A CASE STUDY OF THE IMPLEMENTATION OF A CURRICULAR INNOVATION IN AUTONOMOUS PHYSICAL THERAPY CLINICAL DEPARTMENTS

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in the
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by
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ABSTRACT

A modified normative re-educative and intersystems model for planned change was used as the theoretical basis for this study of factors related to implementation of curricular innovation. The main question addressed by this study was, "How do you bring about desired change in external autonomous organizations?"

The sample consisted of two groups of second year physical therapy students enrolled in the School of Physical Therapy, University of Saskatchewan. Each of the students completed a questionnaire dealing with their perceptions of clinical practice following implementation of a structured teaching program in participating clinical departments of three hospitals.

The data obtained by the questionnaires were analyzed by using one-way and two-way analyses of variance techniques and the accompanying Scheffé test.

The one variable which accounted for the greatest amount of curriculum implementation was in-service training delivered by an internal change agent located within her own organization.

This study also provided evidence that the innovativeness of a modern or traditional organization may well be a factor related to the rate of adoption and account for the varying degrees of implementation attributed to the change agent's efforts.

The present study also led to the conclusion that student levels of confidence were directly proportional to the degree of implementation.

It had been expected that there would be a significant relationship
between gatekeeper and operant agreement, collaborative efforts in curriculum development and distribution of the curriculum.
ACKNOWLEDGEMENTS

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Chapter I

INTRODUCTION

Perhaps the significant thing about contemporary professional education is the great increase in the amount of theory and practical skills to be taught and learned. Each profession teaches its candidates some selection of the immense body of both theory and practice. In order to accomplish this task, most professional schools rely heavily on other institutions to provide the setting in which the gap between theory and clinical or practical skills can be practised. The situation, however ideal, is not without problems as pointed out by Everett Hughes et al. in their report prepared for the Carnegie Commission on Higher Education:

Each professional school has frontiers, generally ill-defined with a number of institutions, in which their students serve; with universities, with government agencies, with the public and with institutions that they feel themselves legitimately involved in the professional services. Professional schools, like other institutions, want support . . . but prefer not to have outside voices interfering in their internal affairs.¹

Hughes' findings suggested that part of the problem arises within each specialty; each with its notion about what knowledge or skills are essential. Therefore, the question of theory and practice, then, is not merely one of the length of time spent at each (theory or practical) or of the total length of time of professional education, rather it is a "... matter of selecting certain kinds of practical training to be learned

¹Everett C. Hughes, Barrie Thorne, Agnostio M. De Baggis, Arnold Gurin and David William. Education for the Professions of Medicine, Law, Theology and Social Work, p. 10.
in certain settings and of selecting certain parts of scientific knowledge, social knowledge and ethics to be inculcated in the professional student."² Hughes' view would suggest that the problem is not unique to medicine for, "medicine shares with other professions a tension between the theoretical and the practical, between the scientific and more professional or applied dimensions of work."³ According to Hughes, the nature of the problem is due to the "uneasy marriage" between clinical and theory. The cause, as observed by Paul Sanazara, is due to the "common-law marriage" of medical schools and other organizations wherein "... isolation rather than integration is the general rule ... geographically, administratively and academically."⁴ Hughes concluded that training in all professions tends to be isolated and self-contained. The professional's claim to esoteric and unique body of knowledge leads to exclusiveness and to separation of pursuits. The result is a chronic strain between the exclusive and general, between intellectual isolation and ties with other organizations.⁵

Marvin Weisbord, who addressed the question of imbalances between freedom and constraints in organizational relationships, stated that:

It takes some strong bonds (marriage is one) before people will admit or accept their responsibilities in a relationship. Where in the world of work do such bonds exist? What creates them? Under

²Ibid., pp. 15-16.

³Ibid., p. 32.

⁴Paul Sanazara, The Responsibility of Medical Schools for Preparation for the Study of Medicine, p. 147.

⁵Hughes, op. cit., p. 71.
what conditions are people more likely to "own" their need for one another and therefore be more inclined to solve in civil ways the problem created . . . . 6

The issues and problems of professional clinical training, as described, were found to be similar to those observed by the researcher of this study situation where each professional organization worked in isolation and in separate pursuits with little sharing of responsibilities other than the education of students.

Given the situation wherein the faculty of the School of Physical Therapy and students expressed dissatisfaction with the quality of and approach to clinical experience as independently designed and delivered by the staff members from physical therapy departments of three hospitals and given the administrative situation wherein the School of Physical Therapy had no authority over the departments offering these experiences, the problem presented to the researcher was to improve the quality of these clinical experiences within the existing administrative arrangement. In other words, the question to be addressed is "How do you effect a desired change in external autonomous organizations?"

In bringing about change in such situations, Marvin Weisbord hypothesized two major classes of organizations, "input-focused" and "output-focused", and speculated on why interventions that are most successful in one type are least likely to be successful in the other. Weisbord then described four features of a system which provide fertile soil for organizational improvement: "(a) formal authority, (b) concrete goals, (c) task interdependence, and (d) performance measures." 7 He referred to


7 Ibid.
organizations with these features as being "output-focused" systems which are organized around consumer requirements, for example, business organizations as opposed to government organizations which he classified as being "input-focused."

The first feature, that of formal authority, was not present at the School of Physical Therapy since it had no formal authority over the external organizations. The arrangements were by contractual agreement directly with the administration of the external organizations. The contract was not with the professionals employed within physical therapy departments who provided the service. Since these were professionals, an additional problem was the inherent authority and autonomy of the professional within the organization. As stated by Weisbord, "... these people practise a form of expertise that can be applied in toto without the assistance of others. Collaboration is possible, but not essential, for tasks such as teaching, research, consultation, therapy and the like." 8

Therefore, a power coercive strategy, as a method for organizational change according to Weisbord, would not be useful to employ with a group of professionals within an external organization. The possibility of using formal authority with a professional even within an organization was viewed by Leonard Goldstein as being inappropriate. In his discussion of professional personnel involved with human service delivery, Goldstein pointed out that professionals "... maintain a dual loyalty - to their direct employers and to their professions, usually diluting the commitment to their employers." 9 Furthermore, Goldstein recognized that

8 Ibid., p. 21.

professionals were bound by their specialized training, their code of ethics and associations which meant that they were less dependent on organization support and less threatened by sanctions imposed by the organization. The result as noted by Goldstein was that their "... professional identification shields them against intrusions on their autonomy ... the professional is in the organization, but not of it."¹⁰

Weisbord's second feature for organizational improvement was that the organization must have "concrete goals." In the study situation the external organization's goals applied to the primary functions of its professionals which were the delivery of health care services. However, no such goals were provided by the external organization for the clinical experience and teaching of its students which the professionals viewed as a secondary function. In such a situation there was no congruence of goals between the professionals' primary and secondary function. Weisbord described this type of system as being "input-focused" wherein there were multiple and unclear goals. According to Weisbord, any administrative action taken by the external organization in coming to grip with the problem was "... seen as capricious, irrelevant, or worse - an illegitimate interference with the organization's main purpose."¹¹ Weisbord stated that where such a situation existed,

Organizational goal setting ... is seen as restrictive, punitive and undermining ... for there is little or no organizational reward for participating in joint exercises with others ... when concrete goals do not exist. There is even less motivation when the person in authority lacks the formal clout to compel such problem solving.¹²

¹⁰Ibid.

¹¹Weisbord, op. cit., p. 21.

¹²Ibid., p. 12.
Weisbord added that it was hard to find legitimate ways to encourage input-focused professionals to enter into goal clarification for, "Professionals wish to be left alone. At best, they wish to be critics. Few show enthusiasm for sharing the risks and responsibilities inherent in making policies that constrain their own behavior . . . ." ¹³

Therefore, in order to bring about change within an input-focused system, whose primary function was client orientated, and in the presence of low goal clarity which was further undermined by low authority on the part of the internal organization, there was little likelihood that external organizations would respond to a rational, collaborative participatory strategy as suggested by Weisbord.

Weisbord's third feature for organizational improvement was that of "task interdependence" which pertained to the production of a product that would normally require a high degree of interdependence among the actors in the production. The production of practically any product requires such a serial interdependence. In contrast, there was much less interdependence in the provision of human services. As Goldstein pointed out,

This means that the people who provide human services can separate their functions, can feel that each has done a competent and effective job without worrying about what anyone else in the system is doing . . . . since many, if not most, of the others are equally well-trained and autonomous professionals, it would not be appropriate to enquire about their activities. ¹⁴

According to Weisbord, the common theme in these situations was that collaboration and participation produced more tension and irrationality, instead of reducing them for,

¹³ Ibid., p. 22.

¹⁴ Goldstein, op. cit., p. 51.
At the point of give-and-take, of institutional problem solving, of a commitment to real interdependence, which collaboration and participation imply, people back down. They back down because there is no penalty for holding on to the old and no discernible reward for embracing the new.\textsuperscript{15}

If the primary purpose of a professional within an external organization was to serve clients independently of others, as was the case in the study situation, then Weisbord's task interdependence strategy for bringing about change would appear to be inappropriate and also considered by the professionals as an intrusion on their autonomous function.

Weisbord's fourth feature for organizational improvement called for a situation where there were performance measures. The evaluation of the professional's performance within an output-focused organization was measured by acceptance of services based on feedback -- the client improved or did not. Therefore, the primary service within an output organization was based on judgement for which the professional had been trained and was responsible. Performance measure was one of self-evaluation and was the case in this study situation.

However, measurement of student performance was reflective and not a directive product process assessment. Therefore it would be classified as input-focused in nature. In a similar situation, Marjorie Chidley and Carolyn Kisner's study found that there was "... a high demand on staff physical therapists for providing the functions of evaluating, teaching and supervising."\textsuperscript{16} Whereas the emphasis in physical therapy teaching programs had been to prepare the graduate to "treat patients" and that

\textsuperscript{15}Weisbord, \textit{op. cit.}, p. 19.

"teaching skills" had been confined to the instruction of patients, not students. Clearly the professional had been trained for the primary function of patient care but not for the secondary function of instructional delivery let alone performance measurement of students.

Since the professional performance measurement within the organization had been output-focused but input-focused when classified on the basis of students, Weisbord's feature of performance measure did not fit into the study situations since there was no objective measure of outcome.

Therefore, the four features that provided fertile soil for organizational improvement, as described by Weisbord, are not reflected in the situation addressed by this study. Concrete goals, task interdependence, and performance measures did not exist within the external organizations in terms of their secondary function which was to provide clinical instruction and evaluation on behalf of the internal organization which in turn lacked formal authority over the autonomous professionals.

The implications were: 1) coercive strategy would have had little functional value with autonomous professionals within an external organization given that they were functionally independent of the internal organization; 2) the likelihood of goal clarification was undermined by low goal clarity in the presence of a secondary function and low power authority on the part of the internal organization; 3) task interdependence was not essential for individuals who provide human services thus reinforcing professional autonomy; 4) the professionals were unprepared for performance measurement other than their own, therefore, measurement of student performance was not congruent with their training.

17 Ibid.
The conditions which provide fertile soil for change as put forth by Weisbord could be found within the framework of organizations classified as being output-focused. The conditions of the study situation as described would fit the classification of input-focused organizations. According to Weisbord, "... organizational development's potential for success is significantly higher in an output-focused system ... than it is in an input-focused setting ...".18

Therefore, given an input-focused organization where the features that provide fertile soil for change do not exist, Weisbord's strategy based on collaborative participation by itself would be more likely to "... produce more tension and irrationality instead of reducing them. Expressing the resistance does not melt it; it makes it real ... input-focused systems cannot be rationalized that way."19 Suppose that professionals were right -- that the cost of coordination would be alienation, demoralization, reduced creativity and less commitment?20 What alternative strategy would there be for such cases? Although Weisbord did not directly propose an alternative strategy that fitted the professional within an input-focused organization, he theorizes that:

... the right stance for administrators in such straights is to help professionals do their work better, to help them solve the problems they want solved. In return, perhaps professionals can help define and defend institutional goals consistent with resources and social demands ... One obvious use of the theory is to consider which tasks can be done autonomously by professionals21 and administrators working alone and which tasks require joint work.

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18 Weisbord, op. cit., p. 9.
19 Ibid., pp. 19-24.
20 Ibid., p. 24.
21 Ibid.
Since the traditional model of rational collaborative solutions did not correspond to the study situation, then Robert Chin's description of an Intersystems Model would seem to best parallel the situation since it took into account the following:

1. Two open systems connected to each other but with separately identified links where connectives represent the lines of relationships of the two systems.

2. The intersystem model exaggerated the virtues of autonomy and the limited nature of interdependence.

3. The external change agent or the change agent built into an organization did not become part of the system.

4. The intersystem model was applicable to problems of leadership, power, communication, and conflict in organizations.

The Intersystem Model, when applied to the organizations within the study which have been described by Weisbord as input-focused, had possible positive advantages. 1) It embraced the concept of two separate organizations tied together with common knowledge, therefore a positive relationship. 2) The model acknowledged disjunctive connectives as seen in terms of conflicts between concrete goals and multiple goals and primary and secondary functions. 3) It acknowledged the critical fact of professional autonomy of the components and the consequences when the sub-systems were treated merely as a part of a larger system. 4) The model expanded the role of the change agent as helper with planned change and placed the helper change agent apart in another system in order to maintain some

---

distance between himself, the client, and the external organization. This was seen as necessary so that the change agent's role would become more diagnostic and objective.23

Therefore, Chin's Intersystems Model was an interactive model which drew upon the dynamics between the systems. It addressed the idea of two autonomous systems and provided for a model of influence both within and between units and for change agents. The Intersystems Model had the essence of collaborative planned change.

In conjunction with the Intersystems Model as proposed by Chin, three typical influence strategies for change as defined by Robert Chin and Kenneth Benne have been presented as alternative approaches to change.

The first of these, and probably the most frequently employed, was the "empirical-rational strategies." One fundamental assumption underlying these strategies was that men were rational. Another assumption was that men would follow their rational self-interest once this was revealed to them. As Chin and Benne pointed out, when change was proposed

Because the person (or group) is assumed to be rational and moved by self-interests, it is assumed that he will adopt the proposed change if it can be rationally justified and if it can be shown by the proposer that he will gain by the change.24

This strategy corresponded to Weisbord's, therefore, its functional use within the study situation could be dismissed.

The second group of strategies defined by Chin and Benne was "normative re-education." These strategies build upon assumptions about human motivation different from those underlying empirical-rational. The

25Ibid., pp. 96-99.

rationality and intelligence of men were not denied. However, patterns of action and practice were supported by sociocultural norms and by commitments on the part of the individuals to these norms. According to Chin and Benne, "Change in a pattern of practice or action . . . will occur only as the persons involved are brought to change their normative orientations to old patterns and develop commitments to new ones."25 Changes in normative orientations involved changes in attitudes, values, skills, and significant relationships, not just change in knowledge, information or intellectual rationales for action and practice.26

The third group of strategies for change as defined by Chin and Benne was based on the application of power in some form. The influence process was basically that of compliance of those with less power to the plans, directions, and leadership of those with greater power. Thus the strategy would involve getting administrative policy behind the change to be effected.27 This coercive strategy was likewise dismissed by Weisbord as not being useful with a group of professionals within an external organization.

While these approaches have been classified into three separate and distinct influence strategies, Chin and Benne pointed out that "It is probably safe to predict that all three kinds of strategies will continue to be used in action programs"28 however they were committed to "normative

25 Ibid., p. 23.
26 Ibid.
27 Ibid., p. 24.
28 Ibid., p. 13.
re-educative strategy" as being most appropriate to the conditions of contemporary life and to the advancement of scientific and democratic values in human society.

Therefore, both the Normative Re-educative Strategy as described by Chin and Benne and the Intersystem Model as described by Chin appeared to be appropriate for the introduction of curriculum change and implementation within an input-focused autonomous organization. With some modifications, the above strategy and model were combined and used as the primary change strategy in the study.

The General Statement of the Problem

The purpose of the study was to design and describe a modified normative re-educative strategy and intersystem model and to assess the implementation of curricular change in structured clinical experiences offered to second year students enrolled in the School of Physical Therapy, University of Saskatchewan, by the Physical Therapy Departments in Hospitals A, B, and C.

Specific Problems

The specific problems that will be addressed in answering the general problem are:

1. After distribution of curricula, did the implementation of the in-service component result in significant improvement in the students' assessment of the clinical experience?

2. After the distribution and in-service components, did the implementation of the participative component result in significant improvement in the students' assessment of the clinical experience?

3. Were there significant differences in student assessment among
and between the units of experience when classified on the basis of extent of implementation of change strategy?

**Delimitations of the Study**

This study has been concerned with the design and assessment of a modified normative change strategy and intersystems model for implementing a curricular improvement in the clinical education program for second year students enrolled in the School of Physical Therapy during 1978-1979 and 1979-1980. The study has been limited to the program offered by physical therapy departments of three cooperating hospitals located in Saskatoon. Assessment was limited to responses to the Evaluation of Clinical Practice Questionnaire\(^{29}\) by the two groups of students enrolled each year, respectively. The questionnaire was administered after each of four clinical experiences of their program.

The description of the change strategy and its implementation has been limited to the designers report. No effort has been made to ascertain the degree that the actual curriculum had been implemented nor to determine whether or not other interventions had affected the students' response.

**Assumptions of the Study**

The following have been some of the basic assumptions made in the study:

1. It has been assumed that changes in student responses to the ECPQ were due to the implementation of the structured curricula. Further, it has been assumed that other variables possibly affecting student

\(^{29}\) Hereafter referred to as the ECPQ, see Appendix A.
responses to the ECPQ were randomly distributed among the departments, hospitals, and years, and did not have a differential effect on the scores when classified on the independent variables.

2. It has been assumed that the implementation of the structured curricula would positively affect the students' responses to the ECPQ.

3. It has been assumed that the ECPQ was sufficiently reliable and valid to be suitable for the purposes of this study and that the data collection procedure did not lead to spurious results.

4. Although there were multiple placements and close interaction among the current and earlier students, it has been assumed that the student responses to the ECPQ were derived from the personal experience within the department being assessed and not from some social wisdom.

Limitations of the Study

1. The present study, a case study, by its very nature presented the major limitation. Since the study focused on an area of specific concern within a local situation no pretentions about generality of results were held. Rather, the approach was particularistic in orientation and therefore not generalizable to any other population.

