# A Study of Personnel Roles in the CRIB Project

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In this study a method was developed which made possible the identification of the roles of school system personnel and the assessment of their level of implementation. It was then applied to a significant curriculum project. The method consisted of five stages. The first three stages were concerned with the development, validation, and revision of an idealized model of the project. The key element in this model was a description of an ideal role for each member of the school system who was or should be involved with the project. In the fourth stage an attempt was made to assess the current state of implementation of the roles of school system personnel in terms of the role performance specified in the idealized model. This assessment, illuminative rather than judgmental in nature, gave rise to a set of recommendations designed to enhance the current role performance of school system personnel in the project.

Notre étude a consisté à élaborer une méthode permettant l'identification des rôles du personnel du système scolaire et l'évaluation de leur degré de mise en application. Cette méthode fut ensuite appliquée à un important projet de programmes d'études. La méthode comprenait cinq étapes. Les trois premières consistaient en l'élaboration, la validation, et la révision d'un modèle idéalisé du projet. L'élément clé de ce modèle était une description du rôle idéal de chaque membre du système scolaire participant ou devant participer au projet. A la quatrième étape, une tentative fut faite pour évaluer le degré actuel de mise en application des rôles du personnel scolaire par rapport aux rôles définis dans le modèle idéalisé. Cette évaluation qui se voulait un approfondissement de la question plutôt qu'un jugement de valeur a donné lieu à une série de recommandations visant à améliorer la mise en application des rôles du personnel scolaire attaché au projet.

Innovations representing considerable investments of time, energy, and money are being continually introduced into school systems. Too often assessment of these innovations is scanty or non-existent. Of the several aspects of an innovation which should be examined, the one usually receiving least attention is the level of implementation. Fullan and Pomfret (1976) indicate that there are many determinants contributing to the satisfactory implementation of an innovation. In this study one of these determinants was examined, namely, the roles of school system personnel who are directly or indirectly involved in a curriculum innovation. A method was developed to identify the specific roles of personnel in an innovation, and to assess the extent to which these roles were being implemented. It involves the use of an idealized model of a fully implemented innovation, against which the current role behavior of school system personnel can be assessed. Because role performance was being

measured against an ideal standard, this study was not an evaluation in the accepted sense. Rather, it can represent a first step towards an evaluation: As a second step, the decision-makers would have to decide on the value which the school system will ascribe to attaining some or all of the objectives of the idealized model. Other uses for the results of the study include the development of strategies for achieving further implementation or the study of communication strengths and weaknesses between divisions of the school system.

The innovation in which the roles of personnel were studied is known as the Curriculum Resources Information Bank (CRIB) Project. Details of this project have already been published (Nay et al., 1972; Lockard, 1972; Nay, 1973; Roberts, 1973), but a short description is essential as it constitutes the focus of this implementation study.

CRIB Project was initiated in 1969 as a co-operative venture of science teachers of the Edmonton Public School Board (EPSB) system and members of the Department of Secondary Education, University of Alberta. The project is based on a fairly complex rationale, and is directed toward the achievement of a number of objectives, a major one being to provide teachers of junior high school science with ready access to a great variety of teaching resources or information about them, and as a consequence to bring about continual rational change in the science curriculum.

To date three banks have been developed: a biological science bank, an earth science bank, and a physical science bank. A copy of each bank has been placed in every junior high school in the EPSB system for use by the science teachers. The vehicle currently used for storage and dissemination of curriculum information is a set of keysort cards on which the information is collated and organized.

Two evaluations of the project have been carried out (Evaluations and Revisions Committee, 1972; Phare & Sware, 1974). Both indicated that teachers made substantial use of the banks for the planning of their courses and wanted continued access to them. However, more significant was the indication that at the time the evaluations were made most of the objectives of CRIB Project had not been achieved to a significant degree; that is, the innovation had not been implemented to the degree that was initially envisioned. Accordingly, the study described in this paper was undertaken to seek explanations why the project was incompletely implemented, and to determine possible steps for increasing the level of implementation.

In any attempt to explain the discrepancy between "what is "and "what could be" for a given program, it is impractical to examine all of the determinants involved. In their analysis of the factors which can affect the degree of implementation, Fullan and Pomfret (1977) classify the determinants into (a) characteristics of the innovation, (b) strategies, (c) characteristics of the adopting unit, and (d) characteristics of

macro-sociopolitical units. While such an analysis is extremely useful in conceptualizing the component parts of an innovation, it does not make an entirely suitable framework for launching investigations of innovations since in practice the various determinants overlap one another. However, if one were to divide Fullan and Pomfret's list of determinants vertically, one would find that on one side of the line would fall those parts of the determinants concerned with personnel (e.g., users, facilitators) and on the other would fall inanimate parts (e.g., hardware, software, funding). Since many of the physical components of CRIB Project were already in place at the time of this study, it was decided to examine the roles of those personnel of the school system who were or ought to be involved in its implementation. We assumed that if the recommendations arising out of the study relative to these roles were given appropriate attention by the EPSB system, a higher level of implementation of CRIB Project would be achieved, but we understood that it was to be the responsibility of the decision-makers whether to place a high priority on further implentation.

