL DIFFERENCES BETWEEN PHYSICS AND SOCIOLOGY DEPARTMENTS WHICH ARE STATISTICALLY SIGNIFICANT

Middleton College

Who influences what decision		Physics No.[1]	Median Influence Level[2]	Soc. No.	Median Influence Level
1. Departmental committee influence on who teaches what	Little (1)	8	1	1	3
	Great (3)	3		8	
	Total	11		9	

Fisher's Exact Test: .00917
Phi: .61616; Lambda: .55556 with influence-decision variable dependent

2. Department chairman's influence on who teaches what	Little (1)	0	3	8	1
	Great (3)	11		1	
	Total	11		9	

Fisher's Exact Test: .00007
Phi: .90267; Lambda: .87500 with influence-decision variable dependent

Differences which are not statistically significant

		Physics No.	Median Influence Level	Soc. No.	Median Influence Level
3. Faculty influence on new faculty appointments	Little (1)	4	3	4	--
	Great (3)	7		4	
4. Departmental Committee influence on who assumes what administrative duty	Little (1)	4	3	5	1
	Great (3)	7		4	
5. Departmental committee influence on what courses will be offered	Little (1)	7	1	4	3
	Great (3)	4		5	

TABLE 5 (con't.)

		Physics No.	Median Influence Level	Soc. No.	Median Influence Level
6. Department chairman's influence on class hours	Little (1)	5	3	7	1
	Great (3)	6		2	
7. Department chairman's influence on space allocations	Little (1)	5	3	8	1
	Great (3)	6		1	
8. Student influence on who will be new chairman	Little (1)	5	3	5	1
	Great (3)	6		4	
9. Department chairman's influence on renewal of faculty contracts	Little (1)	4	3	6	1
	Great (3)	7		3	
10. Student influence on new faculty appointments	Little (1)	10	1	3	--
	Great (3)	1		3	

1) No. = the number of teachers responding in each category

2) The influence level of the particular person or group on the given decision as judged by the majority of respondents in each department.

3) -- means the department is split 50-50 on this judgement.

TABLE 6

STRUCTURAL DIFFERENCES BETWEEN PHYSICS AND SOCIOLOGY DEPARTMENTS WHICH ARE STATISTICALLY SIGNIFICANT

Greenwood College

		Physics No.[1]	Median Influence Level[2]	Soc. No.	Median Influence Level
Who influences what decision					
1. Student influence on new faculty appointments	Little (1)	10	1	2	3
	Great (3)	0		3	
	Total	10		5	
	Fisher's Exact Test: .02198 Phi: .70711; Lambda: .3333 with influence-decision variable dependent				
2. Faculty influence on space allocations	Little (1)	8	1	1	3
	Great (3)	2		4	
	Total	10		5	
	Fisher's Exact Test: .04695 Phi: .57735; Lambda: .50000 with influence-decision variable dependent				
3. Faculty influence on whose contracts will be renewed	Little (1)	8	1	0	3
	Great (3)	1		5	
	Total	9		5	
	Fisher's Exact Test: .00300 Phi: .86066; Lambda: .83333 with influence-decision variable dependent				
Differences which are not statistically significant					
4. Secteur or college-wide influence on what courses will be offered	Little (1)	3	3	4	1
	Great (3)	5		1	
5. Department committee influence on allocation of departmental funds	Little (1)	2	3	2	--
	Great (3)	8		2	

TABLE 7

SIGNIFICANT DIFFERENCES IN DEPARTMENTAL STRUCTURES BETWEEN COLLEGES WITH ACADEMIC DISCIPLINE CONTROLLED

Decision	Physics		Sociology	
	Middleton	Greenwood	Middleton	Greenwood
	No.	No.	No.	No.
1. Influence of Students on who new department chairman will be				
(1) Little	5	10	--	--
(3) Great	6	0		
Totals	11	10		
Median	3			
Phi	.60302			
Signif.	<.05			
2. Influence on who teaches what by dept. committee				
(1) Little	--	--	1	5
(3) Great			8	0
Totals			9	5
Median			3	1
Phi			.86066	
Signif.			<.01	
3. Influence of dept. chairman on:				
a. who teaches what courses				
(1) Little	0	7	--	--
(3) Great	11	3		
Totals	11	10		
Median	3	1		
Phi	.74162			
Signif.	<.01			
b. allocation of funds				
(1) Little	2	7		
(3) Great	9	2	--	--
Totals	11	9		
Median	3	1		
Phi	.59596			
Signif.	<.05			
c. who will assume what admin. duties				
(1) Little	2	7		
(3) Great	9	3	--	--
Totals	11	10		
Median	3			
Phi	.52296			
Signif.	<.05			