2. Another limitation was the probability of error produced by the respondents in response to the method of information gathering. As noted by Eugene Webb et. al., the reactive measurement effect or the "guinea pig" effect was the error produced where the respondents had an awareness of being tested. Claire Selltiz and her associates made the observation:

The measurement process used in the experiment may itself affect the outcome. If people feel that they are "guinea pigs" or that they are being "tested" and must make a good impression, or if the method of data collection suggests responses or stimulates an interest the subject did not previously feel, the measuring process may distort the experimental results.

Awareness of the study by both the sample group and clinical therapists may therefore have influenced behavior dispositions and perceptions, therefore potentially influencing the independent variables.

3. Severe limitations must also be placed on the interpretation of the results since "... contemporaneous events associated with the students may have affected the relationships of variables," as pointed out in another study by Selltiz. Both contemporary and administrative change over the two year period and within the two groups may have affected the students' evaluation.

4. An additional limitation resulted from the reliability of the ECPQ where variations in score differences due to sampling items within the questionnaire which contained only a relatively few items from the total universe of relevant items that might have been included. Therefore, the variations in attitudes were in part dependent on the nature of the sample items included in the questionnaire. As well, variations of responses may also have reflected differences in interpretation of items rather than true differences in the attitude being measured.

5. Researcher bias may be present in that the description of the processes of design, implementation and the administration of the ECPQ were


executed by the researcher alone. There was no external description to check against researcher bias.

6. A further limitation of the study was the inability of the researcher to monitor the extent of program implementation. Since the degree of implementation was not ascertained independently other than by student perception, it has been assumed that positive changes were due to curricular implementation.

7. Although conceptually unrelated to the independent variables, diffusion of opinions by students comparing clinical experiences within and between the two groups may have not affected the outcome, but, may have, according to Selltiz, "... they may well obscure whatever influences the independent variables might otherwise have had."\(^{33}\) This was of particular importance within this study since students had expressed complaints about certain aspects of their experiences.

The Setting of the Study

The situation prior to the study was such that second year physical therapy students were administratively assigned to four units of clinical experience within a variety of external organizations which included three hospitals and other specialized health care centres. The number of students allocated to a specific organization or unit of clinical experience depended entirely upon the willingness of the physical therapy department administrator who, in accepting students, had to consider staffing patterns and other administrative constraints.

\(^{33}\)Ibid., p. 127.
Since clinical instruction was primarily delivered on a one-to-one basis (student-clinical therapist), the demand for placements often meant students were placed within inappropriate settings for their level of training and background knowledge. These areas, although suitable for third year students, demanded a versatile approach to patient management and were considered beyond the scope of basic second year training.

The conditions were such that no curriculum, no supervision, no inspection and little administrative assistance was provided to those responsible for clinical instruction by the School of Physical Therapy. The only guidelines provided consisted of school policies, manner of dress and a resume of theory taught at the school. Further, the delivery, style and content of clinical instruction was left entirely to the discretion of the administrators of the physical therapy departments and the clinical therapists who provided the instruction.

While it might be stated that the system provided students with clinical experience, there were several disadvantages.

1. The students did not receive identical units of clinical experience which made final evaluation difficult.

2. There was no assurance that the instruction given in any one organization was the same or similar to that being taught within another organization. For example, a student could be placed on the surgical unit at one of three Hospitals, A, B or C, with the content of instruction and experience varying a great deal.

3. Nor was there necessarily any consistency of instruction within any one unit of instruction. Staff illness, rotation of staff or the addition of new staff often meant a change in student supervision and instruction which made student performance difficult to evaluate.
4. Since the School of Physical Therapy did not provide curriculum or instructional guidelines, clinical therapists had different expectations for the level of performance. The students likewise approached clinical experience unaware of what was expected of them.

Therefore, due to lack of organization and program description, the researcher initiated a pilot study within Hospital A with Department units 3 and 4 being exposed to both administrative and curriculum change. Following the pilot study full implementation included Hospitals A, B and C and Departments 1, 2, 3 and 4. It was this situation which prompted this study.

Hypotheses

Year 1978-1979

Hypothesis one: When classified on the basis of departments within hospitals, there will be no significant differences in student assessment scores except when Department 3 and 4 are compared with Department 1 and 2 in Hospital A.

Hypothesis two: When classified on the basis of hospitals student assessment scores for Hospital A will be significantly higher than those for Hospital B and C and those for Hospital B will be significantly higher than those for C.

Year 1979-1980

Hypothesis three: When classified on the basis of departments, there will be no significant differences in student assessment scores among departments except for Department 2 at Hospital C with Department 2C being significantly lower.

Hypothesis four: When classified on the basis of hospitals there
will be no significant difference in student assessment scores among hospitals.

**Definition of Terms**

For the purposes of this study the following terms have been defined.

- **Internal organization** -- Internal being within the organization.
- **External organization** -- External being outside the organization.
- **Curricular innovation** -- The new course of structured clinical education programs.
- **Intervention** -- The interventions of the study refer to the implementation of administrative agreement, therapist agreement, curriculum development, distribution of curriculum, and change agent in-service training.
- **Mandate for change** -- The organizational expectation was that the innovation would be adopted.
- **Modern organization** -- A modern organization's norms are for change.
- **Traditional organization** -- A traditional organization's norms are more closely allied to status quo.
Chapter II

LITERATURE REVIEW AND MODEL DEVELOPMENT

As stated in Chapter I, the general question addressed by this study has been "How do you effect a desired change in external and autonomous organizations which are input-focused?" Through a review of the literature the purpose of this chapter has been to describe, adopt and justify an appropriate change strategy.

Per Dalin has stated that "Advocacy alone has never brought about radical change"\(^1\) and that there were no operational models in education based solely on conflict theory,\(^2\) confirming Weisbord's proposition which dismissed advocacy by itself as a change strategy.\(^3\) Since the study has focused on "planned change," the review has excluded a discussion of unplanned or natural change. This was not to undermine the importance of natural change which, as Dalin has pointed out, "... has only limited value for those attempting to bring about change ..."\(^4\) Further, since the study has been directed at the implementation of change among physical therapists, the review of the literature has been delimited to that body of knowledge dealing with influencing change among professionals within

\(^{1}\) Per Dalin, *Limits to Educational Change*, p. 65.


\(^{3}\) Weisbord, *loc. cit.*


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organizations. Therefore, for purposes of the study situation, the
literature focus has been on planned change and those elements as related
to professionals within organizations.

Social Change

In defining the concept of change the researcher recognizes that
it consists of a process, as defined by Rogers, consisting of three
sequential steps: 1) invention, the process by which new ideas are created
or developed, 2) diffusion, the process by which these new ideas are
communicated, and 3) consequences, the changes that occur within a social
system as a result of adoption or rejection. Rogers also suggests that
some observers would add development into the sequential process. Develop-
ment occurs before diffusion and is seen as the process of putting the new
idea into a form that meets the needs of an intended audience. Rogers'
perspective on social change, which takes into account the sequential
steps, is that it is a process by which alteration occurs in the "structure"
and "function" of a social system where the role or actual behavior of an
individual's status alters. Dalin refers to those "functional changes"
which occur within individuals or groups as "behavioral change" and to
"structural change" as "organizational change" including decision-making,
human interaction roles and technology as it pertains to the organization.

Therefore, for the purpose of this study, planned change has been defined

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5 Everett M. Rogers, Communication of Innovation, p. 6.
6 Ibid., p. 7.
7 Dalin, op. cit., pp. 80-85.
as both the behavioral and structural components of social change and, following Rogers, could be achieved through a process having the steps of 1) innovation, 2) development, 3) diffusion, and 4) the consequences.

**Sources of Change**

Rogers has developed a cogent typology of change centering around social change as shown on Table 1 wherein Rogers focused on the sources of change.

**TABLE 1**

**PARADIGM OF TYPES OF SOCIAL CHANGE, ROGERS**

<table>
<thead>
<tr>
<th>Origin of the New Idea</th>
<th>Internal to the Social System</th>
<th>External to the Social System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognition of Need for Change</td>
<td>I. Immanent change</td>
<td>II. Selective contact change</td>
</tr>
<tr>
<td>Internal: Recognition is by members of the social system</td>
<td></td>
<td></td>
</tr>
<tr>
<td>External: Recognition may be by change agents outside the social system</td>
<td>III. Induced immanent change*</td>
<td>IV. Directive contact change</td>
</tr>
</tbody>
</table>

*Although this situation might be improbable, it is not impossible. A missionary may recognize the need and bring it to the attention of the villager but not offer suggestions on how to change the situation. The villager proceeds to invent his own solution.

Immanent change occurs with little or no external influence to create or develop an idea. Immanent change is a "within system" phenomenon.

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8Rogers, *op. cit.*, adapted from Table 1, p. 8.
Contact change occurs when sources external to the social system introduce a new idea. Contact change is a "between systems" phenomenon. It may be selective or directive depending on the recognition of the need for change being internal or external. Rogers explains selective contact change as resulting when members of a social system are exposed to external influences and are free to adopt or reject a new idea on the basis of their needs. The exposure to innovations is spontaneous or accidental and the receivers are left to choose, interpret, accept or reject new ideas. Rogers uses the illustration of a school teacher's visit to a neighbouring school that is especially innovative. The teacher may return to his own classroom with a new teaching method but with no pressure from school administrators to seek and adopt such innovations.

Directive contact change, or planned change, is described by Rogers as "... caused by outsiders who intentionally seek to introduce new ideas in order to achieve goals they have defined." Warren Bennis et al define directive contact change or planned change in essentially similar terms except they stress the "mutuality" of client and agent in planning change.

Dalin gives another perspective to the issue with his discussion on the "characteristics of innovation." He suggests that there is no such thing as an innovation but rather a "need" for change which he views as a process of problem identification or a search for new solutions so that

9 Ibid., p. 9.

10 Ibid., p. 11.

somehow along the line from an early uneasiness, or need for change, to a defined goal or prescribed innovative solution, certain characteristics begin to emerge that will have considerable influence on the outcomes and process of change.\textsuperscript{12}

This perspective of Dalin's suggests that innovation is not viewed as the starting point of the change strategy but rather that the process starts with recognition of needs.

Jack Rothman also acknowledged a relationship between need and change. He generalized that the innovativeness of a social system is directly related to the extent to which it feels a need for change. "Discontented social systems generally are more innovative than contented ones."\textsuperscript{13} He contends that an innovation involves a change of \textit{status quo}. Thus, it naturally follows that adoption of an innovation is an expression of a need to change.

Therefore, since this study has been concerned with directive contact change, in that an outsider recognized the need and has "intentionally sought to introduce new ideas," then the model for change must incorporate the idea of mutuality of client and agent in planned change and a step dedicated to achieving the internal recognition of need "by members of the social system."

\textbf{Professionals Within Organizations}

Many changes occur at the individual level, that is, the individual can adopt or reject the change. This adoption or rejection of a new idea may happen whether the change is in response to selective or directive

\begin{itemize}
\item \textsuperscript{12}Dalin, \textit{op. cit.}, p. 83.
\item \textsuperscript{13}Jack Rothman, \textit{Planning and Organizing for Social Change}, p. 433.
\end{itemize}
needs. Change at this level has been referred to by Rogers as "diffusion," "adoption," "learning" or "socialization."\textsuperscript{14} He further states that change also occurs at the "development," "specialization," "integration" or "adaption" levels. From this analysis, Rogers concluded that all explanations for human behaviour directly stemmed from the acquisition and modification of ideas through communication.\textsuperscript{15} Of interest to this study is whether or not this conclusion would apply to the behaviour of the autonomous professional within organizations.

**Autonomous Professionals**

In defining autonomy as the absence of external constraint, Fred Katz's basic proposition is that autonomy is an ingredient in many, if not all, social arrangements.\textsuperscript{16} To illustrate his point he suggests that teachers ordinarily have autonomy, that is, independence from external control while in their classroom, although the amount and scope of their autonomy varies. Katz postulates that "... autonomy for the teacher is as much a part of the official rules of the school as are rules that stipulate a sphere of compliance - both are part of the structure of the school."\textsuperscript{17} Katz further suggests that being "autonomous" refers to the independence of subunits within an organization from "internal control" by other parts of or even of the whole organization. Further, he regards

\textsuperscript{14} Rogers, op. cit., pp. 10-11.

\textsuperscript{15} Ibid., p. 11.

\textsuperscript{16} Fred Katz, Autonomy and Organization: The Limits of Social Control, p. 4.

\textsuperscript{17} Ibid., p. 14.
autonomy that is "external" to one's organization as being "extraneous" to one's organizational contribution.\textsuperscript{18} From these observations Katz points to the obvious conflict between administrative discipline and the autonomous individual with expertise and generalizes that

\begin{quote}
. . . the greater the degree of specialization, knowledge and skills required of the occupant of a position, the greater the degree of autonomy that accrues to the position; or the greater the degree of specialized knowledge and skills required . . . the less discipline can be exerted over the position by administration of the organization.\textsuperscript{19}
\end{quote}

Rothman sees this dilemma of the professional within a bureaucratic setting as a natural outcome of "conflicting cultures." The "bureaucratic setting" emphasizes structured activities, formal rules, definite job descriptions and hierarchical control while the "professional culture" emphasizes the autonomy of the professionals because of their expertise and mastery over a body of knowledge.\textsuperscript{20} Rothman's generalization that "... autonomy flourishes in the more flexible or human relations type of organizational setting . . ."\textsuperscript{21} supports the commonly shared view that the human-service professions and community organizations typify conflict settings.

According to Chester Barnard, part of the conflict arises from both autonomous and controlled behaviour which coexist within the organization. He notes that autonomy among personnel is not necessarily

\begin{enumerate}
\item \textsuperscript{18} Ibid., p. 19.
\item \textsuperscript{19} Ibid., p. 21.
\item \textsuperscript{20} Rothman, \textit{op. cit.}, p. 160.
\item \textsuperscript{21} Ibid., p. 417.
\end{enumerate}
detrimental to administrative control but may, in fact, be an asset to the process. He suggests that the administration must rely on the "willingness to serve" of those under command while recognizing that there is a "zone of indifference." Detrimental autonomy, according to Katz, can also be a threat to schools "... because they are liable to emphasize a teacher's autonomy over a teacher's compliance ...".

Therefore, since autonomous professionals within organizations can be characterized as having some independence from "external control" and may be more apt to selectively adopt or reject innovations than non-professionals within the organization, then the model must focus on the process of influence and communication rather than on administrative or hierarchical control.

Resistance to Change

There are a variety of factors which lead to resistance to change. Straus and Sayles, in studying resistance to change within organizations, found that resistance was just as deep-rooted at the managerial level as at other personnel levels. Like other researchers, they found that resistance to change showed itself in unexpected ways from absenteeism, to resignation, to pseudo-logical reasons why the change would not work. Straus and Sayles' reason that "it is not change itself which causes the


resistance but the meaning of the change for the people involved."25 This perspective allows for normal reactions to change while guarding against the common misconception that change brings about generalized and equal reactions by any given individual.

While there are many recognized sources for resistance to change, perhaps the most significant one in terms of the study situation is that of resentment toward new orders and increased control. Straus and Sayles point out that "... employee resistance to direct orders from management reduces the individual's feeling of autonomy and self-reliance."26 Similarly, Straus and Sayles found that members of management also resisted change when it was initiated by people who normally have little control over or even contact with the people who carry out the change.

Therefore, since resistance can be just as deep-rooted at the managerial level as at other personnel levels, and since members of management are particularly resistant to change when it is initiated by people who normally have little control or even contact with the people who carry out change, as was the case in the study, then the model must include elements that address management and that enhance the perceptions of external and internal program ownership and external identification with the operants responsible for implementing the change.

Another seemingly normal or common cause for resistance to change is the suggestion that individuals prefer the status quo. Havelock and Havelock go beyond the mere suggestion and strongly put forth the


26 Ibid., p. 246.
Most of the time people do not want change; they want to keep things the way they are. For that reason some change agents are needed just to overcome this inertia, to prod and pressure the system to be less complacent.²⁷

Straus and Sayles attribute these attitudes and behaviours to the fact that although people seldom resist change just to be stubborn, they will resist "... because it hurts them economically, psychologically, or socially."²⁸

These comments by Ronald Havelock and Mary Havelock and Straus and Sayles underscore the need to demonstrate, during the implementation of an innovation, the relative advantages of the innovation over the status quo.

When the reason for change has not been clearly understood, suspicion becomes a cause for resistance. Adolph Unruh and Harold Turner point out that "... schools as institutions usually resist change and their faculties are likely to regard with suspicion suggestions calculated to improve education."²⁹

One concept, presented by Straus and Sayles, may help summarize much of what has been said about resistance to change. They suggest that in most well established groups there are generally accepted legitimate norms about the rights and responsibilities of both managers and subordinates and that the nature of both these rights and responsibilities are established by implicit bargaining. Change, however, violates the implicit bargain. Unless care is given in how change is introduced it is

²⁷ Ronald G. Havelock and Mary C. Havelock, Training for Change Agents, p. 60.

²⁸ Straus and Sayles, op. cit., p. 261.

²⁹ Adolph Unruh and Harold Turner, Supervision for Change and Innovation, p. 178.
likely to be regarded as illegitimate and subordinates, through resistance to change, will seek to restore the previous equilibrium. 30

Therefore, the innovative process must recognize the implicit bargain and the need for legitimizing by incorporating management and operants into the process at the development and implementation stages. Further, the pace of change must be such as to facilitate the changes in the implicit bargains among the parties involved in the implementation of innovation.

Regardless of the covert or overt reactions to change, Henry Brickell made the astute observation that feelings of insecurity and inadequacy must be distinguished from outright opposition to change. 31 Unruh and Turner sum up the observation with the hint that the target of change is through people and their behaviour for there will be no change unless there is a change in people. 32

_Innovation and Diffusion_

Given that we must focus on influencing the individual and since Rogers defines innovation in terms of the individual, then his discussion of innovation and diffusion is pertinent to this study's change strategy. According to Rogers, an innovation is an idea, practice or object perceived as new by an individual. It is the perceived newness of the idea for the individual that determines his reaction to it. Whereas diffusion is seen

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30 Straus and Sayles, _op. cit._, p. 250.


32 Unruh and Turner, _op. cit._, p. 187.
as the process by which innovations spread to members of the social system. 33 Rogers then lists four characteristics which he feels are crucial in the diffusion of innovation: 1) the innovation, 2) the communication channels, 3) time dimension, and 4) the members of a social system. Each of these characteristics will be dealt with separately because of the implications for this study.