## METHOD

A five-stage method was developed for identifying the roles of school system personnel in the CRIB Project and assessing their level of implementation. The first three stages were concerned with the development, validation, and revision of an idealized model. The model was an idealization of how CRIB Project would be operating if all of its objectives were being adequately met. The key element in this model was a description of an ideal role for each member of the EPSB system who was or should be involved in the project. The fourth stage was an attempt to assess the current role performance of school system personnel in terms of the role performance specified in the idealized model. In the fifth stage a set of recommendations was formulated to enhance the current role of performance of school system personnel in CRIB Project. It should be noted that school system personnel were asked to react to the idealized model in Stage 2 and to complete a questionnaire in Stage 4. Confidentiality of information was guaranteed.

### *Stage 1: Development of an Idealized Model*

The model was written in four sections, with the focus narrowing down in each and culminating in a description of the idealized role for each member of the EPSB system who was or should be involved in CRIB Project.

In Section 1 the literature was examined on curriculum development theory, implementation theory, and the role of teachers in the development, adoption, and implementation of curricula. Wherever possible,

parallels were drawn between the directions outlined in the literature and directions indicated by the CRIB Project rationale.

In Section 2 an attempt was made to isolate the concerns which became evident when ways were sought to implement fully the objectives of CRIB Project. Use was made of available project documents such as funding proposals, evaluation reports (Evaluation and Revisions Committee, 1972; Phare & Sware, 1974), and published articles (Nay et al., 1972; Lockard, 1972; Nay, 1973; Roberts, 1973) to identify the issues which need to be examined if an idealized model is to reflect the objectives of the project.

In Section 3 the linkages and relationships were derived for EPSB system personnel in a fully implemented CRIB Project. These are represented schematically in Figure 1. The linkages were derived, as were the role descriptions in Section 4, on the basis of information obtained from the original project documents, relevant curriculum literature, and a study of the organization and functioning of the EPSB system. The school system personnel deemed important to the project were categorized into users of the banks, project staff, developers and maintainers of the banks, and facilitators. Some people fitted into more than one category.

The main users were science teachers, and indirectly their students. Other users might be librarians looking for titles of books to order, and research staff using items from the tests sub-bank for evaluating the effectiveness of science teaching.

At the time the study was conducted the project staff consisted of a director who was de facto a science teacher with released time to attend to the demands of the project, the Supervisor of Science and Health of the EPSB system, and the science curriculum co-ordinators (teachers who were part-time consultants).

The main developers and maintainers of the banks were the project staff and selected classroom teachers whose function was to collect curriculum information and organize it into banks. Other personnel with actual or potential input into the banks were the remainder of the junior high school science teachers, librarians, personnel in instructional materials centres, in pupil assessment, in information systems, and internal and external consultants.

Facilitators were managerial personnel who made the primary decisions in the school system and whose participation was essential to the very existence of CRIB Project and its efficient development and functioning. However, their direct involvement in the development and maintenance of the banks was minimal or nil. In addition to the Supervisor of Science and Health, other personnel not mentioned in the other categories are listed in Table 1.

In the final section of the idealized model, a description was given for each of the 19 roles (see Table 1) as they might function in a fully

