DOCUMENT RESUME

ED 206 662 TM 810 554

AUTHOR Patrick, Edward; And Others
TITLE The Dissemination Linking Process: A View from the Regional Exchange.
INSTITUTION Research for Better Schools, Inc., Philadelphia, Pa.
SPONS AGENCY National Inst. of Education (ED), Washington, D.C.
PUB DATE Apr 81
NOTE 73p.: Paper presented at the Annual Meeting of the American Educational Research Association (65th, Los Angeles, CA, April 13-17, 1981).

EDRS PRICE MF01/PC03 Plus Postage.
DESCRIPTORS *Decision Making; Educational Research; *Formative Evaluation; *Information Dissemination; Interviews; *Job Analysis; *Linking Agents; Observation; *Performance Factors

ABSTRACT

The educational dissemination linking process activities of three Regional Exchange specialists at Research for Better Schools in Philadelphia were empirically analyzed to identify: the activities performed in the transfer of information from research to practice; the decisions made about the organization of activities and; contextual factors influencing the specialists' job performance. Field research was conducted over a period of five months by an evaluator in two phases: the first phase was one of observation and the second, one of participant observation. Data, collected via observation and structured and unstructured interviews, was analyzed qualitatively using methods of content, constant comparative, matrix and forcefield analyses. Analyses revealed that seven activity categories operationally defined the linking process: engagement, context specification; diagnosis; collection; translation; presentation and disengagement. Four decision areas facing linkers were identified: scheduling and coordination of services to be delivered; and service interaction style and role. Personal, interpersonal, client, organizational, and policy factors were found to influence performance. Results supported a client-centered, linker/time referenced interpersonal communications view of the dissemination process. The results have implications for the practice and evaluation of linker activities. (Author/AEF)

The Dissemination Linking Process: A View from the Regional Exchange

Paper presented at the Annual Meeting of the
American Educational Research Association
Los Angeles, California - April 13-17, 1981

Authors/Agencies:

Edward Patrick, RBS Rx
Research for Better Schools, INC., Philadelphia, PA
Richard McCann, RBS Rx Director
Research for Better Schools, INC., Philadelphia, PA
Diana Whitney, Organizational Development Specialist
Sperry Univac, Blue Bell, PA

Research for Better Schools, INC.
444 North Third Street
Philadelphia, Pennsylvania 19123

The Dissemination Linking Process: A View from the Regional Exchange

Abstract

This study analyzed empirically the educational dissemination linking process activities of Regional Exchange staff at Research for Better Schools. Decision areas facing linkers and factors influencing linkers' activities were examined. Analyses revealed that seven activity categories operationally defined the linking process: engagement, context specification, diagnosis, collection, translation, presentation and disengagement. Four decision areas facing linkers were identified: scheduling and coordination of services to be delivered, and service interaction style and role. Results supported a client-centered, linker/time referenced interpersonal communications view of the R&D process. The results have implications for the practice and evaluation of linker activities.

Published by RESEARCH FOR BETTER SCHOOLS, INC., a private, nonprofit corporation.

The work upon which this publication is based was funded by the National Institute of Education, Department of Education. The opinions expressed in this publication do not necessarily reflect the position or policy of the National Institute of Education, and no official endorsement by the National Institute of Education should be inferred.

Table of Contents

List of Tables and Figures

Tables | Page

Figures

The Dissemination Linking Process: A View from the Regional Exchange

Introduction

Typologies of the educational dissemination linkage process have been proposed by Havelock (1971), Piele (1975), Crandall (1977) and Butler and Paisley (1978). Hood and Cates (1978) noted, however, that current conceptions of linking roles are limited in that they do not represent actual details of the sequence or way in which linking agents really work, are more concerned with post-hoc reconstructions of the idealized operations of roles of linking agents, do not identify the factors or forces which influence day-to-day linker activities, and do not distinguish among the multiple levels at which linkers work in the educational system.