The Nature of Innovation

Rogers has found certain characteristics related to the promotion of diffusion. The first characteristic of an innovation for diffusion has several elements about which Rogers made several generalizations. The first element, "relative advantage," is the degree to which an innovation is perceived as better than the idea it supersedes. Rogers states that it matters little whether or not the innovation has a great deal of objective advantage: "What does matter is whether the individual perceives the innovation as being advantageous." 34 The second element, "compatibility," is the degree to which an innovation is perceived as being consistent with the existing values, past experience, and needs of the receivers. The third element, "complexity," is the degree to which an innovation is perceived as difficult to understand and use. The fourth element, "trialability," is the degree to which an innovation may be experimented with on a trial basis. The fifth element, "observability," is the degree to which the results of an innovation are visible to others.

The above five elements which Rogers states as being the most

33 Rogers, op. cit., pp. 18-19.
34 Ibid., p. 22.
important characteristics of innovation which affect the rate of adoption are summarized in the following generalizations:

1. The greater the perceived relative advantage of an innovation, the more rapid its rate of adoption.

2. An idea which is not compatible with the prevalent values and norms of the social system will not be adopted as rapidly as an innovation that is compatible.

3. New ideas requiring little additional learning investment will be adopted more readily than innovations requiring the adopter to develop new skills and understandings.

4. An innovation that is triable represents less risk to the individual who is considering it.

5. The easier it is for an individual to see the results of an innovation, the more likely he is to adopt it.35

Therefore, in order to successfully facilitate the implementation of an innovation, the elements of relative advantage, compatibility, complexity, trialability and observability should be addressed.

Communication Channels

Given then that an innovation exists and that it has certain characteristics, communication between the source and the receivers must take place if the innovation is to spread beyond its inventory. In essence, the diffusion process as seen by Rogers is the human interaction by which one person communicates a new idea to one or several other persons. At its most elementary level, the diffusion process consists of: 1) a new idea, 2) an individual A who has knowledge of the innovation, 3) an individual B who is not yet aware of the idea, and 4) some sort of communication channel connecting the two individuals.36

35 Rogers, op. cit., p. 22.

36 Ibid., p. 24.
channel by which the new idea reaches the audience (B) is important in determining the decision to adopt or reject the innovation. Usually the choice of communication lies with the source (A) and should be made in light of "... the purpose of the communication act, and 2) the audience to whom the message is being sent."\(^{37}\) According to Rogers, if the source simply wishes to inform an audience about the innovation, mass media channels are often the most rapid and efficient, especially with a large audience when they are at a knowledge stage. On the other hand, if the objective of the source is to influence an audience to form a favourable attitude toward the innovation, an interpersonal channel is more effective at a persuasive stage\(^ {38}\) which involves face-to-face exchange between two or more individuals.

Therefore, since this study is concerned with an innovation at an early persuasive stage, interpersonal communication channels must be incorporated into the model for not only is it a crucial element in the diffusion process but it also takes into account influence as a determinant of adoption or rejection on the part of the autonomous professional.

**Time Dimension**

Rogers quotes Katz and others as saying that "time is the key to diffusion research."\(^ {39}\) The importance of time in the process of diffusion is based on the conceptualization of a cumulative series of five stages where the individual progresses from a stage of awareness to an adoption


\(^{38}\) *Ibid.*

or rejection decision. The period of time involved between the first to last stage is, in part, dependent upon where the individual fits into the adopter categories which are classifications of members of a social system on the basis of innovativeness. The five adopter categories used by Rogers are innovators, early adopters, early majority, late majority and laggards. Another specific way in which the time dimension affects diffusion is by the rate of adoption. This rate may vary for the same innovation in different social systems depending on whether the system is modern or traditional. According to Rogers, "... diffusion research shows that systems typified by modern, rather than traditional, norms will have a faster rate of adoption." 41

Therefore a model must allow for different rates of adoption depending on the norms of the social system and yet allow for early and late adopters to come in.

Nature of the Social Systems

Several studies point out the significance of social influences on diffusion. Rogers cites a study by Van den Ban who studied the effects of traditional and modern norms (for a sample of Wisconsin townships) on the innovativeness of farmers. Van den Ban concluded that a farmer with a high level of education, on a large farm and with a high net worth, but residing in a township with traditional norms, adopted fewer farm innovations than if he had a lower level of education and a smaller farm in a township where the norms were modern. 42 This point reinforces the rate of

40 Ibid., p. 27.

41 Ibid., p. 28.

42 Ibid., p. 29. 
diffusion of a social system as previously mentioned.

If the findings are applicable to external organizations on a traditional-modern continuum, it would be expected that organizations with modern norms would be more innovative than more traditional organizations. Therefore, the norm for change will mediate the diffusion, adoption and rate of adoption.

Rothman presented several generalizations regarding professionals within organizations and the likelihood of diffusion and adoption of innovation. One generalization was that "... the innovativeness of a system is inversely related to the degree to which its population is homogeneous." His research showed that heterogeneous populations are more innovative than homogeneous ones. The homogeneous target systems were found to be generally less innovative because of similarities of attitudes and behaviours. However, once accepted by the elite of a homogeneous population, an innovation can have rapid diffusion.

Therefore this would suggest that within the study situation the professionals as a group are homogeneous but heterogeneous within and among the external organizations where they work. The importance of Rothman's observations are the defining of homogeneous populations and the elite within organizations since they are favourable indices for diffusion among professionals in the social system.

Individuals Affecting Change

As previously noted by Rothman, the elite of a homogeneous population affect the adoption of innovation, therefore the different roles

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43 Rothman, op. cit., p. 426.
that some individuals play in a social system and the effect of these roles on diffusion are pertinent to the development of this study. Specifically, the concentration will be on two roles: opinion leaders and change agents.

**Opinion Leaders**

Rogers defines opinion leaders in terms of informal leadership by the "... degree to which an individual is able to informally influence other individuals' attitudes or overt behaviors in a desired way with relative frequency"\(^44\) rather than being a required function or part of the individual's formal position or status. Opinion leadership is earned and maintained by the individual's competence, social accessibility and conformity to the system's norms. As influentials within a system, they can lead to the promotion or opposition of new ideas. Thomas Woods states that "... an innovation will not spread until the opinion leaders give their stamp of approval."\(^45\)

Havelock profiles opinion leaders as being more than influentials who are held in high esteem by pointing out that:

> They tend to have control ... and power. Some act as legitimators, making the majority feel that it is O.K. to try something out ... Others serve as facilitators ... Still others serve as gatekeepers, opening up (or closing off) access to needed resources.\(^46\)

Havelock clearly differentiates two types of opinion leaders. The first type serve as facilitators which fits Rogers' definition of an informal

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\(^{44}\) Rogers, *op. cit.*, p. 34.

\(^{45}\) Thomas E. Woods, *The Administration of Educational Innovation*, p. 56.

\(^{46}\) Havelock, *op. cit.*, p. 120.
opinion leader who, through influence, leads to the promotion or opposition of change. The second type, a gatekeeper, operates on power, who by giving his stamp of approval can either open up or close off resources for change.

Paul Berman and Milbrey McLaughlin, on analyzing the effects that school principals have on innovation, stated that "... the school principal amply merits the title of 'gatekeepers' of change."\(^{47}\) This view of the principal as a gatekeeper or opinion leader is shared by Bricknell who stated that even though the administrator of a school is not usually the original source of interest in a new program, "... unless he gives it his attention and actively promotes it, it will not come into being."\(^{48}\)

The basis for the response toward opinion leaders is explained by social psychologists who agree that an individual changes his attitude or resists change not only on the basis of his own psychological characteristics but also because of the influence of his peers.

Identification of opinion leaders as generalized by Rothman can be summarized as follows:

1. Opinion leaders conform more to social system norms than average members of the community.

2. The area of expertise of an opinion leader is usually limited to a small number of issues.

3. Opinion leaders are slightly higher in social status, more cosmopolite, and innovative than other followers.\(^{49}\)

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\(^{47}\) Paul Berman and Milbrey McLaughlin, *Federal Programs Supporting Educational Change*, p. viii.


\(^{49}\) Rothman, *op. cit.*, p. 453.
Havelock and Havelock see the need for identification of influentials as being important so that:

... effective dissemination and utilization are facilitated by informal opinion leaders particularly when these leaders are innovative in orientation and have considerable influence over a large number of colleagues.\(^\text{50}\)

It is this effective dissemination which Rogers views as the diffusion process. He states "... that the diffusion process (and in a more general sense all communication processes) are after all a series of transfers of messages from source to receivers."\(^\text{51}\) Cohen describes the opinion leader's role in facilitating the transfer of messages as the two-step flow of communication where the flow of ideas, and in particular new ideas, is from the outside source of information through the opinion leaders to members of a group.\(^\text{52}\)

The role of the opinion leader has been well summarized by Dalin who suggested that "... the only way to effect radical change ... is for educators to make alliances ... the most economical way of doing that would be through influential group leaders."\(^\text{53}\)

Therefore, since both the facilitator and the gatekeeper can effectively open up or block off diffusion, the model must provide a mechanism by which alliances can be made with opinion leaders.

\(^{50}\) Havelock and Havelock, \textit{op. cit.}, p. 19.

\(^{51}\) Rogers, \textit{op. cit.}, p. 80.

\(^{52}\) Arthur Cohen, \textit{Attitude, Change and Social Influence}, p. 214.

\(^{53}\) Dalin, \textit{op. cit.}, p. 65.
The Change Agent

The change agent appears to be many things to many people. To Chin, the change agent is a "specialist" in the process of facilitating change. Havelock and Havelock describe the change agent's role as encompassing everything from a "catalyst" to a "resource linker." And, Unruh and Turner identify the change agent as the educational supervisor who, through leadership, brings about effective change. Havelock recognized the administrator or gatekeeper as an informal change agent who provides support. Lastly, Rogers views a change agent as a professional who "influences innovation decisions." The obvious point to be made is the discrepancy in not only who a change agent is but what his role is.

In a study by Unruh and Turner, one hundred teachers were asked to describe the role of a supervisor. The ten most frequently mentioned roles were: planner, participator, goal setter, evaluator, cooperator, guide, critic, creator, selector and supplementor. In addition, their study revealed that teachers ascribed ten unusual roles to supervisors which included roles from being a "pressure evener" to a "personality builder" to "workshopper." From this study, Unruh and Turner postulate that if there is a wide divergence between how the supervisor perceives his role and how

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55 Havelock and Havelock, op. cit., p. 60.
56 Unruh and Turner, op. cit., pp. 185-200.
57 Havelock, op. cit., p. 10.
58 Rogers, op. cit., p. 35.
teachers perceive it, it will hinder the effectiveness of the supervisor. If it hinders his overall role, it may also affect his role as a change agent.

The most common descriptor associated with the role of the change agent has been "helper". To Brickell, "the most successful innovations are those which are accompanied by the most elaborate help to teachers as they begin to provide the new instruction." Or as Brickell stated on another occasion, "... the key to successful innovation is assistance to the teachers." Rogers attributes the change agent's success to "... the extent of effort he expends in change activities with his clients." In support of this proposition, Rogers cites from several studies which concluded that the most important predictor of success of agriculture programs was related to the extent of the change agent's effort. It was found in those situations that the successful change agent contacted more clients, spent less time in his office and played an active role rather than a passive role. These observations lead Rogers to the generalization that "increased interpersonal communication with clients, then, is crucial to change agents' success."

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61 Brickell, op. cit., p. 31.

62 Rogers, op. cit., p. 233.

63 Ibid., p. 234.

64 Ibid.
Of further interest was Rogers' finding that the diffusion of the innovation roughly paralleled the amount of change agents' efforts. However, once about 30 per cent of adoption was reached, the change agents' efforts decreased while the innovation continued to be adopted at almost a constant rate.

Figure 1

Extent of Change Agents' Effort and the Rate of Adoption of an Innovation

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65 Ibid., adapted from Figure 7.2, p. 235.
Figure 1 illustrates that the change agent effort and success are not linear. Rogers' explanation for this effect is in part due to "early adopters" who possess a high degree of opinion leadership in most systems. These individuals in turn influence their peers which causes the adoption curve to shoot upwards in a self-generating fashion, and the change agent can begin to retire from the scene as noted in Phase III. 66

Pertinent to this study is Rogers' view on the change agents' alliance to success. Rogers notes that because a change agents' position is located mid-way between the bureaucracy to which he is responsible and the client system in which he works, he is once again subject to role conflicts. Rogers cited research by P. Preiss in which role conflicts among Michigan extension agents were studied. He concluded that their success was associated with a disregard for the expectations of the extension service bureaucracy in favour of the local client's expectations. This and other research by Rogers lead to the generalization that "... change agent success is positively related to his client orientation, rather than to change agency orientation."67 By way of explanation, Rogers put forth three reasons for this relationship as being: 1) that client orientated change agents are more likely to be feedback minded; 2) to have closer rapport and high credibility in the eyes of their clients; and 3) to base their programs of change on clients' needs. 68

Havelock presents a more flexible perspective on the change agents' orientation or alliance by

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66 Ibid., p. 236.
67 Ibid., p. 237.
68 Ibid.
looking at the relative advantages of being an insider or an outsider to the system. He also points out that being line or staff can affect the change agent's success as well. 69

Therefore the problem that must be addressed by the model is high identification with the helper change agent and operants during the early phase of innovation and high identification with the catalyst external change agent and administrators or gatekeepers in order to increase the rate of adoption of the innovation.

Participation in Curriculum as a Change Effort

The effectiveness of change efforts, according to Paul Buchanan, is enhanced when they take place under the following conditions in which,

... the efforts are planned by the members themselves in response to needs which they identify from analysis of their organization, under conditions of mutual trust and respect, and where feedback concerning the effectiveness of their effort is made available. 70

Buchanan stresses that the act of participating in planned change in response to needs identification is to adapt rather than adopt in order to avoid changes motivated by the desire "to keep up with the fashions." 71 This period of adaptation during participation could be likened to the process of "unfreezing attitudes" which Straus and Sayles liken to double clutching where instead of shifting directly from one attitude to another,

69 Havelock, op. cit., p. 51.


71 Ibid.
the group can first go into "neutral" before taking up a final position. It is through participation in the process of planning, designing and introducing change by which group members enhance their sense of control over their environment. This sense of control is often referred to as "ownership." Dalin states that the chances for ownership of decisions are more likely to occur "... in more decentralized systems." An interesting phenomenon noted by Straus and Sayles occurs when a group is involved in the decision-making process. Individuals who refused to accept change may be pressured into accepting the group decision. In effect, group decision-making may commit each member of the group to carry out the decision agreed on since "... he is under strong peer pressure to implement the decision." Douglas McGregor feels the use of participative methods in the development effort is appropriate since there is reason to assume that a negative response is neither "innate" nor so "deeply learned" as to be accepted as fixed. According to Buchanan, the outcome of the participation process "... is to provide opportunity for 'unlearning' and for relearning." In the same vein, Rothman states that professionals accomplish one of the basic missions of their role,

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72 Straus and Sayles, op. cit., p. 254.
73 Ibid., p. 25.
74 Dalin, op. cit., p. 78.
75 Straus and Sayles, op. cit., p. 255.
77 Buchanan, op. cit., p. 7.
"... they further their knowledge by learning from new experiences through participation in innovative activities." ⁷⁸ Therefore, participation in innovativeness may be viewed as a tool designed to enhance the professionals' status, self-image, and prestige. However, in order to enhance the professionals' status, the innovation must be consistent with their professional norms. ⁷⁹

Finally, Unruh and Turner concluded that involvement usually results in personal satisfaction, social identification and a feeling of belonging. These in turn "... develop loyalty, give rise to vested interests and development toward the guardianship function." ⁸⁰

Therefore, the model must allow for participation by operants in curriculum development in order to establish ownership of curricula which is doubly important because of the autonomous nature of professionals. The aim of such participative efforts in the study situation is to move from an external directive change to an internal selective change with internal ownership.

**In-Service Training as a Procedure for Change**

Without a doubt, in-service work is a close relative of curriculum planning and supervision. As Harold Spears stated, "All three were born in the instructional department, mothered by dissatisfaction ... and fathered by a restlessness that has always brought forth better

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⁷⁸ Rothman, op. cit., p. 457.

⁷⁹ Ibid., pp. 457-458.

⁸⁰ Unruh and Turner, op. cit., p. 70.
instruction since . . . All three have the same goal . . . "81 He further suggested that " . . . teachers like pupils, progress best by doing rather than by doing unto."82 Thus, with this perspective Spears sees in-service training as " . . . an extension of curriculum planning . . . it draws especially upon the improvement of instructional program—curriculum planning."83 Spears then goes on to conclude that, "In theory it is the idea that everybody on the staff—whether teacher, administrator or instructional specialist—needs to grow on the job. It implies continuous growth."84 The "growth approach," according to Philip Jackson, should be the central goal of in-service training which is designed to help support the teacher to improve what he is doing.85 Accordingly, Jackson defines two approaches which describe the purpose for in-service training. The first approach, the "Defect Approach" to in-service training, is founded in the notions of repair or remediation. "It begins with the assumption that something is wrong with the way practising teachers now operate and the purpose of in-service is to set them straight— to repair the defects so to speak."86 In contrast, the "Growth

81 Harold Spears, Curriculum Planning Through In-Service Programs, p. 39.
82 Ibid., p. 43.
83 Ibid.
84 Ibid., p. 41.
86 Ibid., p. 21.
Approach" begins with the assumption that teaching is a complex and multi-faceted activity where the ". . . motive for learning more about teaching is not to repair a personal inadequacy but rather to seek greater fulfillment as a practitioner of the art.\textsuperscript{87} Ralph Tyler concurs that the purpose for in-service training, rather than being remedial, is to ". . . help teachers to deal with the changes that were proposed."\textsuperscript{88} Tyler views the major purpose of in-service training as being an aid to the implementations of new educational programs by helping teachers acquire understanding, skills and attitudes essential to the roles they are to play in the new program.\textsuperscript{89} Robert Bush points to the erroneous outmoded misconception that in-service training is something that an "expert" does to a "non-expert." Bush concludes that in-service training is not "a thing" but rather a properly conceived endeavour created to help teachers whereby no aspects of program growth are left to chance but rather organized through in-service training programs.\textsuperscript{90}

An Approach to In-service Training

Having found general agreement that participative methods in curriculum development enhance change, the obvious question becomes "Is

\textsuperscript{86} Ibid., p. 21.

\textsuperscript{87} Ibid., p. 26.

\textsuperscript{88} Ralph Tyler, "In-service Education of Teachers," \textit{Improving In-Service Education}, p. 10.

\textsuperscript{89} Ibid., p. 14.

there a role for participative methods in the development of in-service training programs and, given that there is, what approach would best lend itself to the study situation?"