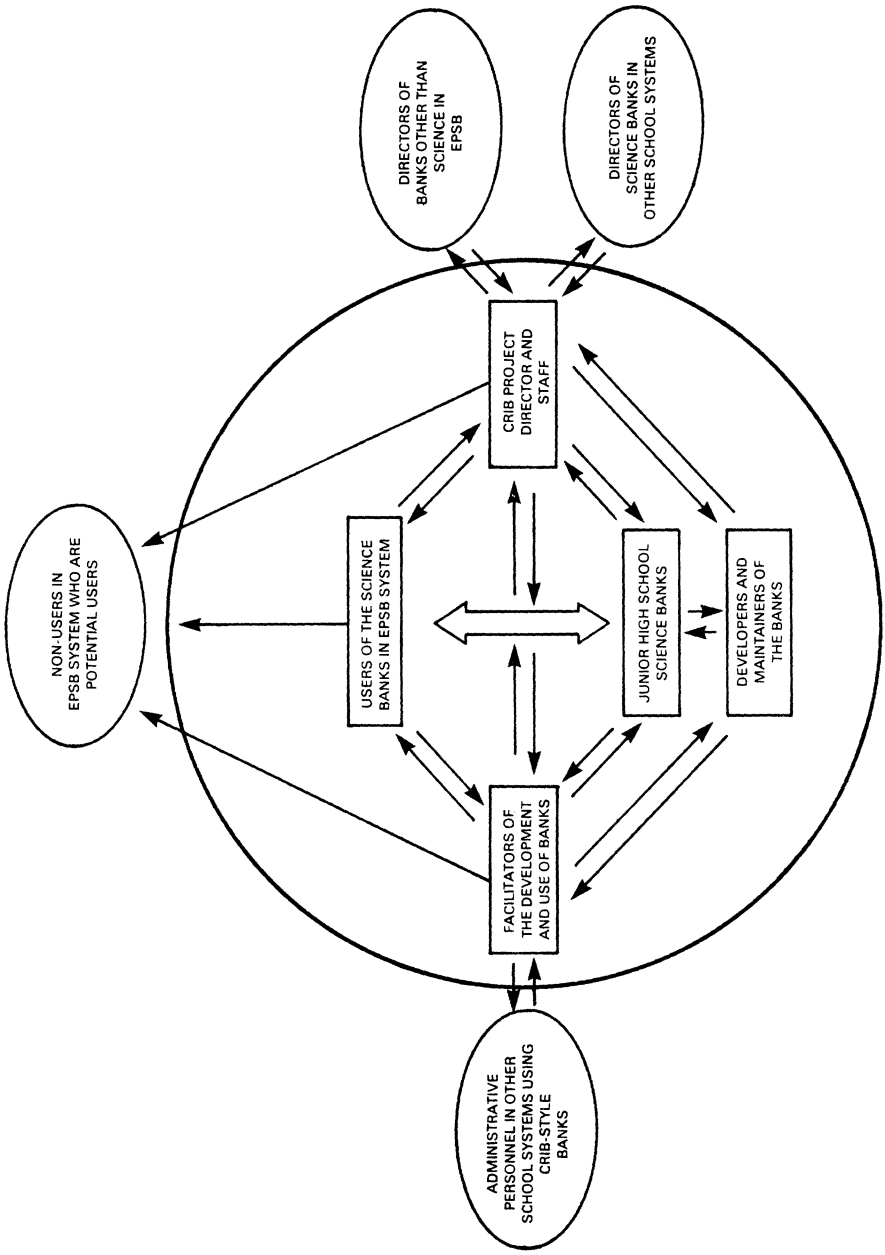


FIGURE 1
*Scheme of Idealized Model*

TABLE 1

*Validators Selected for Stage 2 Validation of the Idealized Model*

| *Role Number* | *Position in EPSB System* | *Number in Group* |
|---|---|---|
| 1. | Associate Superintendent of Curriculum | 1 |
| 2. | Assistant Superintendent of Curricular Services[a] | 0 |
| 3. | Assistant Superintendent of Research and Evaluation | 1 |
| 4. | Director of Curriculum Development | 1 |
| 5. | Director of Curriculum Supervision | 1 |
| 6. | Director of Professional Development | 1 |
| 7. | Director of Research | 1 |
| 8. | Director of Evaluation | 1 |
| 9. | Director of Educational Data Processing | 1 |
| 10. | Director of Information Systems | 1 |
| 10. | Co-ordinator of Computing Services | 1 |
| 10. | Manager of Computer Operations | 1 |
| 11. | Director of Pupil Assessment | 1 |
| 12. | Supervisor of Science and Health | 1 |
| 13. | Supervisor of Instructional Media Centre | 1 |
| 13. | Consultants, Instructional Media Centre | 2 |
| 14. | Supervisor of Library | 1 |
| 15. | Supervisors (Reading, Language, Mathematics) | 3 |
| 15. | Consultants (Outdoor Education, Pupil Records, Inservice, Test Development, Tests and Measurements) | 5 |
| 16. | Principals, Junior High School | 2 |
| 16. | Principal, Elementary School | 1 |
| 16. | Assistant Principals, Junior High School | 8 |
| 17. | Curriculum Co-ordinators for Junior High School Science | 5 |
| 18. | Director of CRIB Project | 1 |
| 19. | Classroom Teachers in Science | 8 |

[a] This position was vacant during Stage 2 of the study.

implemented CRIB Project. These descriptions consisted of lists of specific tasks and responsibilities, each of which was considered to be a role item. An illustration of role descriptions in terms of role items is given in Table 2.

TABLE 2

*Role Description of Teachers*

The teachers should:

19.1 Make use of the banks. Specifically, they should:
19.1.1 Draw upon bank materials to help in the teaching and evaluation of their courses.
19.1.2 Use the banks as a source of enrichment material for individual students who have that need.

19.2 Provide feedback on the banks. Specifically, they should:
19.2.1 Keep and make available to the Project Director a cumulative record of which bank materials they have used. (Upon the introduction of computer management of CRIB Project, this function will be performed automatically.)
19.2.2 Alert the Project Director (or the computer monitor) to any errors, omissions, impracticalities, or redundancies in the materials of the banks.
19.2.3 Attend meetings designed to exchange ideas on the use of the banks and to promote liaison between teachers and the rest of CRIB Project staff.

19.3 Contribute materials to the bank. Specifically, they should:
19.3.1 Notify the Project Director of new ideas for CRIB items, either in the form of extensions or of modifications to existing materials, or of completely new content areas.
19.3.2 Participate during the term and in summer writing sessions where new materials for the banks will be prepared by groups of science teachers.

19.4 Make CRIB Project known to "outsiders" (e.g., parents, student teachers, etc.).

The 19 role descriptions indicated in Table 1 have been reported by Ryan (1977). A study of these shows a gradual change in role as one goes down the school system hierarchy from broadly defined role items to highly specific ones directed towards the objectives of CRIB Project. Reflected in these role descriptions is co-operation within the hierarchy of the Curriculum Division of the EPSB system and among its three services (curricular, pupil, and research and evaluation), and of the Curriculum Division with Information Systems.