TABLE 7 (con't.)

Decision	Physics		Sociology	
	Middleton	Greenwood	Middleton	Greenwood
	No.	No.	No.	No.
d. whose contracts will be renewed				
(1) Little	4	8	--	--
(3) Great	7	1		
Totals	11	9		
Median	3			
Phi	.53340			
Signif.	<.05			

TABLE 8

VARIABLES IN CLASSROOM QUESTIONNAIRE WITH 20% OR MORE "DON'T KNOW" RESPONSES*

DECISION	Middleton						Greenwood					
	Phys.		Soc.		Total		Phys.		Soc.		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
a. Degree to which course content is influenced by:												
1. Faculty Committee	46	24.6	67	45.6	113	33.8	37	19.9	42	47.2	79	28.7
2. Department	39	20.9	61	41.5	100	29.9	34	18.3	33	37.1	67	24.4
3. DIGEC (Dept. of Educ.)	60	32.1	83	56.8	143	42.9	63	33.9	40	45.5	103	37.6
b. Degree to which course methods are influenced by:												
1. Faculty Committee	44	23.5	66	45.2	110	33.0	33	17.7	39	43.8	72	26.2
2. Department	35	18.7	61	41.8	96	28.8	27	14.5	34	38.2	61	22.2
3. DIGEC (Dept. of Educ.)	71	38.0	76	52.1	147	44.1	66	35.7	45	51.1	111	40.7
c. Degree to which evaluation of student work is influenced by:												
1. Faculty Committee	47	25.1	60	40.8	107	32.0	30	16.2	30	33.7	60	21.9
2. Department	43	23.1	63	42.9	106	31.8	31	16.8	30	33.7	61	22.3
3. DIGEC (Dept. of Educ.)	73	39.0	78	53.1	151	45.2	69	37.1	33	37.5	102	37.2
d. Degree to which choice of texts, etc. are influenced by:												
1. Faculty Committee	44	23.5	66	44.9	110	32.9	36	19.5	34	38.2	70	25.5
2. Department	39	20.9	62	42.2	101	30.2	32	17.3	29	32.6	61	22.3
3. DIGEC (Dept. of Educ.)	70	37.8	80	54.8	150	45.3	69	37.3	41	46.6	110	40.3
e. Degree to which course prerequisites are influenced by:												
1. Faculty Committee	34	18.2	55	38.2	89	26.9	34	18.4	22	25.3	56	20.6
2. Department	30	16.0	49	34.0	79	23.9	27	14.5	15	17.2	42	15.4
3. DIGEC (Dept. of Educ.)	47	25.1	61	42.4	108	32.6	50	26.9	30	34.9	80	29.4

Total respondents: Middleton, 334 of which physics, 187, sociology, 147.
Greenwood, 275 of which physics, 186, sociology, 89

* Number answering 9 (don't know)

TABLE 9a

SIGNIFICANT DIFFERENCES IN CLASSROOM STRUCTURE BETWEEN DISCIPLINES
(Who Influences What Student Will Learn) (course content)*