In response to the query of teachers' involvement, Ronald Lippitt and Robert Fox state that:

Teachers need to be involved in the identification and articulation of their own learning needs whenever possible. This does not mean that they "know what they need" in all respects, but the process of articulation, with resource help, is a major way of securing involvement and commitment to personal growth efforts.

The critical task is to provide a situation which fosters articulation of professional needs. Bush sees the lack of involving teachers in articulating their needs as one of the major faults in the current conceptions of in-service training. He is convinced that the "... teacher may be the most reliable judge of his own technical weakness. It follows therefore that the teacher should have a voice in determining his in-service program." The main objective of a study conducted by the Research, Planning and Development Branch, Department of Education for Saskatchewan, was to collect opinions on the value of in-service activities and the identification of needs for in-service training within Saskatchewan schools. Three separate questionnaires were sent to a sampling of 2200 Saskatchewan rural and urban teachers and principals, eighty-two school superintendents and thirteen STF Special Subject Councils.

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91 Ronald Lippitt and Robert Fox, Improving In-Service Education, p. 136.

92 Bush, op. cit., p. 57.


*Hereafter referred to as the Sask. In-Service Report.*
Based upon statistical analysis, a number of recommendations were made, one of which was "that in-service training be initiated and conducted at the local level and be made in response to local needs."\textsuperscript{94} Such a focus places the onus for identification of needs at the level where those needs are felt. This recommendation embraces Dalin's strategy of a problem identification process of needs.\textsuperscript{95} Teacher participation in development of in-service training programs also encompasses the "mutuality" of planned change as stressed by Bennis \textit{et al.}\textsuperscript{96}

Therefore, given the study situation, the proposition of participative involvement in curricular development should be extended to include involvement by participants from both organizations in planning in-service training since mutuality in planned change would likely encourage ownership and thus greater likelihood for adoption of innovation.

Further recommendations contained in the Sask. In-Service Report stress the need for a systematic approach to in-service training so that nothing is left to chance. Their recommendations were:

1. In-service training should precede implementation of new courses.
2. In-service, to be of lasting value, requires more than "one-shot."
3. Close liaison is necessary between the . . . agencies involved.\textsuperscript{97}

Although the first and third of these recommendations have already been

\textsuperscript{94} \textit{Ibid.}, p. 12.
\textsuperscript{95} Dalin, \textit{loc. cit.}, p. 83.
\textsuperscript{96} Bennis \textit{et al.}, \textit{loc. cit.}, p. 154.
\textsuperscript{97} Sask. In-Service Report, \textit{loc. cit.}, p. 12.
addressed in this chapter, the frequency of in-service training has not. The findings of the National Association for Public Continuing and Adult Education, with reference to the success of innovations, stated that "Vital as they are, two to three meetings a year obviously do not constitute a well-rounded program of in-service training."98 This would appear to be a significant point for consideration within the study situation due to the nature of staff patterns and resignations which commonly occur within the internal organizations.

The proposition of frequent in-service training brings with it the possibility of conflict between internal and external organizations as was found to be the case in Saskatchewan schools. The Sask. In-Service Report indicated that school superintendents and school boards did not want the regular school week disrupted with in-service training, while teachers wanted in-service training activities to be held during the regular week.99 Although this concern does not directly parallel the study situation, the implications should be considered and resolved at a very early planning stage through mutual agreement by the internal and external organizations.

The Sask. In-Service Report also recommended that "... if opportunities for in-service training are created together then teachers will participate voluntarily ..."100 Results from their questionnaire

98 The National Association for Public Continuing and Adult Education, In-Service Training for Teachers of Adults, p. 4.


100 Ibid., p. 18.
lead the researchers to conclude that teachers benefit more from in-service training activities in which they participate voluntarily than from mandated activities. Normally, volunteerism is left to the individual in terms of attending professional growth in-service training. However, given the study situation, it is questionable whether or not the same degree of freedom should exist with in-service training geared toward implementation of innovation.

Fundamental to this question is the distinction between in-service training for professional development and in-service training for program implementation. The Sask. In-Service Report used Philip Jackson's "growth approach" to in-service training as their basis for differentiation. In-service training for professional development was therefore defined as being,

... those activities which enable the teacher to grow professionally ... to help the teacher become more sensitive to what is happening in his classroom and to support his efforts in what he is doing.102

Whereas, in-service training programs for program implementation constitutes those activities designed to enable a teacher to implement a new program effectively.103 The following figure illustrates these ideas graphically.

101 Jackson, loc. cit., p. 21.
103 Ibid.
Activity A emphasizes the professional development aspect of in-service training focusing on aspects of teacher performance not directly related to new programs. Activity B has both professional development and program implementation components, while Activity C emphasizes the program implementation aspect of in-service training. Not all in-service training will fit neatly at one end or the other of this continuum but in most cases the primary emphasis should be discernible. This distinction between professional development and program implementation would seem useful for purposes of the study situation since the concept is particularly useful in dealing with organizational roles and responsibilities for in-service training.

104Ibid., adapted from Table 1, p. 20.
Roles and Responsibilities for In-Service Training

The data collected for the Sask. In-Service Report yielded little information as to which educational organization believed in-service training to be their responsibility. From their findings the researchers suggested that the Saskatchewan Teachers' Federation should focus its attention on professional development (growth) as it does now and that the Department of Education should focus its attention on program implementation as it does now. The data also found that school boards did not view in-service training as their prime responsibility. This state led the researchers to adopt the position that the chief responsibility for in-service training should be a shared one "... with the Saskatchewan Teachers' Federation and the Department of Education."¹⁰⁵

The basis for the recommendation was that since new programs emanate from the Department of Education, the Department should be responsible for coordinating and organizing the in-service training required to ensure full and effective implementation of new programs.

In an attempt to parallel the position adopted by the Sask. In-Service Report to the study situation, clearly some similarities exist which may be helpful in defining the responsibilities for in-service training to internal organizations. The local district of the Canadian Physiotherapy Association focuses its function on professional growth as does the Saskatchewan Teachers' Federation. The internal organizations like school boards do not see in-service training for program implementation, emanating from an external organization, as their primary

¹⁰⁵ Ibid.
responsibility for, as was pointed out by Weisbord, such organizations are client-centered.\textsuperscript{106} According to the Sask. In-Service Report, organizations like school boards have a responsibility to support in-service training, however "... their responsibility must be viewed in terms of conflicting demands ... and in-service training has a relatively low priority among demands at this level."\textsuperscript{107}

The School of Physical Therapy, University of Saskatchewan focuses its attention on pre-training. It, like the College of Education, University of Saskatchewan, "... asserts that in-service training is not the primary responsibility of the university ... pre-service training is."\textsuperscript{108} Since the Department of Education takes the major responsibility for program implementation and no parallel body exists within the organizational framework of the study situation, it would appear that the onus for in-service training for program implementation lies squarely with the School of Physical Therapy since emanation of programs for internal organizations are initiated there. However, the responsibility for developing in-service training programs should be a shared responsibility between the school and the autonomous organizations. Details of the nature, content and administration of the in-service training programs are seen as being the role of the change agent.

The division and distinction of organizational, participative and change agent roles as outlined not only clarify the purpose and

\textsuperscript{106} Weisbord, loc. cit.

\textsuperscript{107} Sask. In-Service Report, op. cit., p. 21.

\textsuperscript{108} Ibid.
responsibility lines for in-service training but it also complements and parallels earlier propositions on curriculum development.

Therefore, if the major purpose of in-service training is viewed as an extension of curriculum development and an aid to program implementation rather than remediation, then the model must allow for elements of participation and needs identification by the operants in order to enhance perceptions of the external organization and program identification. As pointed out by Dalin, decentralization of control enhances ownership of decisions. 109

In summary this study has been concerned with planned change in that the external organization has intentionally sought to introduce new ideas to a group of autonomous professionals within other organizations. Since autonomous professionals within organizations have been characterized as having some independence from internal control and may selectively adopt or reject innovation at that level, and since both administrators and autonomous professionals resist change even more when change is introduced by external organizations, the change process sought to establish program ownership and high identification with the external organization.

The literature review dealt with the nature, process and forces of social change and established that an influence process, built on a social psychology model concentrating on mutuality and communication, would bring about positive behavioral and structural change. Opinion leaders, gatekeepers and change agents were identified as playing a significant role in the promotion of diffusion and adoption of

109 Dalin, loc. cit., p. 78.
innovation. Participation in curriculum development and in-service training were found to enhance ownership.

Therefore, given the study situation and the criteria for change as established from the literature, it would appear that a synthesis would have to include a process of influence and intraorganizational development in order to facilitate selective change and internalization.

A Strategy for Change

In Chapter I a change strategy was put forth which incorporated the traditional Normative Re-educative Strategy as described by Robert Chin and Kenneth Benne and the Intersystem Model as proposed by Robert Chin. In order to project the usefulness of these strategies, each will be briefly explored in order to identify their application to the study situation.

Normative Re-educative Strategy

The normative re-educative approach to change utilizes direct intervention by change agents. These interventions are based on deliberate planning based on theories of change into the client-system, be that system a person, small group, organization or community.¹¹⁰

According to Chin and Benne, some of the common elements of change employed in the normative re-educative strategy include:

1. working out programs of change and improvement of the client system on its own.
2. recognition that the problem is not necessarily one of inadequate information but rather one of attitudes, values, norms and relationships.

¹¹⁰ Chin and Benne, op. cit., pp. 31-39.
3. deliberate examination and reconstruction of nonconscious elements that impede solutions.
4. use of methods and concepts of behavioral sciences by both the change agent and the client system.
5. collaborative definition of problems and solutions by the change agent and the client system.\[111\]

In summary, the conditions for normative re-education strategy include openness of communication, trust between persons, lowering of status barriers and mutuality.

Kenneth Benne, in addressing the processes of re-education, questioned the process by which men and women altered or replaced former patterns of thinking and behaviour into new ones. In answer to his own curiosity, Benne suggested that the change process, although more complex than those of learning anew, "... involve not extrinsic additions of knowledge or behavioural repertoire ... but change in the self ..."\[112\]

This view is shared by Mager and Pipe who stated that "... it becomes plain that the solution to change is not to hand out more information. The solution must ... increase the desirable results of a desired performance."\[113\]

In order to bring about self change, certain conditions must exist. Benne analyzed three dimensions through which the individual is affected by re-education:

1. the person's cognitive structure must be altered.
2. there must be modification of values.

\[111\] Chin and Benne, op. cit., pp. 32-37.


\[113\] Robert Mager and Peter Pipe, "You Really Oughta Wonna or How Not to Motivate People," Nursing, p. 7.
3. re-education must affect a person's behavioural skills and degree of a person's conscious control.\textsuperscript{114}

Given these three dimensions, Benne cautions that re-educative experiences must be designed with the multi-faceted aspects of behavioural changes in mind for changes in sentiments do not necessarily follow changes in cognitive structures. Benne then goes on to warn that:

Superficial re-education may result in merely heightening the discrepancy between the superego (the way I ought to feel) and the ego (the way I actually feel) . . . such a discrepancy . . . seldom leads to appropriate conduct.\textsuperscript{115}

The same concern was expressed by Goodwin Watson who, in discussing the impact of new views with pre-established attitudes, was led to state that " . . . in the superego, is a powerful agent serving tradition."\textsuperscript{116} Benne then points out another factor of great importance. He suggests that it is the " . . . degree and depth to which an individual becomes involved in new groups . . . with norms which support openness of communication, willingness to face problems and to become involved in solutions which facilitates re-education."\textsuperscript{117}

Re-education also recognizes the dilemma of "volunteerism." The principle of volunteerism, of free choice, is seen by Benne as a fundamental element in effective re-education. Yet, Benne also understands the dilemma faced by change agents who, because of the urgency of unresolved problems, at times may force people into programs and processes

\begin{footnotes}
\item[114] Benne, \textit{op. cit.}, p. 318.
\item[115] Ibid., p. 322.
\item[117] Benne, \textit{op. cit.}, p. 324.
\end{footnotes}
of re-education without the provision of volunteerism.  

Finally, Benne asked the question, "How can free acceptance of a new system of values be brought about if the person who is to be educated is likely to be hostile to new values and loyal to the old." Although there are no pat solutions, Benne offers the following practical suggestions to change agents. First is the need for an attitude of respect for resistance. The second is to seek ways of helping rejectors to become candidates for voluntary involvement.

The Intersystem Model

The intersystem model as described by Chin complements the normative-re-educative model for purposes of this study since it acknowledges separate, autonomous organizations and an expanded expectation of the change agent's role.  

Chin's intersystem model involves two systems, side by side, but connected to each other by separately identified links. The model acknowledges the need for autonomy within each system yet accedes to limited interdependence between the two systems. The lines of intersystem strategy calls for transactional and collaborative exchanges across the lines of organized interests and orientations. This perspective brings Chin's model into the range of normative-re-educative strategy which embraces a similar philosophy.

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118 Ibid., p. 324.
119 Ibid., p. 324.
120 Chin, op. cit., p. 96.
Chin insists that the change agent, as a helper with planned change, must remain separate, to some extent, within another system. The external change agent, therefore, does not completely become a part of a system but rather might be affiliated with a referent group of fellow professionals.

A further alteration in the change agent's role is the need to analyze the conjunctive and disjunctive connectives found within organizations. Chin regards the conjunctive connectives as being those relationships which tie the system together such as the "social contract entered into by therapist and patient." Whereas, an example of the disjunctive connective would be the "conflict between labour and management." In brief, the intersystem model leads the change agent to examine the dynamics of interaction both within and between systems.

Chin also points to another significant alteration in how the relationship of the change agent and the total change process is viewed. He states that "... the question of the change agent to others needs to be part and parcel of the model since the ... relationships of the change agent in processes of planned change become 'part of the problem' to be investigated."

As depicted in Figure 3, the intersystems model, when viewed in terms of assumptions, approaches and strategies for change, does illustrate features common to the normative-re-educative strategy. On the

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121 Ibid., p. 97.
122 Ibid., p. 96.
123 Ibid., p. 100.
other hand, it pays direct attention to forces producing change, including the change agent. 124

<table>
<thead>
<tr>
<th>Assumptions and Approaches to:</th>
<th>Model for Changing: Intersystem</th>
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<td>2. <strong>Causation</strong>&lt;br&gt;Source of Change</td>
<td>Self and change-agent&lt;br&gt;Rational choice</td>
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<td>3. <strong>Goals</strong>&lt;br&gt;Direction Set by</td>
<td>Deliberate selection&lt;br&gt;Collaborative process</td>
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<td>4. <strong>Intervention</strong>&lt;br&gt;Confronting symptoms</td>
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<td>5. <strong>Change-Agent</strong>&lt;br&gt;Role</td>
<td>Part of situation&lt;br&gt;Participant in here and now</td>
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**Figure 3**

Model for Change (Chin) 125

The review of the literature indicates that the Normative Re-educative Strategy and the Intersystem Model, when incorporated, meet the requirements of the study situation and therefore is the basis for the study model which is depicted in Figure 4.

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**Participative Model for Planned Change**

**Figure 4**

<table>
<thead>
<tr>
<th>Model</th>
<th>Strategy</th>
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<th>Roles</th>
<th>Determinants of Implementation</th>
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<td>2. In-service Training</td>
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**Roles**
- professional autonomy
- systems norms
- modern vs. traditional
- homogeneity - elite
- informal opinion leaders
- professional norm compatibility
- primary/secondary function

**Determinants of Implementation**
- selective adoption
- student evaluation of planned change

**Consequences**
- adoption
- diffusion
- consequences
As illustrated, the Participation Model moves planned change from an external hierarchical directive change through to selective adoption by the operants in the external organization. In order to reach the desired consequence, selective adoption, certain impediments or determinants of adoption must be minimized. This is accomplished through the process of intraorganizational participation in curriculum development and in-service training and the specific roles of the change agents both of which tend to decentralize hierarchical control. The benefits of such a model to the autonomous professional and external organizations is ownership, decentralization of power, re-learning, increased status and personal control.

Since change agents are seldom able to predict an innovation's consequences, the subjective perception of the innovation by the client's observability (of the results of the innovation) according to Rogers "... deserve proper and accurate measurement." 126 Observability in the study situation was therefore conducted through student evaluation of the planned change.

**Student Evaluation**

The propriety and accuracy of student evaluation, while considered by some to be controversial, is, according to James Popham, "... the most common type ... of measurement devised used in education ... particularly at higher levels of education such as universities." 127 The

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chief advantage of student ratings of an innovation, as pointed out by Popham, is that students have access to a much larger data base than most administrators who often have to squeeze evaluation chores into an already hectic schedule. It would seem that another advantage of student evaluation is that client satisfaction is an important ingredient of what a teacher should aspire to promote, therefore, student ratings contribute on the client-contentment continuum. 128

Therefore, given the study situation wherein the administrator of the external organization had no formal control nor access to observation or inspection of program implementation within external organizations, the only alternative to determine the results of innovation was through student evaluation. Furthermore, since students had expressed dissatisfaction with clinical experiences and were obliged to daily observe an instructor's performance, the researcher determined that student evaluation was a legitimate method of securing information related to curriculum innovation.

128 Ibid., p. 287.
Chapter III

PROCEDURES

In this chapter, the innovation procedures and processes derived from the model and implemented through a physical therapy curriculum innovation within three hospitals have been described. In addition, descriptions of the instrumentation, data collection procedures and student populations have been provided. The product of the chapter has been the statement of the interventions executed in a quasi-experimental research design.

Curriculum Implementation Process

Step I, 1977-1978

Since clinical therapists in each cooperating hospital and department designed their own instructional program for physical therapy students and since the School of Physical Therapy determined that it was responsible for the provision of clinical curricula thereby securing some administrative control over instruction, the researcher initiated a pilot study wherein structured clinical teaching programs were to be developed and implemented. Therefore, the purpose of the pilot study was to develop the curricular innovation, to start the involvement and diffusion process through cooption of influentials, and to determine whether or not a change intervention from an external organization would be acceptable to a group of autonomous professionals. In addition, the pilot study provided the opportunity for the external change agent to establish her
role and provide the organizational linkages with the gatekeepers and opinion leaders within the external organization.

Selection and procedures. Since the external change agent had previously been based in Hospital A, close administrative and influential linkages had been established. Hospital A, which could be classified as a modern organization with a mandate for change, provided a setting wherein the norm for change, function and attitude fostered a more primary responsibility for instruction and education of students and was equal to the responsibilities for patient care and medical research.¹ The external change agent, due to allied professional and educational expertise, close proximity and frequent contact, had established personal friendships with influentials in Hospital A: particularly in Departments 3 and 4. Since instruction within Departments 3 and 4 was on a one-to-one and more than one-to-one student-therapist ratio it typified patterns found throughout all Departments in the study. Therefore, given these conditions and since they did not exist to the same extent in other hospitals and departments, Departments 3 and 4 of Hospital A appeared to be the most facilitory intervention point and on that basis were selected for the pilot study.