The substance of the role items of the facilitators (roles 1-12 and 16 in Table 1) is as follows:

1. Define and implement curriculum policy within which the position of the CRIB concept is delineated.

2. Be aware of the existence of CRIB Project and support project applications for a reasonable share of financial and logistic resources.

3. Open vertical lines of communication between higher and lower

levels of the EPSB hierarchy and horizontal lines of communication to counterparts in other school systems and the department of education.

4. Ensure that the objectives of CRIB Project are being followed and keep them under continuous review.

5. Identify and appoint high-calibre personnel to the project.

6. Make CRIB Project known to teachers and encourage the use of its banks.

7. Facilitate the development and maintenance of the banks through liaison meetings, curriculum writing sessions, and inservice sessions for teachers.

8. Assist in the assessment and reporting of the effect of CRIB Project on the professional development of teachers and on student learning.

9. Develop and implement a strategy for determining the amount and quality of use of CRIB Project materials.

10. Plan the transfer of the CRIB Project banks to a computer system for dissemination to the schools by means of a network of terminals.

Roles of the CRIB Project staff (roles 12, 17, and 18 in Table 1) cover the following aspects:

1. Develop an accurate and detailed picture of CRIB Project and how it should be operating.

2. Prepare and present budgets for the project.

3. Establish lines of communication with authorities to whom CRIB Project is accountable so that decision-making would be expedited.

4. Assist in monitoring the concurrence of the idealized model with what is actually taking place so that corrections may be made in either the model or the working of the project.

5. Initiate and participate in periodic reviews of the objectives, rationale, and materials of CRIB Project, evaluate their effect on student learning, and solicit support for future plans such as the computerization of the CRIB Project banks.

6. Disseminate information about the project to personnel in central office and in the schools and maintain lines of communication with potential and actual users to promote effective use of the banks.

7. Provide inservice assistance to all teachers, especially those who are not adequately conversant with the use of the banks.

The tasks and responsibilities of the developers and maintainers of the banks (roles 10-15 and 17-19, Table 1) include the following:

1. Solicit feedback from and conduct inservice programs for teachers.

2. Expand, upgrade, and update the information in the banks.

3. Be aware of the kind of new curriculum resources information needed for the project and make it known to the Project Director.

4. Help to make available in the schools the instructional materials (texts, audiovisual aids, etc.) called for in the banks.

5. Participate in the computerization of the CRIB Banks.

Teachers, who are the main users of the CRIB Project banks, also have a significant role to play in their development and maintenance. Their highly diversified participation is described in Table 2.

*Stage 2: Validation of the Idealized Model*

For the purpose of this method, validation was the process of making the model more realistic and effective. The validators were EPSB personnel who were selected on the basis of either one of the following criteria:

1. The validator was actively involved at one time or another in the initiation or development of CRIB Project, in the making of decisions concerning the Project, or in the preparation of its materials.

2. The validator was identified by the idealized model as being a role holder whose participation would be necessary in a fully implemented CRIB Project, or was seen to possess a relevant expertise in an area related to but not part of CRIB Project.

It can be seen that no attempt was made to obtain a random or unbiased sample.

Fifty validators (Table 1) were chosen representing every category of school system personnel identified in the idealized model as essential for its full implementation. Half were employed in the schools as teachers, curriculum co-ordinators, or school administrators.

The validators were asked to react to all four sections of the idealized model and to indicate if each section accurately reflected their perception of a fully implemented project. Specifically, they were asked to assess the relevance, feasibility, and importance of the ideas presented. Each validator was required to react to the descriptions for all of the roles identified in Section 4 of the model because in this way perceptions of the role were obtained not only from the point of view of the role holder but also from personnel who interacted with that role. Because validators were not qualified to react authoritatively to all roles, five response categories were included: Agree Absolutely, Agree BUT . . . , Undecided BECAUSE . . . , Disagree BECAUSE . . . , and Lack Required Background. The three middle categories were worded so as to encourage additional comments from the validators.

There was the possibility that a validator would take the opportunity to indulge in self-aggrandizement when assessing the importance of his or

her particular role in a fully implemented CRIB Project. It was felt, however, that since the emphasis of the task of the validators was on a relatively abstract concept of a fully implemented CRIB Project the danger was slight. In addition, it was possible to detect self-serving comments in the Stage 3 revision.

*Stage 3: Revision of the Idealized Model*

When all the comments from the validators were received, the idealized model was revised and expanded in the light of these comments by a panel of revisers to yield a revised idealized model. A set of nine objective criteria was established for the revision. The revised role descriptions formed the basis for the assessment of the current state of implementation of the roles in CRIB Project.

*Stage 4: Assessment of the Perceived Current State of Implementation of the CRIB Project Roles*

At this stage an assessment was made of the level of the current state of implementation of the role descriptions of CRIB Project, as perceived by the role holders, relative to the role descriptions in the revised idealized model.

Owing to lack of time and resources and to restrictions imposed by the EPSB, it was possible to use only a questionnaire to gather data on the current state of role implementation. Within this limitation steps were taken to maximize the validity of the data. A total of 18 questionnaires corresponding to 18 positions (one position was dropped by the EPSB system during the study) in the EPSB system whose roles were validated and revised in Stages 2 and 3, respectively, were developed and distributed to the role holders.