Purpose

The present study, initiated by the Regional Exchange (Rx), Dissemination Division of Research for Better Schools (RBS), involved an intensive examination of the on-the-job activities of three Rx dissemination specialists (linkers).[1] The study was initiated by RBS Rx staff as part of a process evaluation of the Rx to examine analytically staff linker behavior in order to improve staff knowledge transfer strategies and to increase staff understanding of their activities. The study was designed to answer three questions: (1) What activities are performed by linking agents to transfer R&D information from research to practice?; (2) What decisions do linking agents make about the organization of their activities?;

[1]Note: This AERA report is based on a Ph.D dissertation, prepared in connection with this study for Temple University, By Diana Whitney who served as the evaluator for the study.

and (3) What contextual factors or forces influence the performance of linker activities? The study represents a start, at least, at addressing some of the limitations cited by Hood and Cates (1978) regarding extant knowledge of the linking process.

Method

The study was carried out in two phases over a five month period in early 1979. Field research or naturalistic strategies (Guba, 1979) were employed to discover the relevant features of linker activities. In the first four weeks of the study (phase 1) the evaluator became familiar with the Rx setting, established her role as a participant observer, set up documentation procedures and established a working relationship with Rx staff. In the succeeding four months of the study (phase 2) the evaluator served as a participant observer. Three days were spent each week collecting data on the activities of three Rx linkers at work with state clients in the Delaware, Maryland and Pennsylvania Departments of Education. The linkers basic charge was to provide information or technical assistance support to state staff engaged in work on state school improvement and dissemination priorities. Overall, in the four months of data collection, Rx staff R&D linking activities were traced with respect to approximately fourteen separate client related tasks in the three states. Each of the tasks was observed from start to finish. Data collection consisted of two sets of structured interviews (See Appendices I & II), several participant observations of Rx linker-client interactions, and numerous unstructured interviews (pre and post each client interaction) with each of the three dissemination specialists.

Coded interview and participant observation data were analyzed qualitatively using the methods of content analysis (Guba, 1979; Holsti, 1969) and constant comparative analysis (Glaser, 1972). In addition, a form of matrix analysis was employed to examine decisions related to activities within functional classes of linker activities. Finally, a force field analysis procedure was used to identify influences upon linker activities.

Results and Discussion

Question 1: What activities are performed by linking agents to transfer R&D information from research to practice?

Analyses of the interview and participant observation data resulted in a multi-level hierarchical taxonomy of linking activities (See Appendix III). An initial list of 336 separate basic linker activities, consisting of actions, verbal behaviors and decisions were derived from the coded data. These activities clustered into 24 categories of primary activities which were further classified by an inductive logical analysis procedure into 7 functional linking steps. Table 1 illustrates the 7 linking steps, the primary linking activities that define each step (24 in total), and the general products or output of each step. In brief, the logical analysis of the "activity" data illustrated that

- Initial Rx linker-state staff contacts were usually made through the chief state school officer or appropriate division chiefs. Subsequent introductory meetings with appropriate Rx and state staff followed to clarify the goals and roles of both agencies

TABLE 1

LINKING STEPS, ACTIVITIES AND OUTPUTS

LINKING STEPS	PRIMARY LINKING ACTIVITIES	OUTPUTS*
ENGAGEMENT	Contact client Presentation of self Personal acquaintance	Relationship between the linking agent and client.
CONTEXT SPECIFICATION	Task specification Task scope Task significance	Linking agent understanding of the task and client system characteristics.
DIAGNOSIS	Information need assessment Resource assessment Action planning	Mutual understanding of information needed, resource available, and action to be taken to perform the task.
COLLECTION	Identify collection domain Recall information Retrieve information sources Search for sources	Information resource base.
TRANSLATION	Review resource base Select sources Generate information from sources Analyze information Bisociation Reframe information into clients' language	Tailored information.
PRESENTATION	Design presentation Prepare presentation Present information	Client receipt and utilization of information.
DISENGAGEMENT	Statement of closure Statement of redefined relationship	Redefined linking agent-client relationship.

and to explore possible areas for interaction. The institutional engagement step was followed by a more personal Engagement step. The Rx linkers established interpersonal relationships with specific state clients. These relationships, which varied in degree of personal involvement and homophyly, were essential to the linkers understanding of and acceptance by the clients.