In order to promote the idea of the pilot study, the external change agent met with the administrative gatekeepers from Hospital A to discuss the then existing conditions in terms of student needs, clinical therapist's needs and the School's needs. The solutions to these needs, as offered by the external change agent, included structured curriculum,

¹The "A" Hospital Board, A New Direction. A paper presented to the Role Review Committee.
better staff utilization, and School input on instructional content. Through implicit bargaining, permission to conduct the pilot study was granted as was the establishment of the change agent's role and development of linkages within and between the two organizations.

Subsequently, with the approval of the gatekeeper, the external change agent called a meeting with the senior therapists from Departments 3 and 4. At this meeting the need for the pilot study, their involvement, the intention to develop curriculum, and the role of the external change agent was described and discussed. As influentials, their agreement to participate and become involved in the implementation was solicited and received.

Design and development of curriculum. Thereafter the external change agent planned and designed a statement on the required content, style of teaching most useful in the situation and administrative procedures. This statement was then presented to the senior therapists. The statement was discussed, their reactions received and from this a new statement was developed. The new statement embraced respective implicit bargaining and as such was an important feature of the transaction since some autonomy had to be given up by individuals from both organizations and, in so doing, certain changes occurred in the School curriculum and clinical instruction common to Department 3. Since the School instructor teaching the class corresponding to treatment offered in Department 4 was not involved in the change process no implicit bargaining took place; however, the external change agent followed the same process with that Department.

In order to provide support and an on-going review of
Implementation, the external change agent distributed School curriculum, assisted with instructional timetable, supplied supportive materials (suggested activities), attended instructional classes and clinical presentations, and shared in student evaluation.

Observations. Although no formal evaluation of the pilot study was conducted, reactions from instructors and students were obtained.

The products derived from the pilot study included the development of the innovation and teaching strategies, and the establishment of favourable attitudes and a willingness on the part of the two senior therapists to promote the experience. As influentials they became advocates of the product's feasibility, relative advantages and compatibility. One could make the assumption that by observing the process and through interaction with peers on the part of operants Departments 1 and 2 of Hospital A, that diffusion would occur. These conclusions were reached on the basis of the external change agent's interactions with the individuals and attested to by the participants' willingness to be involved in Step II of the study.

Discussion. The overall function of the external change agent, as an administrator in an internal organization, was to invent, develop and design curricula based on student and organizational needs. In addressing management on the relative advantage of a more productive style of instruction and curriculum, the change agent attempted to establish cooperation for implementation and legitimization for directive contact change and to promote the recognition of the advantages of the new ideas to the gatekeepers. In selecting Hospital A, a modern organization with a mandate committed to student instruction, the change agent
sought out a fertile situation wherein the norm for change was considered a primary function and responsibility of that organization. Selection of senior influential therapists was to establish early adoptors and to determine the compatibility of the innovation process with their professional norms.

Following needs identification, the role of the external change agent was one of administrator, inventor, developer and bargainer in legitimizing and supporting planned change as carried out in Step I. This strategy was compatible with this study's model of a participative process as illustrated in Figure 4. The external change agent's role was that of a catalyst in the innovation process.

Since the influentials had become advocates of the process and expressed a willingness to be involved in Step II and since the gatekeepers authorized further involvement in the innovation, the academic and administrative feasibility was evidenced and the above construct was supported.

**Intervention.** The hospital by hospital description of intervention activities for Step I has been summarized in Figure 5. As shown in Figure 5, the 1977 interventions for Departments 3 and 4 of Hospital A consisted of administrative agreement, therapist agreement, receipt of curriculum and external in-service.

**Step II, 1978-1979**

An outcome of the pilot study was the faculty of the School of Physical Therapy agreement that all second year students would receive clinical training in Departments 1, 2, 3 and 4 of Hospital A, Departments 1, 2 and 3 of Hospital B and Departments 1 and 2 of Hospital C. The
Figure 5

Curriculum Implementation Process

(continued)
STEP III
1979-1980
Implementation Curriculum II

Product | Hospital | Department | Intervention
---|---|---|---
ad hoc committee | A | 1 | Aa, At, C, D, Ii
| | 2 | Aa, At, C, D, Ii
| | 3 | Aa, At, C, D, Ii
| | 4 | Aa, At, C, D, Ii

Department sub-committees
1 2 3 4

Ar Br Ar Br Ar A2
Br Br Br Br Br Br
Cr Cr Cr Cr Cr Cr
F F F F F F
F2 F2 F2 F2 F2 F2

ICA
ICA
ICA
ICA

Code: Ar representative from Hospital A
Br representative from Hospital B
Cr representative from Hospital C
F faculty representative
F2 two faculty representatives
A2 two representatives from Hospital A
ICA internal change agent

Figure 5 (Cont'd)
participating hospitals and departments have been listed in Table 2. Further, the faculty approved the extension of structured clinical teaching programs and their implementation in the participating departments and hospitals.

### TABLE 2

PARTICIPATING HOSPITALS AND DEPARTMENTS

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Departments</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1 2 3 4</td>
</tr>
<tr>
<td>B</td>
<td>1 2 3</td>
</tr>
<tr>
<td>C</td>
<td>1 2</td>
</tr>
</tbody>
</table>

Design and development of curriculum I. On the basis of the faculty's decisions, the external change agent, as chairman of the Clinical Instructors Committee, called a meeting as indicated in Step II, Figure 5. The members of the CIC consisted of physical therapy administrators from Hospitals A, B and C, senior clinical therapists from Hospital A and affiliated teaching centres. Both the administrators and therapists had formal appointments as either clinical lecturers or instructors with the School of Physical Therapy and as such were not only gatekeepers and opinion leaders but also status influentials.

The purpose of that meeting was to present the relative advantages of the structured curriculum as demonstrated by the pilot study. To this end the initiated early adopters, through the influence process, promoted the innovation among the uninitiated by describing the compatibility of

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2 Hereafter referred to as the CIC.
norms, the complexity, the trialability and the observability of results. The outcome of this meeting was an official agreement by the CIC members to extend structured curriculum to all participating departments in all hospitals. In order to accomplish that task, the CIC approved the establishment of two ad hoc committees. The purpose of the first committee was to develop the curricula for the four participating Departments, including revisions for Departments 3 and 4. Members of that committee included one administrative gatekeeper from each of Hospital B and C and a senior therapist from Hospital A who acted as chairman to that committee. The charge to that committee was to receive curriculum contributions from each representative and to collate the ideas into teaching programs. However, it should be noted that only the representative from Hospital A actually contributed ideas to the four curricula whereas representatives from Hospital B and C attended meetings and agreed with proposals. Therefore, there was little participative collaboration in the curriculum decision making. During the course of its deliberation the external change agent acted as a consultant and resource person to that committee and attempted to establish linkages with administrators from Hospital B and C.

The purpose of the second committee was to develop a document which reflected the desired student clinical performance outcomes. The members of that committee included the external change agent and the chairman of the first committee. The objective of that committee was to compile a list of attitudinal, cognitive and psychomotor objectives into a document to be known as the General Clinical Practice Objectives. ³

³Hereafter referred to as the GCPO, see Appendix B.
Having received approval from the Director of the School of Physical Therapy and concurrent with the activities of the above committees, the external change agent along with an expert from the College of Medicine designed the questionnaire for use in this study. The purpose of the ECPQ was to collect data through student perceptions as to the degree of implementation and the outcome of curricular innovation.

As further illustrated in Figure 5, another meeting of the CIC received and approved three products: 1) four curricula for Departments 1, 2, 3 and 4; 2) the GCPO, and 3) the ECPQ. In addition, the external change agent secured the agreement of the committee for the implementation of Curriculum I and the evaluation of clinical departments during the 1978-79 academic term. The hospital by hospital description, as shown in Figure 5, outlines the interventions.

At the completion of each clinical placement the ECPQ was administered to the students by the external change agent. No feedback was provided to administrators or operants in Hospital A, B and C.

Discussion. During Step II, the primary change strategy adopted by the external change agent was one of acting through an influence process. Through early adopters, management and elite were persuaded to form a favourable attitude and commitment to the innovation. In addition, the change agent provided the mechanism for transactional and collaborative decision making by the decentralization of curriculum in order to meet the combined needs of the three external organizations, two of which were classified as traditional. Unless acknowledged early during the

*Appendix A.
developmental stage, this difference in organizational norms could be regarded as a disjunctive connective. Cooption of administrators and elite influentials through curriculum involvement was an attempt to establish ownership of curriculum and diffusion of innovation thereby moving from directive contact change to selective contact change. In-service training by the external change agent, to complement program implementation and to meet the requirements of the model, served to reinforce the linkages with administrators and operants. This strategy was compatible with this study's model, Figure 4, wherein the external change agent acted to facilitate selective adoption of the innovation through collaborative efforts.

Intervention. The hospital by hospital description of intervention activities for Step II have been summarized in Figure 5. Hospital A received administrative agreement, therapist agreement, partial involvement in curriculum development, receipt of curriculum and external in-service. Hospital B lacked therapist agreement and involvement in curriculum development. Hospital C lacked therapist agreement, involvement in curriculum development and in-service. These treatment anomalies may be accounted for by the fact that representatives from Hospital B and C did not contribute to curriculum development. Further, the external change agent did not view in-service as a primary function therefore it was provided only upon request. Hospital C did not request in-service.

\[\text{Supra.}, \ p. \ 60.\]
Step III, 1979-1980

Although no formal analysis of the data was carried out at the end of Step II, the student responses to items 56 and 57 of the ECPQ were reviewed in order to ascertain whether or not the innovation had been implemented. This review of student responses indicated that Hospital C made no attempt to implement the innovation. Feedback provided by operants from Hospital B indicated that the program did not take into account organizational differences in patient management and case load therefore the program developed in Hospital A was not transferable to their hospital. As well, the newly appointed internal change agent, as a former member of Department 4 in Hospital A, noted that while the operants were essentially happy with the curriculum certain adjustments in program leading to less interference with therapists' primary functions were required. In summary, between Step II and Step III the external change agent found that refinements of curricula were required.

Design and development of curriculum II. Given these findings, the external change agent began Step III by calling a meeting of the CIC. The purposes of this meeting were to: 1) introduce and describe the role of the internal change agent, and 2) establish committees for curriculum revision. The CIC thereafter approved of four sub-committees to revise programs for Departments 1, 2, 3 and 4 and an ad hoc committee to which the sub-committees would report.

The membership of each sub-committee consisted of a faculty member responsible for academic teaching within the curriculum area under
study and volunteer operants from each of the hospitals responsible for that area of clinical instruction. Where the academic teaching was shared, two faculty members served on the sub-committee. Where clinical instruction was provided by only one or two operants, a coopted therapist with similar expertise served on the sub-committee. Therefore, each committee consisted of a minimum of four members comprising of faculty from the internal organization and an operant representing each Department from the three external organizations. Having dealt directly with administrators and opinion leaders and having received their stamp of approval, this action was deliberately planned to place the onus for clinical curriculum development squarely on those responsible for clinical instruction -- the operants from external organizations. Faculty were included so that both organizations would be aware of each other's direction and needs and to establish implicit bargaining. Therefore, the sub-committees provided a forum by which the gap between theory and clinical skills could be resolved through collaborative efforts.

The membership of the ad hoc committee consisted of both internal and external change agents and a volunteer representative from each of the four sub-committees. The role of this committee was to receive final curricula as prepared by the sub-committees and to review, revise, and standardize each of the four curricula before presenting the final documents to the CIC. Subsequently, the CIC approved the final products and agreed to implement Curriculum II.

During the formative period the external change agent's role was to oversee the functioning of each sub-committee and to provide consultation and direction as required.

Since it is pertinent to this study, it should be noted that each
representative participated in meetings and contributed to the curricula with the exception of the representative from Department 2, Hospital C, who did neither.

The second implementation was carried out under the administrative direction of the external change agent while the internal change agent, as per the model, provided interpersonal in-service training concurrent with the implementation. The major thrust of the in-service program was curriculum, communication, evaluation and teaching methods. Other duties of the internal change agent included the distribution of materials, the observation of students and other areas of individual support to operants.

Again, following each clinical placement within a department the external change agent administered the ECPQ. No feedback was given to the operants or administrators.

Discussion. The procedure carried out by the researcher during Step III reflected the complete application of the study's Participative Model for Planned Change as outlined in Figure 4. Hierarchical planned change which intentionally sought to introduce new ideas was decentralized to include administrative gatekeepers, opinion leaders and clinical instructors through the process of participation in curriculum development and in-service training. This action attempted to minimize resistance to change and encourage perceptions of external and internal program ownership. Curriculum development was therefore based on collaborative planning, client-centered needs, identification and volunteerism. The aim was to reduce the threat to autonomous professionals yet to promote guardianship, vested interests, implementation and diffusion. Through
the idea of mutuality of client and agent in planned change it was hoped to achieve internal recognition of needs consistent with professional norms.

At this stage the role of the external change agent was reduced to external administrative duties. In so doing it was hoped that administrators and operants would move from directive to selective contact change to thereby selectively adopt or reject the innovation while maintaining some independence from external control.

Having attempted to establish internal program ownership and high identification with the internal change agent by operants the internal change agent sought modification of behavioural skills and attitudes through in-service training. By design, the in-service training focused on interpersonal support and individual needs during the early implementation of curriculum. This action was considered a crucial element in the diffusion process and a determinant of adoption on the part of the professional. Since the internal change agent could be more client-oriented and allied with the referrent group, better opportunities could be afforded to perceive disjunctives and to adjust to differing organizational dynamics and norms.

Therefore, the primary role of the external change agent had been one of an administrator while the primary role of the internal change agent was that of a collegial helper. Both change agents, through their respective activities, attempted to promote greater compatibility since operants were given opportunities for feedback based on individual needs, and given evidence that they retained control over their body of expertise.
Interventions. The hospital by hospital description of intervention activities for Step III have been summarized in Figure 5.

Departments in Hospitals A and B and Department 1 in Hospital C received administrative agreement, therapist agreement, curriculum development, receipt of curriculum and internal in-service. Department 2 in Hospital C lacked therapist agreement and curriculum development. This treatment anomaly may be accounted for by the fact that the representative from that Department did not attend curriculum development meetings.

The Summary of Interventions

Under Step I, Hospital A, Departments 3 and 4 received the following treatment: administrative agreement, therapist agreement, distribution of curriculum and in-service from the external change agent for a total of four treatment components.

Under Step II, Hospital A, Departments 1, 2, 3 and 4 received the same treatment as under Step I as well as partial involvement in curriculum development for a total of five components. Hospital B, Departments 1, 2 and 3 received administrative agreement, distribution of curriculum and in-service for a total of three treatment components. Hospital C, Department 1 and 2 received administrative agreement and distribution for a total of two components.

Under Step III, all hospitals and all departments, with the exception of Hospital C, Department 2, received the same treatment which included administrative agreement, therapist agreement, full participation in curriculum development, distribution and in-service from the internal change agent for a total of five treatment components. Hospital C, Department 2 received administrative agreement, distribution and in-service
for a total of three treatment components.

Student assessment at the end of Step II and Step III provided the data for this study.

The Sample

The second year students enrolled in the School of Physical Therapy, University of Saskatchewan during the academic year of 1978-1979 and 1979-1980, respectively, made up the two sample groups. As part of their orientation to clinical education, all students were informed that they would be given the opportunity to complete the ECPQ at the end of each clinical placement as a means of evaluating their clinical experiences. In view of this requirement, it was possible to secure the cooperation of all students in each sample group. Therefore, all students completed four questionnaires as they progressed through clinical Departments 1, 2, 3 and 4, but not necessarily in that order.

The number of students allocated within cooperating hospitals and departments has been presented in Table 3.

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Department</th>
<th>Total</th>
<th>1978-79</th>
<th>1979-80</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td></td>
<td>8</td>
<td>10</td>
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<td>2</td>
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<td>10</td>
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<tr>
<td></td>
<td>4</td>
<td></td>
<td>19</td>
<td>18</td>
</tr>
<tr>
<td>B</td>
<td>1</td>
<td></td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>4</td>
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<tr>
<td></td>
<td>3</td>
<td></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>1</td>
<td></td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td></td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>
As shown in Table 3, clinical training in Departments 1 and 2 was shared by Hospitals A, B and C where the student to clinical therapist ratio was primarily 1:1.

Clinical training in Department 3 was shared between Hospital A and B where the student to therapist ratio was 1:1.

Since Hospital A, Department 4 was the only hospital which provided that specific area of clinical experience, all students were placed in that department. The student to therapist ratio was 5:2 or less.

Inspection of Table 3 shows that the numbers at Hospital B, Departments 1, 2 and 3 and at Hospital C, Departments 1 and 2 fell below the desired five for the statistical analyses.

**Characteristics of Respondents**

Table 4 and 5 provide information with respect to some of the personal characteristics of the sample groups.

As shown in Table 4, the majority of students in both samples were females with only two males in the 1978-79 group. Each group had one married student. The results of the t test showed that there was no significant difference between the sample group's average age of 18.50 years and 18.42 years on admission to the School of Physical Therapy.