The questionnaire was limited to three tasks. The first two pertained to the role items in the revised idealized model of a fully implemented CRIB Project and the third allowed for free response. For the first two tasks the role items were turned into questionnaire statements by changing the action verb to the first person singular. Thus, the role item for the Supervisor of Science and Health, "He should bring to the attention of the Project staff new science materials," became the questionnaire statement, "I have been and/or am bringing to the attention of the Project staff new science materials." Since the order of the role items in the Stage 3 revised idealized model was often a logical sequence, the items in the questionnaires were randomly ordered to reduce the possibility of response sets.

Task 1 of the questionnaire assessed the perceived current level of implementation of the role items for personnel involved in CRIB Project. The respondent was asked to consider each role item for his or her role and rate the level of attention given to it. There were four response categories: high, medium, low, and not at all.

Task 2 of the questionnaires concerned the importance of the role items in a fully implemented CRIB Project. The respondent was asked to rank the roles from high to low in the order of relative importance for his or her position assuming that CRIB Project was fully implemented.

Task 3 was a free response opportunity for the respondent to comment on: (a) the appropriateness of the role items to the position; (b) the conditions necessary for role attainment which are presently available; and (c) the conditions necessary but which are presently not available.

All members of the EPSB system who were holders of one of the 18 positions described in the revised idealized model were surveyed. Each member of the sample was mailed only the questionnaire corresponding to his or her highest designated position in the school system. The numbers of questionnaires sent is indicated in Table 3.

TABLE 3

*Rates of Return of Stage 4 Questionnaires*

| *Group* | *Number Sent* | *Number Returned* | *% Returned* |
|---|---|---|---|
| Teachers | 141 | 115 | 82 |
| Administrators in the Schools | 88 | 73 | 83 |
| Curriculum Co-ordinators | 5 | 4 | 80 |
| CRIB Project Director | 1 | 1 | 100 |
| Central Office Personnel | 24 | 19 | 79 |
| Total | 259 | 212 | 82 |

*Stage 5: Utilization of the Assessment Results*

One of the major functions of this type of study is to serve as a basis for strengthening the curriculum innovation — to enhance the potential of the innovation for achieving its objectives. Evidence from Stage 4 can be used to formulate a number of specific recommendations on role performance of personnel. With ideal role descriptions as a standard, and with the knowledge obtained in Stage 4 of the perceived current state of implementation of these role descriptions of project personnel, decision-makers would have a basis for formulating directions for the further implementation of the idealized roles and hence of the project.

## RESULTS

*Stage 1:*

The development of the idealized model in Stage 1 can be considered to be the results of that stage (see Ryan, 1977).

*Stage 2:*

Of the 50 validators who were sent a copy of the idealized model, 46 submitted a reaction. The validators made very few comments on the first three sections of the model. Most of the comments which were made in these earlier sections were of a general nature and tended to reflect the personal and idiosyncratic views of the validators (e.g., "CRIB has many good points but is not the final word in curriculum."). Only as the validators worked through the document and became more aware of the type of comments which were being solicited — namely, is the idealized model a true representation of the validators' perceptions of the CRIB Project if it were implemented according to all its objectives? — did they respond as anticipated.

Over 700 comments were received on Section 4, the one dealing with 19 role descriptions which, according to the idealized model, had to be operative for a fully implemented CRIB Project. These comments were collated on a grid, and were found to be classifiable into the following three categories (the first two of which were more significant for revision of the idealized model):

1. *Convergence of validators' comments.* In some instances, the views of the validitators, as expressed in their comments, agreed with one another and disagreed with the idealized model (Ryan, 1977, pp. 102-107). One of the more obvious examples was the case of the Supervisor of Science and Health whose position was seen by both school and central office validators as being far more pivotal to the further implementation of CRIB Project than had been realized by the investigators. Such comments entailed reassignment or addition of role items.

2. *Divergence of validators' comments.* Two or more tenable but divergent positions were obtained for some roles of school personnel who were currently not involved much with CRIB Project. For instance, neither the computer personnel nor the reading, language, and mathematics specialists played a significant role in CRIB Project up to the time the study was made, and when the validators were brought to consider the nature of any possible involvement, diverging positions surfaced.

3. *Misinformation revealed.* One of the more straightforward outcomes of the Stage 3 revision was the pinpointing of errors of fact in the role items. There was only one major instance: Role 9, Director of Educational Data Processing had been eliminated in a central office reorganization between the time the idealized model was compiled and the time the validators made their responses.

*Stage 3:*

The idealized model was revised in this stage. Virtually no change was made in Sections 1 to 3, owing to the meagre reaction to them from the

validators. However, the role items in Section 4 were altered extensively. Central office validators felt that 11 of the role items should reflect a co-operative approach between two or more administrators; role items were rewritten accordingly. Of the remainder of role items, 21 were unaltered and 44 required only slight modifications of language or style. In those instances where divergences of opinion emerged, the majority opinion, if this was clearcut, was followed. In those instances of divergence where opinions were evenly distributed between two positions, recourse was made to CRIB Project rationale and objectives as the deciding authority: The role items which appeared to be most appropriate to a fully implemented CRIB Project were retained. An additional 25 role items were added to the original set. Consequently, after revision, Section 4 of the idealized model contained 126 role items for the 18 roles identified.