	Middleton		Greenwood	
1. Individual student	Phys. (no.)	Soc. (no.)	Phys. (no.)	Soc. (no.)
Degree of influence				
0 (none)	150	49	152	47
1 (some)	24	50	21	22
2 (moderate)	8	36	12	14
3 (great)	4	11	1	5
Total responses	186	146	186	88
Median**	0	1	0	1
Cramer's V	.48406		.31156	
Significance	3 df, <.0001		3 df, <.0001	
2. Students as a Group				
Degree of influence				
0 (none)	87	18	105	26
1 (some)	68	56	50	26
2 (moderate)	23	54	25	23
3 (great)	5	18	5	13
Total responses	183	146	185	88
Median	1 80+%=0+1	1 50+%=1+0	0	1
Cramer's V	.43748		.31979	
Significance	3 df, <.0001		3 df, <.0001	
3. Teachers				
Degree of influence				
0 (none)	6	1	5	1
1 (some)	54	12	50	13
2 (moderate)	67	35	67	30
3 (great)	51	93	59	43
Total responses	178	141	181	87
Median	2	3	2;70-%=2+3	2;80+%=2+3
Cramer's V	.39174		.18507	
Significance	3 df, <.0001		3 df, <.05	

* Differences in totals are accounted for by "don't knows" which were eliminated for purposes of analysis and statistical tests.
Total respondents for all classes: Middleton, 334 of which physics, 187, sociology, 147

Greenwood, 275 of which physics, 186, sociology, 89.

** When the median number falls in the same class of responses for both departments, and the difference is statistically significant, I have indicated the nearest decile percentages answering in that class or in that class and its nearest extreme. The purpose is to show that the difference in distribution of responses probably accounts for the significance level.

TABLE 9b

SIGNIFICANT DIFFERENCES, etc.: (Who Influences Methods of Learning)*

	Middleton		Greenwood	
1. Individual student				
Degree of influence	Phys. (no.)	Soc. (no.)	Phys. (no.)	Soc. (no.)
0 (none)	104	46	98	33
1 (some)	52	51	58	30
2 (moderate)	20	31	22	14
3 (great)	11	18	8	10
Total responses	187	146	186	87
Median ***	0	1	0	1
Cramer's V	.25575		.17498	
Significance	3 df, at .0001		3 df, <.05	
2. Students as a Group				
Degree of influence				
0 (none)	53	23	48	17
1 (some)	72	49	78	29
2 (moderate)	48	48	51	28
3 (great)	12	26	9	13
Total responses	185	146	186	87
Median	1	2	1; 60+%=0+1	1; 50+%=0=1
Cramer's V	.22671		.19206	
Significance	3 df, <.001		3 df, <.01	
3. Teachers				
Degree of influence				
0 (none)	3	3	2	1
1 (some)	15	7	11	7
2 (moderate)	64	25	64	23
3 (great)	104	107	109	56
Total responses	186	142	186	87
Median	3; 50+%=3	3; 70+%=3	3	3
Cramer's V	.20952		.08386	
Significance	3 df, <.01		None**	

* Differences in totals are accounted for by "don't knows" which were eliminated for purposes of analysis and statistical tests
Total respondents: Middleton, 334, of which physics, 187, sociology, 147
Greenwood, 275, of which physics, 186, sociology, 89

** Significance level was greater than .05; null hypothesis cannot be rejected.

*** When the median number falls in the same class of responses for both departments, and the difference is statistically significant, I have indicated the nearest decile percentages answering in that class or in that class and its nearest extreme. The purpose is to show that the difference in distribution of responses probably accounts for the significance level.

TABLE 9c

SIGNIFICANT DIFFERENCES, etc.: (Who Influences What Texts, Other Tools Will be Used)*

1. Individual student

Degree of influence	Middleton Phys. (no.)	Middleton Soc. (no.)	Greenwood Phys. (no.)	Greenwood Soc. (no.)
0 (none)	149	72	146	63
1 (some)	29	35	29	12
2 (moderate)	8	21	7	14
3 (great)	0	17	4	0
Total responses	186	145	186	89
Median **	0; 90+%=0+1	0; 70+%=0+1	0; 90+%=0+1	0; 80+%=0+1
Cramer's V	.22444		.37215	
Significance	3 df, <.0001		3df, <.01	

2. Students as a group

Degree of influence				
0 (none)	134	52	118	43
1 (some)	34	49	53	27
2 (moderate)	16	30	12	13
3 (great)	0	15	2	6
Total responses	184	146	185	89
Median	0	1	0	1
Cramer's V	.40627		.22150	
Significance	3 df, <.0001		3df, <.01	