As shown in Table 5, the results of t tests showed that there were no significant differences between the groups in their Grade XII average mark and their first year physical therapy mark. The mean values were 85.04 and 85.93 for Grade XII and 80.83 and 81.69 for first year physical therapy, respectively. Therefore, on the basis of the demographic data there was no reason to believe that the two samples were not matched.
TABLE 4
SEX, AGE AND MARITAL STATUS OF SAMPLE GROUPS BY YEAR

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>N</th>
<th>Sex</th>
<th>Average Age on Admission</th>
<th>Marital Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978-79</td>
<td>19</td>
<td>F 17 M 2</td>
<td>18.50</td>
<td>S 18 M 1</td>
</tr>
<tr>
<td>1979-80</td>
<td>18</td>
<td>F 18 M 0</td>
<td>18.42</td>
<td>S 17 M 1</td>
</tr>
<tr>
<td>t test</td>
<td></td>
<td></td>
<td>t = 0.19</td>
<td>p = .849</td>
</tr>
</tbody>
</table>

TABLE 5
ACADEMIC RECORD OF SAMPLE GROUPS BY YEAR

<table>
<thead>
<tr>
<th>Sample Group</th>
<th>N</th>
<th>Grade XII Average on Admission</th>
<th>Year I Average School of Physical Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>1978-79</td>
<td>19</td>
<td>85.04</td>
<td>80.83</td>
</tr>
<tr>
<td>1979-80</td>
<td>18</td>
<td>85.93</td>
<td>81.69</td>
</tr>
<tr>
<td>t test</td>
<td></td>
<td>t = 0.52</td>
<td>t = -0.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td>p = .605</td>
<td>p = .620</td>
</tr>
</tbody>
</table>
The Questionnaire

The student opinion questionnaire ECPQ was primarily developed for the specific purpose of assessing the sample group's perceptions of the clinical teaching programs offered by four departments within three hospitals. A second purpose of the questionnaire was to determine the extent to which the teaching programs helped students achieve the clinical objectives as listed in the document GCPO. Since no suitable instrument was available, it was decided to construct a questionnaire specifically for the purpose of this study. A Likert-type questionnaire consisting of fifty-seven items with a rating scale of one to five was used. Students were directed to circle the score which most appropriately reflected their impression on a total of fifty-five statements. These items were categorized into six sub-categories pertinent to clinical instruction which included Assessment, Treatment, Theory, Communication, Teaching Program and Evaluation.

Items in the first four subsections were formulated from the document GCPO. Items included under the subsection, Teaching Program, were intended to elicit information on the style, method and relevance of instruction while the last subsection, Evaluation, was designed to determine the frequency and value of feedback given to students.

Two specific level of confidence items were included to determine the students' level of confidence in the subcategories Assessment and Treatment.

Two open questions were included in order to elicit comments not covered in the questionnaire. Item 56 sought impressions about attributes
of an effective clinical teaching program while item 57 sought suggestions where students felt changes were required.

Following the design and development of the questionnaire, several groups independently reviewed the items and rating scale. The groups which judged the questionnaire included the faculty of the School of Physical Therapy, a third year class of students, senior therapists from Hospital A and all members of the CIC. Suggestions were considered and appropriate changes made.

Since only face validity has been established and since there was no empirical evidence presented, the instrumentation in this study has serious limitations.

**Administration of the Questionnaire**

Questionnaires were distributed by the researcher to the sample group at the completion of each of four clinical placements throughout the academic terms. Students were directed to seriously and honestly circle the score which most appropriately reflected their impressions on the items. Students were also directed to be constructive in their responses to the two open questions. The questionnaire was administered in a school classroom and was collected by the researcher immediately upon completion. These responses to the ECPQ constituted the data analyzed in Chapter IV.

**Statistical Procedures**

Since it had been assumed that the responses to the ECPQ were at the interval level of measurement, with the exception of the open-ended items, parametric statistics were used to analyze the data. In order to test the differences among and between groups, one-way and two-way
analyses of variance with, where necessary, the corresponding Scheffé tests were utilized. However, since the sample sizes in several analyses fell below that required for valid and reliable results, the findings yielded by the statistical procedures in these cases must be treated with caution. For the purposes of statistical decision-making, the .05 level of significance has been utilized.
Chapter IV

RESULTS OF THE ANALYSIS

In chapters I and II the theoretical basis for the study and four hypotheses were presented. The major purpose of this chapter is to report the results of the statistical analysis of the data.

Interventions 1978

Hypothesis One

It was determined in the theoretical arguments that the establishment of an external change agent, agreement for curriculum implementation and legitimization of directive contact change to gatekeepers could lead to the promotion or rejection of an innovation. Similarly, it was suggested that selection of influential operants could establish early adopters and thereby promote implementation.

Procedures and Results

Since Departments 3 and 4 of Hospital A were involved in the pilot study and Departments 1 and 2 were not involved but all four departments received the same 1978 intervention which consisted of five components (administrative agreement, therapist agreement, partial curriculum involvement, receipt of curriculum and in-service from the external change agent) and since Departments 1, 2 and 3 within Hospital B received the same intervention which consisted of three components (administrative agreement, receipt of curriculum and external in-service) while Departments 1 and 2 at Hospital C each received the same interventions which consisted of two components (administrative agreement and
receipt of curriculum), it was therefore hypothesized that when classified on the basis of departments within hospitals, there will be no significant differences in student assessment scores except when Departments 3 and 4 are compared with Departments 1 and 2 in Hospital A. The results of the statistical analyses have been presented in Table 6.

In order to test this hypothesis, one-way analyses of variance of student scores classified on the basis of departments within hospitals were performed. As shown in Table 6, in Hospital A, the one-way analyses of variance yielded no significant differences among student Assessment, Treatment, Theory and Evaluation scores when classified on the basis of departments. Significant differences were found among Communication and Program scores: the Scheffé test indicated that Communication scores for Departments 2, 3 and 4 were significantly higher than for Department 1, and, Program scores for Department 2 and 4 were significantly higher than for Departments 3 and 1. Therefore, since Departments 3 and 4 were not significantly higher than Department 1 and 2 as hypothesized, then the portion of the hypothesis dealing with Hospital A was rejected.

Further, as shown in Table 6, no significant differences among the scores when classified on the basis of departments in Hospital B were found. Therefore, the portion of the hypothesis dealing with Hospital B was accepted.

Similarly, in Hospital C, no significant differences were found among the scores on Assessment, Treatment, Theory, Communication and Program. However, significant differences were found on Evaluation therefore, with the exception of Evaluation in Hospital C where Department 1 scores were significantly higher than Department 2, those portions of the hypothesis as related to Hospital C were substantiated.
<table>
<thead>
<tr>
<th>Hospital</th>
<th>Subcategories</th>
<th>F</th>
<th>Prob.</th>
<th>Dept. 1</th>
<th>Dept. 2</th>
<th>Dept. 3</th>
<th>Dept. 4</th>
<th>Scheffé*</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Assessment</td>
<td>3.960</td>
<td>.014</td>
<td>40.63</td>
<td>45.00</td>
<td>41.20</td>
<td>44.89</td>
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<tr>
<td></td>
<td>Treatment</td>
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<td>.632</td>
<td>60.125</td>
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<tr>
<td></td>
<td>Theory</td>
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<td>2431</td>
</tr>
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<td>Evaluation</td>
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<td>.491</td>
<td>26.75</td>
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<td>25.67</td>
<td>25.89</td>
<td>2143</td>
</tr>
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<td>.671</td>
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<td>41.50</td>
<td></td>
<td>132</td>
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<td>Theory</td>
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<td>Communication</td>
<td>0.201</td>
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<td></td>
<td>Program</td>
<td>0.842</td>
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<tr>
<td></td>
<td>Evaluation</td>
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<td>.530</td>
<td>25.43</td>
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<td></td>
<td>312</td>
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<tr>
<td>C</td>
<td>Assessment</td>
<td>0.646</td>
<td>.442</td>
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<td>18.57</td>
<td></td>
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<tr>
<td></td>
<td>Treatment</td>
<td>4.375</td>
<td>.066</td>
<td>42.00</td>
<td>32.43</td>
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</tr>
<tr>
<td></td>
<td>Theory</td>
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<td></td>
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</tr>
<tr>
<td></td>
<td>Communication</td>
<td>2.369</td>
<td>.158</td>
<td>11.25</td>
<td>8.71</td>
<td></td>
<td></td>
<td>12</td>
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<tr>
<td></td>
<td>Program</td>
<td>1.281</td>
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<td></td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Evaluation</td>
<td>8.031</td>
<td>0.020</td>
<td>19.00</td>
<td>11.71</td>
<td></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

*Departments underlined by a common segment of a line did not differ significantly but did differ significantly from those underlined by another segment of the line.
Discussion

According to the theory, if establishment of an external change agent, agreement to curriculum implementation, legitimization of directive contact change to gatekeepers, curriculum involvement and selection of influentials, promote the implementation of the innovation, then departments participating in the pilot study should have yielded higher scores than non-pilot departments in Hospital A. However, it was found that there were no significant differences among the departments when one-way analyses of variance of Assessment, Treatment, Theory and Evaluation scores classified on the basis of departments were performed. These results would indicate that the pilot study had no intervention effect. Where significant differences on Communication scores were found to exist, the non-pilot Department 2 scores were found to be not significantly different than scores obtained by the pilot Departments 3 and 4. This result tended to confirm the lack of an intervention effect of the pilot study. However, the Communication scores for the non-pilot Department 1 were significantly lower than Departments 2, 3 and 4. In part this result tended to support the proposition of a pilot effect. Where significant differences on Program scores were found to exist, the non-pilot Department 2 and the pilot Department 4 scored significantly higher than the pilot Department 3 and non-pilot Department 1: no significant differences existed between Departments 3 and 1 nor between Departments 2 and 4. These results tended to confirm the conclusion that the pilot study had no intervention effect. However, it had been assumed that (1) the implementation of the new curriculum would yield higher scores, and (2) the departments were equal to begin with. The year-to-year increase in scores, as reported on page 106, tended to support the
first assumption. However, the fact that in 1978 Department 2 scored highest in five out of six subcategories and Department 3 scored lowest on three of six would tend to negate the validity of the assumption of equality of departments before the interventions. Therefore, either there was no intervention effect or the departments were unequal before the study.

The results of one-way analyses of variance for Hospital B showed that there were no significant differences among the departmental scores on Assessment, Treatment, Theory, Communication, Program and Evaluation. This finding would suggest that all departments in Hospital B were equal to begin with. However, in Hospital C there were significant differences in Evaluation scores and with Department 1 scored higher than Department 2. Therefore, for Hospital C there was reason to question the assumption of initial equality of the departments. These results must be tentatively held due to the small n's in cells for each of the two hospitals.

Therefore, given these results, there was little evidence to support the hypothesis that involvement of Departments 3 and 4 in Hospital A during the pilot phase had a positive and differential effect on scores when compared to the non-involved Departments 1 and 2. These results beg the question of an intervention effect by 1978 treatment since it was constant across all departments.

Hypothesis Two

The theoretical basis for the second hypothesis was the modern-traditional dichotomy where it was suggested that a modern organization with norms for change could foster a more primary responsibility toward
student instruction than a traditional organization. Similarly, it was suggested that collaborative design of curriculum, involvement of oper­ants and administrative direction by the external change agent would promote implementation.

Procedures and Results

Since Hospital A received the 1978 intervention which consisted of five components (administrative agreement, therapist agreement, partial curriculum involvement, receipt of curriculum and in-service from the external change agent), Hospital B received three components (admin­istrative agreement, receipt of curriculum and in-service from the external change agent), and Hospital C received two components (adminis­trative agreement and receipt of the curriculum), it was hypothesized that when classified on the basis of hospitals, student assessment scores for Hospital A will be significantly higher than those for Hospital B and C, and those for Hospital B will be significantly higher than those for Hospital C.

In order to test this hypothesis, one-way analyses of variance of student scores classified on the basis of hospitals were performed. As shown in Table 7, one-way analyses yielded no significant differences among student subcategory scores between Hospitals A and B but both Hospital A and B scores were significantly higher than Hospital C scores. Therefore, the research hypothesis was not entirely supported by this analysis: it must be concluded that although the data do not support the hypothesis that Hospital A would be significantly higher than Hospital B it did support the portion of the hypothesis that Hospital B would be significantly higher than Hospital C.
TABLE 7

RESULTS OF ONE-WAY ANALYSES OF VARIANCE OF 1978 SCORES
ON ECPQ SUBCATEGORIES CLASSIFIED
ON THE BASIS OF HOSPITALS

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>107.118</td>
<td>&lt;.001</td>
<td>43.12</td>
<td>40.93</td>
<td>19.55</td>
<td>AB C</td>
</tr>
<tr>
<td>Treatment</td>
<td>58.644</td>
<td>&lt;.001</td>
<td>60.34</td>
<td>58.67</td>
<td>35.91</td>
<td>AB C</td>
</tr>
<tr>
<td>Theory</td>
<td>51.783</td>
<td>&lt;.001</td>
<td>40.70</td>
<td>39.33</td>
<td>23.36</td>
<td>AB C</td>
</tr>
<tr>
<td>Communication</td>
<td>56.933</td>
<td>&lt;.001</td>
<td>20.22</td>
<td>18.67</td>
<td>9.64</td>
<td>AB C</td>
</tr>
<tr>
<td>Program</td>
<td>64.180</td>
<td>&lt;.001</td>
<td>24.46</td>
<td>22.73</td>
<td>10.64</td>
<td>AB C</td>
</tr>
<tr>
<td>Evaluation</td>
<td>41.231</td>
<td>&lt;.001</td>
<td>26.28</td>
<td>26.20</td>
<td>14.36</td>
<td>AB C</td>
</tr>
</tbody>
</table>

Discussion

If, theoretically, student preferences were such that scores for departments and hospitals were the same to begin with but they received different intervention components, then it would be expected that scores for Hospital A would be higher than for Hospital B which in turn would be higher than scores for Hospital C. However, if the modern-traditional dichotomy were to be considered, it would support the hypothesis that scores for Hospital A would be higher than scores for Hospitals B and C. This would suggest both treatment and organizational effects. The assumption would therefore be: 1) that if the hospitals were equal to begin with any differences in scores would be due to treatment effect, or 2) if scores were not equal the differences may be attributed to the fact that Hospital A was modern while Hospitals B and C were traditional. However, it was found that there were no significant differences between scores for Hospital A and B but both in turn were significantly higher than Hospital C. These results would suggest that the hospitals were unequal to begin with. These results could not be fully explained by the
modern-traditional dichotomy. Since scores for Hospital A equalled scores for Hospital B and since Hospital A had intervention of five components and Hospital B had intervention of three components, then the intervention components of therapist agreement and curriculum involvement missing from Hospital B had no differential effect. But, since scores for Hospital C were significantly lower than those for Hospital A and B, the explaining element may be the in-service component delivered by the external change agent. Therefore, it could be tentatively concluded that external in-service was the intervention accounting for differences among hospitals.

The results of the higher scores for Hospitals A and B than for Hospital C could have occurred if Hospitals A and B adopted the innovation and Hospital C did not. In other words, the variables may not be continuous but have a threshold value. A review of student comments would lead one to believe that the situation was such that Hospitals A and B adopted and Hospital C did not adopt the innovation. Thus if the implementation strategy led to differential adoption then scores for adoptors would be higher than for non-adoptors. In support of the above proposition examples representative of student comments to Items 56 and 57 from the 1978 ECPQ follow. The comments chosen to be included were ones that were considered typical in tone and content.

Student Comments from Hospital A

Department 1 - "Good teaching sessions" and "The clinical teaching."

Department 2 - "Teaching Program was excellent and I benifitted from it." and "The supervising therapists' organized teaching sessions."
Department 3 - "Planned group teaching sessions with both theory and patient demonstrations."

Department 4 - "Very good teaching program." and "Excellent daily teaching sessions."

The above and other related student comments suggest that student perceptions were such that there was sufficient evidence of program implementation to indicate that Departments 1, 2, 3 and 4 in Hospital A could be classified as adoptors.

Student Comments from Hospital B

Department 1 - "My opportunity to learn the proper assessment techniques and the variety of different patients." and "The clinical supervision with both assessments and treatment."

Department 2 - "The one-to-oneness with the therapist was very good. We talked about a lot of things that made me see the patient as a whole."

Department 3 - "Instruction was excellent. Was given room for my own ideas."

The above comments could be interpreted to indicate that Departments 1, 2 and 3 in Hospital B could be classified as having adopted the innovation.

Student Comments from Hospital C

Department 1 - "I think there has to be more teaching done." and "More teaching." and "A pre-set schedule of teaching sessions daily would be helpful."

Department 2 - "More teaching sessions." "More instructions and supervision." and "There should have been more supervision with some
type of formal teaching or instruction."

These comments would indicate that students' perceptions were such that there was insufficient evidence of program implementation to indicate that either Department 1 or 2 in Hospital C had adopted the innovation. Therefore, they could be classified as a non-adopter.

Again, the explanation may lie in the differences in implementation strategy by the external change agent or modernity of the hospitals. Any conclusions must be tempered with caution since there were no baseline data to determine whether or not adoption had occurred.

**Interventions 1979**

**Hypothesis Three**

It was posited in the theoretical arguments that decentralization of power through collaborative participation in curriculum development based on needs identification would promote selective adoption because of the operants' perceptions of curriculum ownership. Similarly, establishment of an internal change agent as a client oriented helper during the implementation process would secure high identification of the operants with the external organization and thereby promote the implementation.

**Procedures and Results**

Since all departments within Hospitals A, B and C, with the exception of Department 2 at Hospital C, received the same five interventions (administrative agreement, therapist agreement, involvement in curriculum development, receipt of curriculum and in-service from the internal change agent), it was therefore hypothesized that when classified...
on the basis of departments, there will be no significant differences in student assessment scores among departments except for Department 2 at Hospital C with Department 2C being significantly lower. The results related to this hypothesis have been described below.

In order to test this hypothesis, one-way analyses of variance of student scores classified on the basis of departments within hospitals were performed. As shown in Table 8, in Hospital A one-way analyses of variance yielded no significant differences among student Assessment, Treatment, Communication, Program and Evaluation scores when classified on the basis of departments. However, significant differences were found among Theory scores: scores for Department 1 were significantly higher than scores for Department 3. Department 1 ranked first on six of six categories. Therefore, with the exception of Theory in Hospital A where Department 1 scores were significantly higher than Department 3, those portions of the hypothesis pertaining to Hospital A were substantiated.

Further, as shown in Table 8, no significant differences among the scores when classified on the basis of departments in Hospital B were found. Therefore, the portion of the hypothesis pertaining to Hospital B was accepted.