*Stage 4:*

The overall rate of returns of the Stage 4 questionnaire was 82% (Table 3), with an almost equal response rate from the central office and the schools. The analysis of the results was complicated by the need to compare responses on three tasks and, owing to the condition of confidentiality, to separate the sample population into two groups.

The two groups were made up in the following manner: Where there was more than one holder of a role, more than one copy of the appropriate questionnaire was sent out and returned. If a sufficient number of this questionnaire was returned, then they were grouped for purpose of analysis and were labelled "multiple-respondent questionnaires." There were three multiple-respondent questionnaire groups: teachers, school administrators, and curriculum co-ordinators. Some of the other roles listed in Table 1 had too few responses for meaningful analysis (e.g., IMC personnel) or had only one holder (e.g., Director of Research); these questionnaires were labelled "single-respondent questionnaires" and, to preserve anonymity, were combined for analysis.

The data were analyzed and interpreted as follows:

1. *Assessment of current level of role performance for multiple-respondent questionnaires.* In Task 1, respondents were asked to rate the current level of implementation of each role item on the questionnaire on a four-point scale: high, medium, low, or not at all. For purposes of analysis and comparison the responses for each item were coded by a numerical value: 1 for a "high" response, 2 for a "medium" response, 3 for a "low" response, and 4 for a "not at all" response. This made it possible to average the Task 1 responses for each role item, and hence to provide a direct measure of its current level of implementation on a "high" to "not at all" scale.

The perceived level of implementation of role items reflected in the multiple-respondent questionnaires is summarized in Table 4. Note that

TABLE 4

*Level of Implementation (Task 1) and Congruence in Responses to Tasks 1 & 2 in Multiple-Respondent Questionnaires*

| Role | Number of Role Items for Role | Number of Role Items For Which the Mean[a] of Task 1 Response is Between: | | | | | | Number of Role Items for Which Average Perception is: | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | 1.00-1.50 | 1.51-2.00 | 2.01-2.50 | 2.51-3.00 | 3.01-3.50 | 3.51-4.00 | Congruent | Indeterminate | Incongruent |
| School Administrators | 9 | 0 | 3 | 4 | 2 | 0 | 0 | 3 | 2 | 4 |
| Teachers | 8 | 0 | 1 | 0 | 1 | 2 | 4 | 4 | 2 | 2 |
| Curriculum Co-ordinators | 8 | 2 | 4 | 2 | 0 | 0 | 0 | 3 | 0 | 5 |

[a] Based on the response scale: 1 for "high," 2 for "medium," 3 for "low," 4 for "not at all."

the school administrators felt that they were performing at about the "medium" level in all of their role items. Actually they scored highest on the role items involving awareness and lowest on those requiring specific action (e.g., encouraging non-users in their schools to become users of the banks).

The teachers perceived that they were performing at the "medium" level only on Role Item 19.1.1 (see Table 2), namely, using CRIB materials for preparing lessons and evaluation. Their implementation of the remaining role items listed in Table 2 was considered to be the "low" to "not at all" levels. These ratings are not altogether surprising. Role Item 19.1.1 received greatest attention because it eased the task of preparing lessons and Role Items 19.2.1, 19.2.2, 19.2.3, 19.3.1, and 19.3.2 received little attention because they are arduous and time-consuming.

The curriculum co-ordinators felt they were discharging their role responsibilities in the "high" to "medium" range. They rated highest on participation in writing materials for the banks and field-testing them. They did not perceive their roles of being a channel for teacher ideas, of noting difficulties in bank operation, of helping teachers use the banks, or of attending meetings in the school year as being given a high level of attention. None of the co-ordinators responded "not at all" on any role item.

2. *Comparison of Task 1 (perceived current implementation) and Task 2 (perceived role importance) rankings for multiple-respondent questionnaires.* Assigning values of 1 for "high" to 4 for "not at all" responses made it possible to rank role items in terms of the perceived level of implementation in Task 1, and then to compare the rank order thus obtained with that obtained for Task 2, the perceived role item importance.

The rank orders for Tasks 1 and 2 for each multiple-respondent questionnaire were combined into an overall rank order. The rank of each role item in Task 1 and Task 2 was compared to establish extent of congruence. This was done with the knowledge that by weighting and aggregating responses in Task 1 and aggregating ranks in Task 2 population distributions of unknown characteristics were created. Actual judgments of "congruence," "incongruence," and "indeterminancy" were made by intuitive scanning of data with the assistance of the rank orders. Reasons for incongruencies or anomalous congruencies were often suggested by the comments provided in the Task 3 free response sections.