3. Teachers

Degree of influence				
0 (none)	11	1	7	0
1 (some)	37	9	34	5
2 (moderate)	59	24	57	16
3 (great)	66	106	82	66
Total responses	180	87	173	140
Median	2	3	2	3
Cramer's V	.29867		.38534	
Significance	3 df, <.0001		3df, <.0001	

* Differences in totals are accounted for by "don't knows" which were eliminated for purposes of analysis and statistical tests.
Total respondents: Middleton, 334, of which physics, 187, sociology, 147
Greenwood, 275, of which physics, 186, sociology, 89

** When the median number falls in the same class of responses for both departments, and the difference is statistically significant, I have indicated the nearest decile percentages answering in that class or in that class and its nearest extreme. The purpose is to show that the difference in distribution of responses probably accounts for the significance level.

TABLE 9d

SIGNIFICANT DIFFERENCES, etc.: (Who Influences How Students' Work Will Be Evaluated)*

	Middleton		Greenwood	
1. Individual student				
Degree of influence	Phys. (no.)	Soc. (no.)	Phys. (no.)	Soc. (no.)
0 (none)	116	50	87	41
1 (some)	46	54	68	22
2 (moderate)	14	28	27	14
3 (great)	10	15	3	12
Total responses	186	147	185	89
Median ***	0	1	1; 80+%=0=1	1; 70%=0+1
Cramer's V	.29188		.25743	
Significance	3df, <.0001		3df, <.001	
2. Students as a group				
Degree of influence				
0 (none)	65	26	41	27
1 (some)	71	53	66	32
2 (moderate)	40	39	63	16
3 (great)	9	29	16	14
Total responses	185	147	186	89
Median	1; 70+%=0+1	1; 50+%=0+1	1; 50+%=0+1	1; 60+%=0+1
Cramer's V	.27907		.18854	
Significance	3df, <.0001		3df, <.05	
3. Teachers				
Degree of influence				
0 (none)	1	1	1	0
1 (some)	13	7	14	2
2 (moderate)	57	18	62	24
3 (great)	116	117	108	63
Total responses	187	143	186	89
Median	3; 60+%=3	3; 80-%=3	3	3
Cramer's V	.22368		.14420	
Significance	3df <.001		none**	

* Differences in totals are accounted for by "don't knows" which were eliminated for purposes of analysis and statistical tests.
Total respondents: Middleton, 334, of which physics, 187, sociology, 147
Greenwood, 275, of which physics, 186, sociology, 89

** Significance level was greater than .05; null hypothesis cannot be rejected.

*** When the median number falls in the same class of responses for both departments, and the difference is significant statistically, I have indicated the nearest decile percentages answering in that class or in that class and its nearest extreme. The purpose is to show that the difference in distribution of responses probably accounts for the significance level.

TABLE 9e

SIGNIFICANT DIFFERENCES, etc.: (Who Influences Course Pre-requisites)*

1. Individual student

Degree of influence	Middleton Phys. (no.)	Middleton Soc. (no.)	Greenwood Phys. (no.)	Greenwood Soc. (no.)
0 (none)	161	99	171	75
1 (some)	7	17	4	8
2 (moderate)	4	11	3	2
3 (great)	7	5	5	1
Total responses	179	132	183	86
Median ***	0; 90+%=0	0; 70+%=0	0	0
Cramer's V	.22546		.16902	
Significance	3 df, <.01		None**	

2. Students as a group

Degree of influence				
0 (none)	156	96	172	71
1 (some)	11	21	4	9
2 (moderate)	6	10	2	6
3 (great)	4	3	4	0
Total responses	177	130	182	86
Median	0; 90+%=0	0; 70+%=0	0; 90+%=0	0; 80+%=0
Cramer's V	.19464		.25770	
Significance	3 df, <.01		3 df, <.001	

3. Teachers

Degree of influence				
0 (none)	71	34	90	29
1 (some)	49	22	44	15
2 (moderate)	29	34	25	17
3 (great)	16	29	15	19
Total responses	165	119	174	80
Median	1	2	0	1
Cramer's V	.26897		.24098	
Significance	3 df, at .0001		3 df, <.01	

* Differences in totals are accounted for by "don't knows" which were eliminated for purposes of analysis and statistical tests.
Total respondents: Middleton, 334, of which physics, 187, sociology, 147.
Greenwood, 275, of which physics, 186, sociology, 89.