Similarly, in Hospital C, no significant differences were found among the student Treatment, Theory, Communication and Evaluation scores when classified by departments. However, significant differences were found on Assessment and Program scores: the Scheffé test indicated that Assessment and Program scores for Department 1 were significantly higher than for Department 2. The mean scores ranked Department 1 first on six of six subcategories therefore, with the exception of Assessment and Program in Hospital C where Department 1 scores were significantly higher
TABLE 8

RESULTS OF ONE-WAY ANALYSES OF VARIANCE OF 1979 SCORES ON ECPQ
SUBCATEGORIES CLASSIFIED ON THE BASIS OF
DEPARTMENTS WITHIN HOSPITALS

<table>
<thead>
<tr>
<th>Hospital</th>
<th>Subcategory</th>
<th>F</th>
<th>P</th>
<th>Dept. 1</th>
<th>Dept. 2</th>
<th>Dept. 3</th>
<th>Dept. 4</th>
<th>Scheffé</th>
</tr>
</thead>
<tbody>
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<td>A</td>
<td>Assessment</td>
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<td>46.80</td>
<td>44.70</td>
<td>43.57</td>
<td>42.72</td>
<td>1234</td>
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<tr>
<td></td>
<td>Treatment</td>
<td>1.101</td>
<td>0.359</td>
<td>63.70</td>
<td>60.70</td>
<td>59.79</td>
<td>60.06</td>
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<tr>
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<td>Theory</td>
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<td>0.016</td>
<td>44.70</td>
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<td>38.64</td>
<td>40.56</td>
<td>1243</td>
</tr>
<tr>
<td></td>
<td>Communication</td>
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<td>0.346</td>
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<td>22.29</td>
<td>21.72</td>
<td>1342</td>
</tr>
<tr>
<td></td>
<td>Program</td>
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<td>0.677</td>
<td>26.50</td>
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<td>25.64</td>
<td>25.28</td>
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<td>Evaluation</td>
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<td>0.974</td>
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<td>27.50</td>
<td>27.86</td>
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<td>0.508</td>
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<td>43.00</td>
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<td>Treatment</td>
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<td>0.959</td>
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<td>60.00</td>
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<td></td>
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<td>27.50</td>
<td>27.75</td>
<td></td>
<td>312</td>
</tr>
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<td>C</td>
<td>Assessment</td>
<td>10.075</td>
<td>0.019</td>
<td>30.25</td>
<td>19.00</td>
<td></td>
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<td>12</td>
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<td>39.50</td>
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<td>9.00</td>
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<td>12</td>
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<td>6.250</td>
<td>0.047</td>
<td>14.00</td>
<td>9.00</td>
<td></td>
<td></td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>Evaluation</td>
<td>1.302</td>
<td>0.297</td>
<td>21.25</td>
<td>17.25</td>
<td></td>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>
than Department 2, those portions of the hypothesis pertaining to Department 2C were rejected.

Discussion

The findings in Hospital A, derived from the analyses of the 1979 data, tended to confirm the conclusions reached as a result of the analyses of the 1978 data: the pilot study had no intervention or cumulative effect and involvement in external in-service had an intervention effect. In both years, a non-pilot department had the highest scores: Department 2 in 1978 and Department 1 in 1979. These results tended to confirm the lack of the pilot or cumulative effect. In 1979, Department 2 and 4 showed a decrease relative to Departments 1 and 3. A possible explanation for this change in order would be the loss of the senior therapists in each of these departments. The teaching programs were carried out by the uninitiated who may have had little identity or ownership with the program while therapists from Departments 1 and 3 were initiated and probably had established ownership. Given that in 1978 it was found that partial curriculum involvement and therapist agreement had no differential effects and that the differences found could be attributed to in-service involvement and given that in 1979 the senior therapists in Departments 2 and 4 had not received the external in-service and their departments had shown a decline relative to Departments 1 and 3 the significance of external in-service tended to be confirmed.

The one-way analyses of variance for Hospital B showed that there were no significant differences among department scores. This was expected since they received the same treatment and it was assumed that there were no initial differences. Further, since there were no significant differences among departments and the ranking of departments
following intervention in 1978 and 1979 remained random, these findings would tend to support the proposition that any intervention effect would be due to internal in-service.

In 1978 it was found that in Hospital C the departments were unequal to begin with since Department 1 was consistently ranked first over Department 2. These results were confirmed by 1979 findings. However, in 1978 there were significant differences in subcategory Evaluation scores while the 1979 analyses showed significant differences in subcategories Assessment and Program. These findings confirm the earlier assumption that in-service was the intervention effect accounting for the differences.

Similarly, in Hospital A Communication and Program showed significant differences in 1978 while in 1979 significant differences were found in Communication scores.

Hypothesis Four

As outlined in the theoretical arguments, the fourth hypothesis was derived from the modern-traditional dichotomy and the significance of organizational location of the change agent. It was suggested that there be an internal and external change agent serving different functions.

Procedures and Results

Since all departments in 1979 were to receive the same treatment, including in-service from an internal change agent, it was hypothesized that when classified on the basis of hospitals, there will be no significant differences in student assessment scores among hospitals.

In order to test this hypothesis, one-way analyses of variance
of student scores classified on the basis of hospitals were performed.

**TABLE 9**

RESULTS OF ONE-WAY ANALYSES OF VARIANCE OF 1979 SCORES
ON ECPQ SUBCATEGORIES CLASSIFIED
ON THE BASIS OF HOSPITALS

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Assessment</td>
<td>54.470</td>
<td>&lt;.001</td>
<td>44.12</td>
<td>41.50</td>
<td>24.63</td>
<td>AB C</td>
</tr>
<tr>
<td>Treatment</td>
<td>20.552</td>
<td>&lt;.001</td>
<td>60.81</td>
<td>60.17</td>
<td>45.38</td>
<td>AB C</td>
</tr>
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<td>Theory</td>
<td>21.783</td>
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<td>40.88</td>
<td>39.67</td>
<td>28.75</td>
<td>AB C</td>
</tr>
<tr>
<td>Communication</td>
<td>52.278</td>
<td>&lt;.001</td>
<td>21.85</td>
<td>19.00</td>
<td>10.50</td>
<td>ABC</td>
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<td>Program</td>
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<td>&lt;.001</td>
<td>25.58</td>
<td>21.67</td>
<td>11.50</td>
<td>ABC</td>
</tr>
<tr>
<td>Evaluation</td>
<td>16.551</td>
<td>&lt;.001</td>
<td>27.69</td>
<td>21.67</td>
<td>19.25</td>
<td>AB C</td>
</tr>
</tbody>
</table>

As shown in Table 9, Hospitals A and B scored significantly higher than Hospital C on all subcategories and Hospital A scores significantly higher than Hospital B on Communication and Program subcategories. Therefore, the hypothesis was rejected.

**Discussion**

If hospitals were similar to begin with and received similar treatment then the 1979 results should have yielded similar scores among the hospitals. However, the 1978 results indicated that the assumption of initial equality among the hospitals should be rejected: Hospitals A and B yielded scores higher than Hospital C. Since Hospital C, in 1978, had not received external in-service, one possible explanation of the results was the difference in treatment. On the basis of the literature another possible but not necessarily independent explanation could have been the effects inherent in the modern-traditional dichotomy with an adoptor-non-adoptor phenomena. Since similar results were obtained in
1979 and Hospital C had not received the external in-service intervention the same possible explanations hold. However, significant differences in subcategories Communication and Program found in 1979 were not present in 1978. If the assumption was made that internal in-service was the same for all hospitals then no change among the subcategories would have been expected. The differences supported the proposition that the internal change agent had a differential effect among hospitals with the internal change agent being more effective within her own organization. In addition to supporting the adoptor-non-adoptor proposition student comments tended to show the internal change agent focused on Communication and Program in Hospital A.

Student Comments from Hospital A

Department 1 - "I found the small group teaching effective." and "The small group sessions were very beneficial."

Department 2 - "There was a good balance between supervised instruction and the ability to do things independently, where I found learning by myself as well as formal instruction beneficial."

Department 3 - "The teaching sessions that occurred three times a week or so were very helpful. They provided information and also encouraged the student to do her own thinking and questioning."

Department 4 - "The clinical teaching went along with patient care excellently." and "The teaching program was related to the problems of particular needs of the students. The small group teaching was excellent."

These comments would indicate that Departments 1, 2, 3 and 4 in Hospital A could be classified as adoptors.
Student Comments from Hospital B

Department 1 - "One-to-one contact with therapist and "working with therapist one-to-one."

Department 2 - "There was no actual teaching sessions because my therapist was constantly teaching and reinforcing treatment techniques."

Department 3 - "The interaction between clinical experience and instruction of techniques, aids, and assessment procedures. My therapist was both interested and informative about this area and I developed enough interest to do outside reading."

The above comments would indicate that Departments 1, 2 and 3 in Hospital B could be classified as adopters. However, since students' comments did not make direct reference to teaching programs the assumption would be that departments in Hospital B were partial adopters.

Student Comments from Hospital C

Department 1 - "The therapists were helpful and willing to discuss anything I asked them but didn't have anything set up." and "More instruction in assessment techniques is needed."

Department 2 - "As it stands the program here is totally lacking in teaching."

These comments would indicate that there was insufficient evidence of program implementation to indicate that either Department 1 or 2 in Hospital C had adopted the innovation; therefore they would be classified as non-adopters.

The evidence from student comments suggested that Hospital A could be categorized as adopters with Hospital B categorized as partial adopters and Hospital C as non-adopters. Given the adoptor-non-adoptor
proposition then scores for Hospital A should have been greater than Hospital C. The results confirmed this proposition. If the implementation strategy of the internal change agent was the same for all hospitals, then the differential effect of an internal change agent considered to be an external change agent by Hospitals B and C would account for the adopter-partial adopter-non-adoption results. This proposition can only be tested by inspecting the changing scores from 1978 to 1979.

Other Analyses

As indicated on page 90, the analyses and interpretation of the 1978 and 1979 findings were prefaced on the assumption that the implementation of the new curricula would yield higher scores. In order to test this assumption two-way analyses of subcategory scores and confidence item scores classified on the basis of year and hospital were executed. As shown in Table 10, while subcategory scores for 1979 were ranked higher than for 1978 across the hospitals, Communication and Evaluation scores were significantly higher. However, the results of the two-way analyses of variance of the confidence items 11 and 28 as shown in Table 11 showed that the 1979 mean scores of 4.21 on item 11 and 4.18 on item 28 were significantly higher than the 1978 scores with means of 3.66 and 3.51, respectively. For item 11, a significant interaction effect between hospital and year was noted. While Hospitals A and C showed an increase in the mean score, Hospital B mean score was unchanged. Similarly, a significant interaction effect between hospital and subcategory Treatment scores were found with again Hospitals A and C showing increases and the mean for Hospital B remaining stable. Therefore, there was some evidence, albeit not strong, to support the assumption that the implementation of
the new curricula would yield higher scores. However, the interaction effects would suggest that there were implementation dynamics leading to differential results.

TABLE 10
RESULTS OF TWO-WAY ANALYSES OF VARIANCE OF SUBCATEGORY SCORES CLASSIFIED ON BASIS OF YEARS AND HOSPITALS

<table>
<thead>
<tr>
<th>Subcategory</th>
<th>HOSPITAL</th>
<th>YEAR</th>
<th>INTERACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>P</td>
<td>Means</td>
</tr>
<tr>
<td>Assessment</td>
<td>159.54</td>
<td>&lt;.001</td>
<td>A B C</td>
</tr>
<tr>
<td>Treatment</td>
<td>78.02</td>
<td>&lt;.001</td>
<td>A B C</td>
</tr>
<tr>
<td>Theory</td>
<td>73.106</td>
<td>&lt;.001</td>
<td>A B C</td>
</tr>
<tr>
<td>Communication</td>
<td>108.668</td>
<td>&lt;.001</td>
<td>A B C</td>
</tr>
<tr>
<td>Program</td>
<td>122.570</td>
<td>&lt;.001</td>
<td>A B C</td>
</tr>
<tr>
<td>Evaluation</td>
<td>56.568</td>
<td>&lt;.001</td>
<td>A B C</td>
</tr>
</tbody>
</table>

TABLE 11
RESULTS OF TWO-WAY ANALYSES OF VARIANCE OF ECPQ SCORES ON ITEMS 11 AND 28 CLASSIFIED ON BASIS OF YEAR AND HOSPITAL

<table>
<thead>
<tr>
<th>ITEM</th>
<th>HOSPITAL</th>
<th>YEAR</th>
<th>INTERACTION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>F</td>
<td>P</td>
<td>Mean</td>
</tr>
<tr>
<td>11</td>
<td>110.543</td>
<td>&lt;.001</td>
<td>A B C</td>
</tr>
<tr>
<td>12</td>
<td>41.823</td>
<td>&lt;.001</td>
<td>A B C</td>
</tr>
</tbody>
</table>

Inspection of Table 12 showed that in Hospital A, Departments 1 and 3 experienced year to year increases while Departments 2 and 4 showed little or no increase, if not a decrease, on the subcategory scores. As noted previously, since senior therapists for Departments 1 and 3
experienced both years of implementation and senior therapists for
Departments 2 and 4 were replaced for the second year of implementation,
the differences in scores may be explained as a return to the first
phase of implementation in Departments 2 and 4 and the incremental
effects of internal in-service in Departments 1 and 3.

**TABLE 12**

RESULTS OF ONE-WAY ANALYSES OF VARIANCE OF ECPQ SUBCATEGORY
SCORES CLASSIFIED ON BASIS OF YEAR BY DEPARTMENT

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>1</td>
<td>Assessment</td>
<td>16.191</td>
<td>.001</td>
<td>40.63</td>
<td>46.80</td>
<td>2 1</td>
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<tr>
<td></td>
<td></td>
<td>Treatment</td>
<td>2.222</td>
<td>.155</td>
<td>60.125</td>
<td>63.70</td>
<td>2 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Theory</td>
<td>3.230</td>
<td>.091</td>
<td>41.75</td>
<td>44.70</td>
<td>2 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication</td>
<td>22.120 &lt;.001</td>
<td>16.13</td>
<td>22.70</td>
<td>2 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Program</td>
<td>13.500</td>
<td>.002</td>
<td>19.75</td>
<td>26.50</td>
<td>2 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation</td>
<td>0.486</td>
<td>.496</td>
<td>26.75</td>
<td>28.10</td>
<td>2 1</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>Assessment</td>
<td>0.023</td>
<td>.881</td>
<td>45.00</td>
<td>44.70</td>
<td>1 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Treatment</td>
<td>0.172</td>
<td>.683</td>
<td>59.37</td>
<td>60.70</td>
<td>2 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Theory</td>
<td>0.356</td>
<td>.559</td>
<td>42.50</td>
<td>40.8</td>
<td>1 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication</td>
<td>0.442</td>
<td>.516</td>
<td>21.50</td>
<td>20.60</td>
<td>1 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Program</td>
<td>1.557</td>
<td>.230</td>
<td>27.00</td>
<td>25.10</td>
<td>1 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation</td>
<td>0.047</td>
<td>.831</td>
<td>27.88</td>
<td>27.50</td>
<td>1 2</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Assessment</td>
<td>1.580</td>
<td>.220</td>
<td>41.20</td>
<td>43.57</td>
<td>2 1</td>
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<td>.782</td>
<td>59.07</td>
<td>59.79</td>
<td>2 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Theory</td>
<td>0.128</td>
<td>.723</td>
<td>38.07</td>
<td>38.64</td>
<td>2 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication</td>
<td>0.848</td>
<td>.365</td>
<td>21.47</td>
<td>22.29</td>
<td>2 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Program</td>
<td>5.928</td>
<td>.022</td>
<td>22.93</td>
<td>25.64</td>
<td>2 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation</td>
<td>2.166</td>
<td>.153</td>
<td>25.67</td>
<td>27.86</td>
<td>2 1</td>
</tr>
<tr>
<td>4</td>
<td></td>
<td>Assessment</td>
<td>2.359</td>
<td>.134</td>
<td>44.90</td>
<td>42.72</td>
<td>1 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Treatment</td>
<td>0.909</td>
<td>.347</td>
<td>61.84</td>
<td>60.05</td>
<td>1 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Theory</td>
<td>0.684</td>
<td>.414</td>
<td>41.58</td>
<td>40.55</td>
<td>1 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Communication</td>
<td>2.763</td>
<td>.105</td>
<td>20.42</td>
<td>21.72</td>
<td>2 1</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Program</td>
<td>3.256</td>
<td>.080</td>
<td>26.58</td>
<td>25.28</td>
<td>1 2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation</td>
<td>1.806</td>
<td>.188</td>
<td>25.90</td>
<td>27.45</td>
<td>2 1</td>
</tr>
</tbody>
</table>
In Hospital B, inspection of Table 12 showed no significant differences between subcategory means for 1978 and 1979 within the departments and the probability of the ordering of the means was well within what would be expected by chance. The 1978 and 1979 subcategory scores within departments were similar: the intervention of the internal

![](https://example.com/image.png)
change agent yielded no significant differences in scores. A possible explanation may be that Hospital B did not perceive the internal change agent as being internal to that organization.

In Hospital C, inspection of Table 12 showed that while there were no significant differences between 1978 and 1979 subcategory scores, the probability of obtaining 1979 means higher than 1978 means in eleven of the twelve cases would be less than .001. This would suggest that the interventions led to an improvement at Hospital C. Since the 1979 intervention was the introduction of the internal change agent, the changes in score must be due to that intervention. However, since the results obtained under the separate 1978 and 1979 findings suggested the existence of non-adoption of the innovation and the above results demonstrated an intervention effect, then the non-adoption explanation must be rejected and the explanation that Hospital C was a laggard, as described in the modern-traditional dichotomy, must be accepted. If this explanation is valid, then the internal change agent may have served the function of the external change agent under phase one in the other hospitals.

Inspection of the hospital means of Tables 10 and 11 merely confirmed the hospital differences reported under the separate 1978 and 1979 analyses.

Inspection and analyses of the placement data yielded no evidence to suggest that there was a placement effect.
CHAPTER V
SUMMARY AND CONCLUSIONS

The purpose of the study was to describe and assess the design and implementation of a modified normative re-educative strategy and an intersystem model for curricular change in structured clinical experiences offered to second year students enrolled in the School of Physical Therapy, University of Saskatchewan. The main question addressed was, "How do you effect a desired change in external autonomous organizations?"

In order to address this question, a modified normative re-educative and intersystem model was created. This model suggested that with gatekeeper agreement, operant agreement, participation in curriculum development, distribution of curriculum and change agent in-service, implementation of an innovation would occur.

The case study consisted of the implementation of a curricular innovation through procedures outlined in the study's model and the recording of student perceptions on the Evaluation of Clinical Practice questionnaire after each intervention. The model was applied in 1978 and 1979.

**Findings and Conclusions**

**Hypothesis One**

Since Departments 3 and 4 of Hospital A were involved in the pilot study and Department 1 and 2 were not involved but all four departments received the same 1978 intervention which consisted of five components
(administrative agreement, therapist agreement, partial curriculum involvement, receipt of curriculum and in-service from the external change agent) and since Departments 1, 2 and 3 within Hospital B received the same intervention which consisted of three components (administrative agreement, receipt of curriculum and external in-service) while Departments 1 and 2 of Hospital C each received the same interventions which consisted of two components (administrative agreement and receipt of curriculum) it was hypothesized that when classified on the basis of departments within hospitals, there will be no significant differences in student assessment scores except when Departments 3 and 4 are compared with Departments 1 and 2 in Hospital A.