A summary of level of congruence in responses to role items in Tasks 1 and 2 for multiple-respondent questionnaires is included in Table 4. School administrators ranked high in Task 2 those items which required awareness, understanding, and appreciation of CRIB Project, and passing this knowledge on to their staff. However, they did not deem it important to be aware of or help to provide teachers with released time to write

bank materials, even though they indicated in Task 1 that they were well aware of the need for it. One possible interpretation of these results could be that school administrators felt that just because they appreciated the need for released time did not mean that they would be able to provide it for their teachers. The validators' comments in Stage 2 of the study had indicated that principals would be willing to aid in the provision of released time only if they were sure that adequate substitution could be provided. If released time is important for the full implementation of CRIB Project, ways will have to be investigated of ensuring that it can be made available. Another significant point is that the role item "encourage non-users on staff to become users of the banks" was ranked 9th by the school administrators on both Tasks 1 and 2.

The Task 2 rankings by teachers showed that they considered usage of the bank materials as being the most important role items for a fully implemented CRIB Project (Role Items 19.2.2 and 19.2.1 in Table 2). They saw liaison with CRIB Project staff as important (Role Item 19.2.3), but did not consider the provision of feedback or the keeping of records on bank use as being important to a fully implemented CRIB Project (Role Items 19.2.2 and 19.2.1). The only incongruent items were Role Items 19.3.1 and 19.4. The incongruence of Item 19.3.1 indicated that teachers perceived the importance of contributing new ideas to CRIB Project but for some reason were not doing so at the time of the study. If teachers already perceived the importance of this step, means could be found to enable them to make these contributions. The other incongruent item indicated that teachers felt that they were informing outsiders of CRIB Project but that they did not perceive this role item as being very important to a fully implemented CRIB Project. One possible reason for this could be that if the CRIB Project were fully implemented, there would be less need to inform outsiders of it. One of the Role Items, 19.3.2, which is concerned with the provision of feedback on bank weaknesses, was seen in CRIB Project rationale as being important. It was not perceived in this way by teachers since they rated it low in perceived level of attention and also in level of importance to a fully implemented CRIB Project. Perhaps teachers were unaware of this aspect of the project rationale or they had their own reasons for disagreeing with it.

There appeared to be a great deal of incongruence for curriculum coordinators between the perceived level of implementation of role items and their importance in a fully implemented CRIB Project. They ranked high the following tasks in the order given: "evaluate bank materials," "attend inservice meetings," and "help teachers use the banks." Ironically, they rated near the bottom "joining writing sessions" and "field-testing materials" — the two role items which they perceived they were implementing to the greatest degree in Task 1. They felt that writing was important but that it need not necessarily be done by them.

3. *Comparison of Tasks 1 (perceived current implementation) and 2 (perceived role item importance) rankings for single-respondent questionnaires.* Twenty questionnaires were returned by this group, which consisted of the CRIB Project Director and central office personnel. For most of the roles in this group there was only one role holder. Where there was more than one holder (e.g., Instructional Media Center personnel), the returns were not sufficient to treat the role separately. Because of the restrictions due to the confidentiality of the information given by respondents, no detailed findings can be given.

The 20 single-respondent questionnaires can usefully be split into three groups, with some overlap of function: (a) all of the facilitators, (b) some of the CRIB Project staff, and (c) some of the developers and maintainers of the banks. The role items for the facilitators were necessarily less specific to the day-to-day running of the project. Accordingly, the extent to which the senior administrators supported the CRIB Project is hard to assess since many of the role items were of the facilitating type such as "opening lines of communication" which can and do apply to any curricular project. However, the results did indicate that most administrators felt that they were conversant with the objectives of the project. The roles being given high levels of attention were those concerned with definition of policies for curricular matters such as CRIB Project and those concerned with developing lines of communication to ensure that policies are being implemented. Comparison of the responses to Tasks 1 and 2 on the returned single-respondent questionnaires revealed that in most cases there was a high degree of congruence between the ratings on the two tasks. This was especially true of those members of central office who were in the middle and upper echelons of management.

The two CRIB Project staff members represented in this single-respondent group indicated that they were currently implementing three-quarters of their role items at a high to medium level. There was, qualitatively, a high degree of congruence between Tasks 1 and 2.

Included in the single-respondent questionnaire group were the following developers and maintainers of the banks: personnel in the Instructional Media Center, Central Library Services, and Directorate of Information Services; and supervisors and consultants of reading, language, and mathematics. The responses of these people indicated that there were many role items which received little or no attention. Most did indicate an awareness of CRIB Project and some of its needs, but made no contribution to the development and maintenance of the banks. From the Task 2 responses it appeared that some respondents anticipated no involvement with CRIB Project in the future while others acknowledged that a contribution could be made. It is obvious that if the attainment of the role items of the roles represented in this group of developers and maintainers is considered important for the further implementation

of CRIB Project, then some reconciliation of their perceptions of their assigned roles will be required.

4. *Responses to Task 3.* In this task on the questionnaire, respondents were asked to comment on the perceived validity or appropriateness of the listed role items in terms of their own role, and to list the conditions which they deemed necessary for full attainment of the roles and which were or were not currently available. The following discussion summarizes the responses on all 212 returned questionnaires.

A majority (68%) of the respondents commented that the role items presented for their role were appropriate. This collective response would appear to support the accuracy of the revised idealized model.

Some of the main conditions which existed for the full implementation of CRIB Project were as follows: banks in every school, interested teachers who were using or willing to try CRIB Project materials, visits by curriculum co-ordinators to assist teachers, some inservice activity, released time and/or summer vacations for writing curriculum materials, and sufficient laboratory equipment.