** Significance level was greater than .05; null hypothesis cannot be rejected.

*** When the median number falls in the same class of responses for both departments, and the difference is statistically significant, I have indicated the nearest decile percentages answering in that class or in that class and its nearest extreme. The purpose is to show that the difference in distribution of responses probably accounts for the significance level.

TABLE 10

SIGNIFICANT DIFFERENCES IN CLASSROOM STRUCTURE BETWEEN COLLEGES IN THE SAME DISCIPLINE*

Decisions	Physics		Sociology	
	Middleton	Greenwood	Middleton	Greenwood
1. Influence on course content by students as a group:				
(0) none	87	105	18	26
(1) some	68	50	56	26
(2) moderate	23	25	54	23
(3) great	5	5	18	13
Total responses	183	185	146	88
Median**	1	0	2	1
Cramer's V	.11065		.22724	
Significance	--***	--	<.01	
2. Influence on course content by individual student:				
(0) none	150	152	49	47
(1) some	24	21	50	22
(2) moderate	8	12	36	14
(3) great	4	1	11	5
Total responses	186	186	146	88
Median	0	0	1	0
Cramer's V	.08696		.19655	
Significance	--	--	<.05	
3. Influence on texts and other tools by individual student:				
(0) none	149	146	72	63
(1) some	29	29	35	12
(2) moderate	8	7	21	14
(3) great	0	4	17	0
Total responses	186	186	145	89
Median	0	0	1	0
Cramer's V	.10495		.27640	
Significance	--	--	<.001	
4. Influence on how students work is evaluated by individual student:				
(0) none	116	87	50	41
(1) some	46	68	54	22
(2) moderate	14	27	28	14
(3) great	10	3	15	12
Total responses	186	185	147	89
Median	0	1	1	1
Cramer's V	.20946		.15180	
Significance	<.001		--	--

TABLE 10 (con't.)

Decisions	Physics		Sociology	
	Middleton	Greenwood	Middleton	Greenwood
5. Influence on how student's work is evaluated by students as a group:				
(0) none	65	41	26	27
(1) some	71	66	53	32
(2) moderate	40	63	39	16
(3) great	9	16	29	14
Total responses	185	186	147	89
Median	1; 70+%=0+1	1; 50+%=0+1	1	1
Cramer's V	.18509		.16178	
Significance	<.01		--	--
6. Influence on how student's work is evaluated by teachers:				
(0) none	1	1	1	0
(1) some	13	14	7	2
(2) moderate	57	62	18	24
(3) great	116	108	117	63
Total responses	187	185	143	89
Median	3	3	3; 80+%=3	3; 70-%=3
Cramer's V	.03746		.19409	
Significance	--	--	<.01	

* Differences in totals are accounted for by "don't knows" which were eliminated for purposes of statistical tests and analysis.
Total respondents: Middleton, 334, of which physics, 187, sociology, 147
Greenwood, 275, of which physics, 186, sociology, 89

** -- means that significance level was greater than .05.

*** when the median falls in the same class of responses for both departments, and the difference is statistically significant, I have indicated the nearest decile percentages answering in that class or in that class and its nearest extreme. The purpose is to show that the difference in distribution of responses probably accounts for the significance level.

APPENDIX A

INTERVIEW SCHEDULE FOR TEACHERS

1. What is rewarded here? How do you know -- examples?

2. What would you like to see rewarded? Have you ever wanted or tried a different way of teaching (besides traditional one of lecture, papers, exams) or a different content -- including different ideas, knowledge, etc. in an introductory course? What was it? What happened? Did you need the approval of the department, the sector or the central administration?

3. What do you think is a good teacher? How do you know when you have done a good job? Do you often feel you have?

4. When you think of yourself as a professional (sociologist, physicist), if you do, with whom do you compare yourself (colleagues here; colleagues at X university; colleagues in the professional association to which you belong; other teachers of any subject?)