The results of one-way analyses of variance for Hospital A yielded no significant differences among student Assessment, Treatment, Theory and Evaluation scores when classified on the basis of departments. Significant differences were found among Communication and Program scores: the Scheffé test indicated that Communication scores for Departments 2, 3 and 4 were significantly higher than for Department 1; and, Program scores for Departments 2 and 4 were significantly higher than for Departments 3 and 1. Since Departments 3 and 4 were not significantly higher than Departments 1 and 2 it was concluded that the portion of the hypothesis dealing with Hospital A was rejected.

No significant differences among the scores when classified on the basis of departments in Hospital B were found. The conclusion was that the portion of the hypothesis dealing with Hospital B was accepted.

In Hospital C no significant differences were found among the scores on Assessment, Treatment, Theory, Communication and Program. Significant differences were found on Evaluation. It was concluded that
with the exception of Evaluation in Hospital C where Department 1 scores were significantly higher than Department 2 those portions of the hypothesis relating to Hospital C were accepted.

**Hypothesis Two**

Since Hospital A received the 1978 intervention which consisted of five components (administrative agreement, therapist agreement, partial curriculum involvement, receipt of curriculum and external in-service) and Hospital B received three components (administrative agreement, receipt of curriculum and external in-service), while Hospital C received two components (administrative agreement and receipt of curriculum) it was hypothesized that when classified on the basis of hospitals, student assessment scores for Hospital A will be significantly higher than those for Hospital B and C, and those for Hospital B will be significantly higher than those for Hospital C.

The results of one-way analyses of variance yielded no significant differences among student subcategory scores between Hospitals A and B but both Hospital A and B scores were significantly higher than Hospital C scores. It was concluded that the research hypothesis was not entirely supported by the analysis: although the data did not support the hypothesis that Hospital A would be significantly higher than Hospital B, it did support the portion of the hypothesis that Hospital B would be significantly higher than Hospital C.

**Hypothesis Three**

Since all departments within Hospital A, B and C, with the exception of Department 2 at Hospital C, received the same five 1979 interventions (administrative agreement, therapist agreement, involvement
in curriculum development, receipt of curriculum and internal in-service), it was hypothesized that when classified on the basis of departments, there will be no significant differences in student assessment scores among departments except for Department 2 at Hospital C with Department 2C being significantly lower.

The results of one-way analyses of variance of student scores classified on the basis of departments within hospitals yielded no significant differences in Hospital A among student Assessment, Treatment, Communication, Program and Evaluation scores. Significant differences were found among Theory scores: scores for Department 1 were significantly higher than scores for Department 3. Department 1 ranked first on six of six subcategories. It was concluded that with the exception of Theory in Hospital A where Department 1 scores were significantly higher than Department 3, those portions of the hypothesis pertaining to Hospital A were accepted.

No significant differences among the scores when classified on the basis of departments in Hospital B were found. It was concluded that the portion of the hypothesis pertaining to Hospital B was accepted.

In Hospital C no significant differences were found among student Treatment, Theory, Communication and Evaluation scores when classified by departments. Significant differences were found on Assessment and Program scores: the Scheffé test indicated that Assessment and Program scores for Department 1 were significantly higher than for Department 2. The mean scores ranked Department 1 first on six of six subcategories. It was concluded that with the exception of Assessment and Program in Hospital C where Department 1 scores were significantly higher than Department 2, the portions of the hypothesis pertaining to Department 2C
were rejected.

Hypothesis Four

Since all departments in 1979 were to receive the same treatment including internal in-service, it was hypothesized that when classified on the basis of hospitals, there will be no significant differences in student assessment scores among hospitals.

The results of one-way analyses of variance showed that Hospitals A and B scored significantly higher than Hospital C on all subcategories and Hospital A scored significantly higher than Hospital B on Communication and Program subcategories. It was concluded that since significant differences among the hospitals were found the hypothesis was rejected.

Discussion

The model suggested that if the five interventions of (1) administrative agreement, (2) therapist agreement, (3) curriculum involvement, (4) distribution of curriculum and (5) in-service training by a change agent, then implementation of an innovation would occur. Below the results of each of the intervention findings has been presented separately.

Administrative Agreement

Since this intervention component remained constant throughout the study and was not tested separately there was no evidence to support or reject the contention that administrative agreement should remain in the model.
Therapist Agreement

Since no significant differences between hospitals nor among departments could be attributed to the inclusion or exclusion of the intervention component of "therapist agreement," this component could be removed from the model.

Curriculum Development

Since no significant differences between hospitals nor among departments could be attributed to the inclusion or exclusion of the intervention component of "curriculum development" this component could be removed from the model. However, since the curriculum development component of this study was concerned with the development among hospitals, it could be described as an external or interagency curriculum design and development. Since no inhouse or internal curriculum development was encouraged nor tested, then perhaps the involvement in curriculum development was too remote to have the effects found in the literature. Perhaps the model should be refined to include external representative involvement for initial legitimization among the operants at the adoption phase and in order to achieve the aforementioned effects internal involvement by the operants may be necessary at the adaption phase. Activities of the operants subsequent to the study would support this modified definition.

Receipt of Distributed Curriculum

Since this intervention component remained constant throughout the study there was no evidence from the findings to support or reject the contention that receipt of curriculum by itself would have to be retained in the model, however, common sense would say that you cannot
implement that of which you have no knowledge.

In-Service Training from a Change Agent

Since the external or internal in-service intervention component remained constant for two hospitals in 1978 and 1979 and that differences among the three hospitals could not be accounted for by curriculum development or therapist agreement interventions, it was concluded that the 1978 differences were due to external in-service intervention and the 1979 differences were due to internal in-service intervention. Furthermore, it appeared that the change agent, albeit internal or external, had a differential effect among hospitals: the internal change agent being more effective and showing incremental effects within her own organization but no significant effect in an organization apart from her own other than when perceived as serving the function of an external change agent. These differential effects of the change agents may have been related to the modernity of the organization. Organizational modernity may have accounted for the adoptor-partial-adoptor-non-adoptor results deciphered from student comments. Although the external-internal in-service intervention had been tested separately and there was sufficient evidence to support the contention that in-service training would have to remain in the model there was insufficient evidence to suggest that the in-service intervention effect would necessarily apply to the modern-traditional dichotomy or adoptor categories. Since no previous baseline data had been established for modernity or adoptor categories there was insufficient evidence to conclusively support the effects the change agent may have had on implementation.
Conclusions

While a number of conclusions have been unequivocally stated about certain findings pertaining to the present study, it must be remembered that these conclusions may be limited by a number of shortcomings commonly associated with a case study. In particular, the fact that students were asked to provide information on an attitudinal questionnaire may have led to some spurious information. Another factor, which makes generalizations somewhat hazardous, is the fact that the study was subject to all the limitations of small sample size and in some cases fell below the necessary minimum for reliable and valid statistical analysis. Further, certain assumptions must be accepted with caution since no baseline was collected before the study. With these cautions in mind, however, certain conclusions and implications may be tentatively drawn from the study.

The most obvious conclusion that could be drawn from the study's model was the internal change agent appeared to be the most crucial factor effecting implementation of an innovation, especially within her own organization. This may have been due to her accessibility to and perceptions of her own organization thereby altering her functions to take into account intrinsic anomalies. This intimate relationship, however, was not available to other autonomous organizations. They, in addition to perceiving her to be external to their organization, saw her role paralleling that of the external change agent.

Since the study's model, while compatible with the theory that the helper change agent should be client-orientated and associated with the external autonomous organization, does not make provisions for more
than one external organization. Therefore, this would imply that where such a situation exists provision must be made for a change agent within each autonomous organization with the provision that the internal change agent would continue with her overall function as a helper and a designee of the catalyst change agent.

While the study's model required participation in curriculum development and agreement from administrative gatekeepers and operants responsible for implementation, the evidence did not substantiate their direct effect on implementation. However, since there was no external organizational resistance they should not be dismissed as being unnecessary to the overall success of implementation. Therefore, these elements should remain as an integral part of the model.

**Implications for Further Research**

The present study has led to certain conclusions which have implications for further theoretical development and research.

1. It might be well to replicate certain aspects of the present study in another school of physical therapy or in a similar organizational situation in which the sample group is higher than it was in the present study.

2. Some attempt should be made to include data from and about the operants implementing the innovation.

3. An ethnographic study by a participant observer may well serve to better determine the degree to which an innovation is implemented.
Bibliography

Books


**Periodicals**


**Government, Learned Societies and Organizations**


A New Direction.  A Brief presented to the Role Review Committee by the University Hospital Board, University Hospital, Saskatoon, Saskatchewan, June, 1980.

Articles in Collections


APPENDIX A

Evaluation of Clinical Practice Questionnaire
Student Evaluation of Clinical Practice

The purpose of the following form is to determine the effectiveness of the

1. Clinical Teaching Programmes and
2. Method of Student Evaluation

in helping you meet the General Clinical Practice Objectives.

These forms are important to you as a student, to the school and to the areas where you received your clinical experience. Therefore, to be of value, the form must be filled in seriously and honestly.
Experience: please fill in blanks and circle the appropriate level
Year 2: Hospital ______ Service ______ Placement 1 2 3 4
Year 3: Hospital ______ Service ______ Placement 1 2 3 4 5 6

Using the following scale, please circle the number which most appropriately reflects your impression about the statement:

<table>
<thead>
<tr>
<th>SCALE</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td>1 2 3 4 5</td>
</tr>
</tbody>
</table>

ASSESSMENTS

1. I was oriented to chart reading and helped in determining which data to read.
   In the assessment of patients, my clinical therapist:
   1 2 3 4 5

2. discussed the approach to be used.
   1 2 3 4 5

3. discussed with me varying formats and the need for individualization.
   1 2 3 4 5

4. provided assistance in using common or unfamiliar assessment tools.
   1 2 3 4 5

From my assessment findings:
5. I was required to summarize problems.
   1 2 3 4 5

6. I was required to prioritize problems
   1 2 3 4 5

7. I was responsible for writing up and turning in a detailed assessment for most of the patients I was treating.
   1 2 3 4 5

8. My clinical therapist discussed my assessment findings with me.
   1 2 3 4 5

9. I received adequate supervision while performing assessments.
   1 2 3 4 5

10. I was given an opportunity to observe an assessment performed by my clinical therapist (either part of or an entire one).
    1 2 3 4 5

11. At the end of my placement I felt confident in performing an assessment on most patients.
    1 2 3 4 5

TREATMENT

12. I received guidance/suggestions in developing a treatment programme.
    1 2 3 4 5

13. I was given the opportunity/expected to develop a treatment programme immediately.
    1 2 3 4 5

14. I was required to follow a pre-established programme.
    1 2 3 4 5

15. I was encouraged to express my viewpoints about the treatment programme.
    1 2 3 4 5
I was questioned about

16. alternate treatment approaches.  
17. my selection of treatment.  
18. my immediate treatment goals.  
19. my long-range treatment goals.  
20. treatment progression.  
21. Treatment, handling and modality precautions were pointed out to me.  
22. I was involved in patient education programmes.  
23. I was required to develop a home programme of exercises.  
24. I was given suggestions/advice to help improve my performance in treatment of patients.  
25. I received adequate supervision in the area of treatment.  

NOTE: If your response to item 25 (Immediately above)
was 1 or 2, then respond to item 26 below. If it was 3,4 or 5, then do not respond to item 26!

26. I received too little supervision.  
27. I had a suitable variety of patients to treat on this placement.  
28. At the end of this placement I felt confident in giving a basic treatment to most patients.  

THEORY

I was questioned about theory of conditions including:

29. anatomy  
30. physiology  
31. pathology  
32. kinesiology  
33. etiology  
34. therapeutic techniques  
35. modalities  
36. I had sufficient opportunities to discuss the indications for selection of techniques/modalities.  
37. I had sufficient opportunities to discuss the relationship between medical and physical therapy management.  
38. I was given the opportunity to observe medical, surgical and other patient centered treatment.  

COMMUNICATIONS

39. I was encouraged to discuss my concerns (personal, related to patient care or otherwise) with my clinical therapist.  
40. I felt that my clinical therapist was available for discussion.  
41. I was introduced to other members of the health care team.  
42. I was encouraged to attend rounds.  
43. I was allowed to participate at rounds.  

TEACHING PROGRAMME

44. I was given a copy of the teaching programme for this unit.  
45. The content of the teaching programme was followed.
46. The content of the teaching programme was relevant to my needs. 1 2 3 4 5
47. I felt that there was a balance between clinical teaching and my opportunities to treat patients. 1 2 3 4 5

NOTE: If your response to item 47 (Immediately above) was 1 or 2, then respond to item 48. If it was 3, 4, or 5, then do not respond to item 47!

48. There was too much time devoted to clinical "teaching" at the expense of clinical "experience". 1 2 3 4 5
49. I was given one-to-one bedside teaching/instruction. 1 2 3 4 5

How often did you attend small group teaching related to this unit? (Please check one).

_____ daily
_____ two times or more per week
_____ once per week
_____ once every two weeks
_____ never

EVALUATION

How often did you receive feedback? (Please check one).

_____ daily
_____ once a week
_____ mid-term evaluation only
_____ final evaluation only

50. Feedback was specific enough so that I could learn from it. 1 2 3 4 5
51. I felt that the final evaluation was a fair measure of my level of achievement. 1 2 3 4 5
52. I was encouraged to self evaluate. 1 2 3 4 5
53. I referred to the "Clinical Practice Objectives" as a guide to my learning and evaluation. 1 2 3 4 5
54. I found the present method of evaluation in this placement to be of value to me. 1 2 3 4 5
55. I felt that the grading of satisfactory or unsatisfactory was helpful to me. 1 2 3 4 5
56. What did you feel was most effective about this unit of instruction?

57. What would you recommend to improve effectiveness? We would be particularly interested in your comments about things above to which you reacted negatively. Please be constructive in your answers.
APPENDIX B

General Clinical Practice Objectives
SECTION I PROFESSIONAL ATTITUDE OBJECTIVES

The following attributes should mature and be encouraged during the two years of clinical practice.

1. RESPONSIBILITY - does the student:

   1.1 accept consequences for actions?
   1.2 utilize clinical time to best advantage?
   1.3 recognize limitations and seek advice?
   1.4 make alternate arrangements if unable to finish caseload?
   1.5 report significant unusual incidents, patient concerns and changes?
   1.6 react sensibly to constructive criticism, accept it as a learning tool and take measures to correct problems?

2. JUDGEMENT - does the student:

   2.1 choose comments and react sensibly to situations, patients, staff and peers?
   2.2 dress in professional attire suitable to the clinical setting?

3. INDEPENDENCE AND INITIATIVE - does the student:

   3.1 adjust schedule and treatment according to time restrictions?
   3.2 make decisions and suggestions regarding treatments?
   3.3 express thoughtful viewpoints?
   3.4 look for solutions utilizing reading and other resources?
   3.5 prepare treatment area and clean up following treatment?

4. CONFIDENCE - does the student:

   4.1 speak up at rounds?
   4.2 show reluctance to handle the patient and apply the treatment?
   4.3 show reluctance to treat patients with major physical and emotional disabilities?

5. CARING ATTITUDE - does the student:

   5.1 respond to immediate patient needs with best effort?
   5.2 respect the individual and not show distaste in uncomfortable situations?
   5.3 listen to and comfort patients?
   5.4 convey realistic optimism to patient and family?
6. ADAPTABLE - does the student:

6.1 function in a stable manner regardless of the physical environment without showing extended fear or a distasteful reaction?
SECTION II  APPLIED THEORY OBJECTIVES

At the completion of second year, students will be expected to carry out the following under partial supervision. At the completion of third year, complete independence will be expected.

1. ASSESSMENT

Given a patient and a complete medical chart the student will be able to:

1.1 select the pertinent data, including special procedures, x-rays, vital signs, etc.
1.2 interpret and briefly discuss the data, how it relates to the physical therapy assessment and management.
1.3 state the normal values of pertinent data including Hb., blood gases, temperature, electrolytes, blood pressure, heart rate, respiratory rate.
1.4 state the problem area to be assessed and choose the appropriate specific assessment procedures.
1.5 discuss the reasons for choosing the above assessment procedures.
1.6 select appropriate assessment tools and demonstrate usage of assessment tools and procedures.
1.7 record or state, in a concise, relevant and coherent manner, assessment data utilizing: 1.7.1 correct medical terminology.
1.7.2 an organized method of recording.
1.8 keep up-to-date progress notes and discharge summaries as necessary.
1.9 justify reassessments including frequency and choice of problem area.
1.10 discuss the relevance of assessment findings to total patient management including: 1.10.1 patient's level of function.
1.10.2 the main problem areas.
1.10.3 formulation of immediate and future aims of treatment.
1.10.4 the ongoing evaluation effect on changing aims of treatment.
2. PLANNING TREATMENT PROGRAMMES

Having assessed a given patient the student will be able to:

2.1 select, and discuss the rationale for, a treatment programme including the:
   2.1.1 establishment of problem priorities and the development of treatments accordingly.
   2.1.2 selection of treatment means consistent with the immediate and future goals.
   2.1.3 consideration of the total condition.
   2.1.4 necessary changes in the physical therapy management programme consistent with the patient's needs.
   2.1.5 discontinuation of the treatment programme.

3. APPLICATION OF THE TREATMENT PROGRAMME

Having selected the treatment programme the student will be able to demonstrate and justify the following:

3.1 safe and effective handling of patients and consideration of potential hazards to both patient and therapist.
3.2 patient education regarding the purpose and effects of treatment.
3.3 effective application of treatment techniques including patient instruction.
3.4 observation of the patients reaction to treatment and modification as required.

4. RELATIONSHIP BETWEEN THEORY AND PRACTICE

The student will be able to:

4.1 observe signs and symptoms present and explain these according to the following:
   4.1.1 aetology.
   4.1.2 anatomy.
   4.1.3 physiology.
   4.1.4 pathology.
   4.1.5 biomechanics.
   4.1.6 kinesiology.
4.2 explain in detail the principles of therapeutic techniques and modalities based on the above mechanisms.
4.3 recognize and discuss the indications for therapeutic techniques and modalities as dictated by the condition.
4.4 discuss briefly the effect of the medical management on the physical therapy management programme.
5. COMMUNICATION AND INTERPERSONAL SKILLS

The student will be able to:

5.1 individualize his approach to each patient.
5.2 ask questions of the clinical therapist and other health professionals concerning patient management.
5.3 use appropriate terminology, medical or lay, when speaking with patients, relatives and team members.
5.4 participate in discussions at ward rounds, seminars, and with staff.