Respondents gave most attention in Task 3 to the conditions not existing at present but which are necessary for the full implementation of CRIB Project. The main ones indicated by teachers and curriculum co-ordinators were as follows: more time and money (for provisions of feedback and writing curriculum materials for the project), more interaction between CRIB Project staff and users, extra secretarial assistance and supplies, laboratory assistants, improved laboratory facilities, more in-service on CRIB Project philosophy and use of the banks, more extensive and faster revision of the information in the banks, and a simple system for duplicating bank materials.

In addition to some of the above conditions mentioned by teachers and co-ordinators, the school administrators commented that they desired more information from and interaction with project staff, more time for school administrators to be involved in CRIB Project, and greater central office commitment and involvement. The single-questionnaire respondents made relatively few comments on requisite conditions for full implementation of CRIB Project, but one interesting suggestion made by several respondents was to set up some form of permanent organizational structure to aid CRIB Project in its work.

*Stage 5:*

A comparison of the revised idealized model with the questionnaire data obtained in Stage 4 made it possible to unearth weaknesses or omissions in role performances, pockets of resistance to the project, disagreements among participants on important project matters, and so forth. This in turn made it possible to draw up 16 recommendations concerning changes

in role performance of EPSB system personnel which if acted upon would lead to the further implementation of the objectives of the project. These recommendations emanated from the following aspects of the results (Ryan, 1977, pp. 174-187):

1. Discrepancies between the perceived poor performance of a role item by EPSB personnel (Task 1 responses) and that stipulated in the idealized model. This situation was further confounded if:

   a. respondents considered the role item to be important (e.g., teachers considered attending liaison meetings to be important but were not attending many), or if

   b. respondents did not consider the role item to be important (e.g., most teachers were not involved in curriculum writing nor did they deem it important that they should be).

2. Incongruence resulting when the perceived current level of implementation of a role item (Task 1) is assessed as being in accord with the level stipulated in the idealized model but its perceived importance (Task 2) is not (e.g., the curriculum co-ordinators performed at a high level in curriculum writing but did not consider this role item important for their role).

3. Inconsistencies in responses between two role items (e.g., school administrators believed that it is important for teachers to be involved in curriculum writing but did not see the need to facilitate released time for them).

4. Discrepancies in perceived actual performance of a role item (as indicated in Task 1 responses) among holders of a given role (e.g., not all principals refused to encourage their teachers to use the banks).

5. Disagreement among holders of different roles (e.g., CRIB Project staff saw the importance of computerizing the banks whereas there was considerable disagreement with this need among personnel in Information Services).

6. Conditions identified in Task 3 responses and in the unsolicited comments by validators in Stage 2 as essential to a higher level of role implementation, hence a higher level of implementation of CRIB Project (e.g., inservice programs for users of the banks).

The 16 recommendations were designed to explore the above-mentioned discrepancies with a view to finding reasons for and prescribing ways of eliminating them. Implicit in most of the recommendations was a need for a better understanding of the rationale and objectives of CRIB Project on the part of all personnel in the EPSB system who have or should have concern in its successful implementation. Having achieved

this understanding it would be easier to generate the commitment for acting on the recommendations.

The recommendations were predicated upon the revised idealized model of Stage 3 being the standard against which any assessment of the current level of implementation must be made. The model constituted a standard somewhat different to the kind employed by Stake (1967) as one of the components of his judgment matrix. For Stake, standards are "benchmarks of performance having widespread reference value" (p. 535) and represent current performance levels against which a program being evaluated can be measured and can be judged to be performing better, worse, or as well as the standard. In the current study the standard is ideal: a fully-implemented CRIB Project. It was known in advance that the current level of implementation of the role items fell short of the standard, and so the pass/fail element of comparing what is to what the standard decrees is absent. The questions which the assessment attempts to pose are thus assumed to be less threatening than the traditional question of "Does this program meet the standard that it is supposed to meet?" The question becomes, "Knowing that CRIB Project is falling short of its objectives, what are the areas of discrepancy between what is happening now and what this idealized representation of a fully implemented project says should be happening?" Such a change in emphasis from a judgmental use of standards to an illuminative use of standards is in line with the approach to evaluation which maintains that one role of evaluation is to provide guidelines for further implementation.

## CONCLUSION

In a study where new ground is being broken it is sometimes difficult to appreciate what was being attempted and, more importantly, what was not. The study presented above was not an evaluation of CRIB Project nor was an attempt made to estimate its worth to the EPSB system or to some wider sphere. It addressed itself mainly to the role of personnel who had or could have participated in a curriculum innovation that represented a large commitment of time, money, and effort but which was at a stage of incomplete implementation. To achieve this object a method had to be developed and applied to untangle the threads of responsibility and lay them out in an orderly way. At the heart of this method was the notion of the idealized model which made it possible to tap knowledge and expertise that was already available in the school system. The results from this study can lead to an evaluation of CRIB Project, to an effort to achieve a greater degree of implementation, or to an examination of the organization of the school system. As a technique, it can find use in the assessment of the degree of implementation of other innovations in other educational systems.

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