5. What do students who take introductory sociology or physics need? What do you try to give them?

6. What are the main issues that had to be resolved in your department during the past year? Were they easily resolved or with difficulty? How were they resolved -- by consensus, by voting, by splitting up, after much and heated or little argument, by department chairman deciding, by central administration, or by Quebec decision? In general, who do you feel has most influence on departmental affairs?

7. What is the role of students in your department's affairs? Do they participate regularly? With enthusiasm? On what subjects or issues are their views useful? sought? When do you think parity is effective -- how would you decide that it was effective? Examples?

8. In the classroom -- what input or decisions can students make in your classes? What do they actually make? Examples?

9. May I visit your class sometime?

10. In general, do you think that the administrative style or the organizational structures here help or hinder your task as a member of this department and as a teacher of sociology or physics?

11. (If response has been generally negative) Why did you come and why do you stay?

APPENDIX B

INTERVIEW SCHEDULE FOR ADMINISTRATORS

1. Is there a job description for your position? For others?

2. Is there accountability in administration in the sense that there are clear sanctions that can and have been applied to non-fulfillment of responsibilities? In administration? Faculty or support personnel?

3. Among departments or faculty, how do you know who is doing a good job? What is a good job, an effective teacher, an effective department?

4. When is parity working effectively? Is it characterized by smooth performance or by controversy? Attendance at department meetings, passionate involvement of students? Does it matter what subjects they make decisions about? That is, if they attend, but only decide on departmental socials or advertising (orientation) campaigns is that effective parity? Does anyone try to encourage or insist on effective parity?

5. What is rewarded here? In monetary terms, and in terms of facilities and services?.
   Are innovative programmes supported, financially?
   How do you decide what to support?
   What is the process whereby support is achieved? If you were interested in getting a new innovative program through -- yours or a department's or a teacher's -- what steps would be necessary?

6. What do you think is likely to be the result if ADE affiliates?

APPENDIX C

INTERVIEW SCHEDULE FOR STUDENTS

1. What is your field of academic interest? How did you happen to become interested?

2. For Middleton students:

   a) Have you sat on a departmental council? How long? Were you active? Attend meetings regularly? Sit on any committee? Why or why not?

   b) What are the main issues that had to be resolved in your departmental council during the past year? Were they easily resolved or with difficulty? How were they resolved -- by consensus, by voting, by splitting up, after much and heated or little argument, by department chairman deciding, by central administration, or by Quebec decision?

3. What is the role of students in your department's affairs? Do they participate regularly? With enthusiasm or not? On what subjects or issues are their views sought? Are these views useful, do you think? Do you feel that you are able to influence decisions that affect your education in this department? In the college as a whole? What is effective student parity, in your view?

4. What is a good teacher? Is it someone who gets across a lot of knowledge of the subject, or someone who tries to make the subject interesting to you, or someone who adapts the subject to your particular interests? or one who helps you find yourself as a person?

5. In what courses at this college have you found the most structured and where the most unstructured courses? Where did you find the greatest freedom and the least freedom to choose your method of learning? the content you wanted to learn? Did you feel that the structure in each case was appropriate to the course or subject matter or inappropriate?

6. Why did you come to Middleton or Greenwood? What do you like best about it, what do you like least? How do you think most students here feel?

APPENDIX D

Dept.: Date: Present: staff ____ students ____
ASP ____

Issue:

Where from? Conditions? Decision Process Key: VM, M, VL

Deadline? Limited Choices? For Info or response only?

Observations:

1. Nature of interaction
   a. Exchange of ideas
   b. Group consensus
   c. Group conflict
2. Who influenced the decision?
   a. chairperson
   b. Faculty individuals (list)
   c. Student individuals (list)
   d. Faculty as a group
   e. students as a group
   f. administration of college
   g. sector council
   h. other
3. How decided
   a. Vote: Staff, Yes ___ No ____ Abs. ____
      Students, Yes ___ No ___ Abs. ___
   b. Consensus ____
   c. Referred to Dept. com. ___
   d. Referred outside dept. ___
   e. Decision postponed

Appendix E

DEPARTMENTAL QUESTIONNAIRE

/ / / 1 /

1-4

Please provide the following information:

1. College: Middleton _____ (1) 5
   Greenwood _____ (2)

2. Department in which this course is offered: 6
   Physics _____ (1)
   Sociology _____ (2)

3. Are you a teacher? _____ (1) 7
   Student _____ (2)

4. What is your age? (one digit in each box) / / 8-9

5. Sex: Female _____ (1) 10
   Male _____ (2)

6. Marital status: Married _____ (1) 11
   Single _____ (2)
   Divorced _____ (3)
   Widowed _____ (4)
   Separated _____ (5)

7. Place of birth: (Country) _____ / / 12

8. Mother tongue; _____ / / 13

9. Religion: _____ / / 14

10. Highest degree obtained: PhD _____ (1) 15
    M.A. _____ (2)
    BSc or B.A. _____ (3)
    H.S. Matric _____ (4)
    H.S. Leaving _____ (5)
    None _____ (6)

11. Where obtained? _____ / / 16

Department in which this course is offered:

Physics _____ (1) 6

Sociology _____ (2)

3. Are you a teacher? _____ (1) 7

Student? _____ (2)

4. What is your age? (one digit in each box) / / / 8-9

5. Sex: Female _____ (1) 10

Male _____ (2)

6. Marital status: Married _____ (1) 11

Single _____ (2)

Divorced _____ (3)

Widowed _____ (4)

Separated _____ (5)

7. Place of birth: (Country) _____ / / 12

8. Mother tongue: _____ / / 13

9. Religion: _____ / / 14

10. Highest degree obtained: PhD _____ (1) 15

M.A. _____ (2)

BSc or B.A. _____ (3)

H.S. Matric _____ (4)

H.S. Leaving _____ (5)

None _____ (6)

11. Where obtained? _____ / / 16

12. If your highest degree was obtained from a High School in Quebec, was it: 17

Protestant _____ (1)

Catholic _____ (2)

[redacted]

[redacted]

13. In the following series of questions we are trying to determine the range of actual di power exercised in your college. By discretionary power, we do not mean perfunctory o authorization. We are rather seeking to determine the amount of influence persons or in the college have in a variety of kinds of decisions.
Please write: 0 = no influence; 1 = some influence; 2 = moderate influence; 3 = great influence; 9 = don't know - as applicable in each column.

Kinds of Decisions	Students: individuals or as a group (a).	Faculty as a group (b).	Departmental Committees	Department Chairman
a. new faculty appointments				
b. how to allocate departmental funds				
c. who will teach what courses				
d. what hour classes will meet				
e. space allocations (offices)				
f. who new department chairman will be				
g. what courses will be offered				
h. who will assume what administrative duties (d)				
i. whose contracts will be renewed or not renewed				
j. admission policy and selection of students				

(a) Including students in committees (b) NOT including committees or the chai
(d) Within or representing the department

[redacted]

we are trying to determine the range of actual discretionary
discretionary power, we do not mean perfunctory or routine
to determine the amount of influence persons or groups
inds of decisions.
some influence; 2 = moderate influence;
- as applicable in each column.

Do not write in this space

).	Faculty as a group (b).	Departmental Committees	Department Chairman	Secteurs or college-wide bodies (c)	DIGEQ or Department of Education	
						18-23
						24-29
						30-35
						36-41
						42-47
						48-53
						54-59
						60-65
						66-71
						72-77

(b) NOT including committees or the chairman (c) Including college administration
thin or representing the department

Do not write in this space

FOR TEACHERS ONLY:

15. Do you regard the time you spend teaching as well spent?

Usually _____ (1) 65

Sometimes _____ (2)

Rarely _____ (3)

16. Do you find students intellectually stimulating?

Usually _____ (1) 66

Sometimes _____ (2)

Rarely _____ (3)

17. Would you like to spend more, the same, or less time with students than you now do? 67

More _____ (1)

The same _____ (2)

Less _____ (3)

18. How many hours per week, approximately, do you actually spend with students? (Write one digit per box)

In class _____ 68–69

In labs _____ 70–71

In office hours _____ 72–73

Total _____ 74–75

Appendix F

CLASSROOM QUESTIONNAIRE

Do not write in this space

/ / / 3. /

1-4

Please provide the following information:

1. College: Dawson _____ (1) — 5
   John Abbott _____ (2)

2. Department in which this course is offered: — 6
   Physics _____ (1)
   Sociology _____ (2)

3. Are you a teacher? _____ (1) — 7
   Student? _____ (2)

4. What is your age? (one digit in each box) / / / — 8-9

5. Sex: Female _____ (1) — 10
   Male _____ (2)

6. Marital status: Married _____ (1) — 11
   Single _____ (2)
   Divorced _____ (3)
   Widowed _____ (4)
   Separeted _____ (5)

7. Place of birth: (Country) _____ — / /12

8. Mother tongue: _____ — / /13

9. Religion: _____ — / /14

10. Highest degree obtained: PhD _____ (1) — 15
    M.A. _____ (2)
    BSc or B.A. _____ (3)
    H.S. Matric _____ (4)
    H.S. Leaving _____ (5)
    None _____ (6)

11. Where obtained? _____ — / / 16

2. Department in which this course is offered: 6

Physics _____ (1)

Sociology _____ (2)

3. Are you a teacher? _____ (1) 7

Student? _____ (2)

4. What is your age? (one digit in each box) / / / 8-9

5. Sex: Female _____ (1) 10

Male _____ (2)

6. Marital status: Married _____ (1) 11

Single _____ (2)

Divorced _____ (3)

Widowed _____ (4)

Separeted _____ (5)

7. Place of birth: (Country) _____ / /12

8. Mother tongue: _____ / /13

9. Religion: _____ / /14

10. Highest degree obtained: PhD _____ (1) 15

M.A. _____ (2)

BSc or B.A. _____ (3)

H.S. Matric _____ (4)

H.S. Leaving _____ (5)

None _____ (6)

11. Where obtained? _____ / / 16

12. If your highest degree was obtained from a High School in Quebec, was it: 17

Protestant _____ (1)

Catholic _____ (2)

[redacted]

CLASSROOM QUESTIONNAIRE

Do not write in this space

/ / / 3. /

1-4

Please provide the following information:

1. College: Middleton _____ (1) 5
   Greenwood _____ (2)

2. Department in which this course is offered: 6
   Physics _____ (1)
   Sociology _____ (2)

3. Are you a teacher? _____ (1) 7
   Student? _____ (2)

4. What is your age? (one digit in each box) / / / 8-9

5. Sex: Female _____ (1) 10
   Male _____ (2)

6. Marital status: Married _____ (1) 11
   Single _____ (2)
   Divorced _____ (3)
   Widowed _____ (4)
   Separeted _____ (5)

7. Place of birth: (Country) _____ / / 12

8. Mother tongue: _____ / / 13

9. Religion: _____ / / 14

10. Highest degree obtained: PhD _____ (1) 15
    M.A. _____ (2)
    BSc or B.A. _____ (3)
    H.S. Matric _____ (4)
    H.S. Leaving _____ (5)
    None _____ (6)

11. Where obtained? _____ / / 16

12. If your highest degree was obtained from

Physics _____ (1)

Sociology _____ (2)

3. Are you a teacher? _____ (1) 7

Student? _____ (2)

4. What is your age? (one digit in each box) / / / 8-9

5. Sex: Female _____ (1) 10

Male _____ (2)

6. Marital status: Married _____ (1) 11

Single _____ (2)

Divorced _____ (3)

Widowed _____ (4)

Separeted _____ (5)

7. Place of birth: (Country) _____ / /12

8. Mother tongue: _____ / /13

9. Religion: _____ / /14

10. Highest degree obtained: PhD _____ (1) 15

M.A. _____ (2)

BSc or B.A. _____ (3)

H.S. Matric _____ (4)

H.S. Leaving _____ (5)

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Catholic _____ (2)

[redacted]