- when some form of interpersonal relationship was established with a client, the linkers were observed to engage in the collection of both first hand (conversations with clients and peers) and documentary (program manuals, proposals, reports) information about clients' tasks, task environments, extended environments and the client system. This enabled the linkers to understand better the significance and priority of clients' work efforts, potential needs and avenues of assistance. Collectively, these linker activities were referred to as the Context Specification step. Context specification activity typically was initiated by the prospect of new tasks and/or new clients.

- upon obtaining information about the clients and the work they did the linkers next proceeded to identify clients' specific needs for information or assistance, potential resources and the nature of the services the clients desired. These basic activities involved linker-client discussion of: the information required to perform the client's task; the information available to the client and the linker; the information already used; and the potential

utilization of new information. The sessions concluded with an informal agreement or understanding between the linker and the client of the services to be rendered and of the mode (information synthesis, bibliography, workshop, etc.) and the time of service delivery. The basic activities described above were referred to as the Diagnosis step in the linking process. The informal agreement aspect of diagnosis was considered to be crucial to the process of linking in that mutual expectations for information or service delivery and use were established.

- When an agreement was reached on the services to be provided, the linkers then either worked alone or with other resource providers to collect a knowledge resource base pertinent to the task(s) at hand (i.e., conduct of computer or hand information searches, use of interpersonal networks on a nation-wide basis, use of established resource files, etc., to retrieve materials, articles, books, proposals, manuals, guides and/or human resources). Resource collection usually terminated when sufficient content overlap was observed among sources. This aspect of the linking process was called the Collection step. The identification and maintenance of resource bases was observed to be an ongoing well established Rx linker activity conducted in response to extablished or anticipated linker-client service agreements. As a matter of course, linkers found it useful to discuss a developing resource base with a client to confirm its relevance and to discuss specific delivery alternatives. This discussion was important in that it served as a

checkpoint to validate the client's needs and allowed for renegotiation of services to be delivered pending time or other constraints.

- having collected an adequate information or resource base the linkers proceeded to transform the information into a form suitable to the clients task. Several primary activities were involved: selection, analysis and bisociation. Information was selected for application to the task at hand from the multiple sources available based on its relevance, importance, reliability, exhaustiveness and/or feasibility. Selected information was studied and analyzed to identify and integrate key ideas or concepts that could be applied to the client's task. Two or three, to thirty or more sources of information were read and analyzed depending on the perceived importance of the task. The information was synthesized and/or transformed into a larger conceptual framework by a bisociation process in which the client's background, language system and task were constantly kept in mind as the information was transformed for presentation to the client (i.e., How does X information go with, fit or apply to task Y in the context of client Z?) These activities were referred to collectively as the information <u>Translation</u> step of linking. Information translation was viewed as a problem solving process.
- while translating the resource materials the linkers began to consider how the materials would be presented to the clients.

Depending on the client's task, the linkers chose to present materials in a variety of design forms: two or three page handouts, discussion papers, information packets, highlights papers, workshop exercises, meetings, training sessions or public speeches. Considerable linker time was also observed to be devoted to design considerations and follow-up materials preparation (writing, typing, layout printing, packaging, etc.). Delivery of materials usually involved face-to-face interactions with clients and extended talk-throughs or explanations of the materials. These design, preparation and delivery activities, constituted the Presentation step of linking. Generally speaking, when information application was desired, presentations illustrated how primary source or translated materials related to or applied to the clients' work. When information was desired to inform decision-making, presentations focused on summaries of key ideas and concepts, and discussion of the pros and cons of alternative approaches to a task. Having presented information to clients the linkers were faced with what to do next. Accordingly, they either (1) verified that the present job was completed and no further services were desired, or (2) redefined the nature of additional information services desired by the clients. This last step in the linking cycle was labeled disengagement and involved a redefinition of the linker-client relationship. The study showed that linkers volunteered for and helped define additional work where a logical follow-up was apparent. When the client's task terminated and there was no logical follow-up,

linkers had slack time available to respond to spontaneous information requests from new clients. In any event at the termination of the linking sequence the clients were armed with new information and/or skills, increasing their capacity to achieve their goals.

The preceeding description of steps observed in the Rx client-centered linking process require further explanation to illustrate their actual operation. Figure 1 illustrates the dynamic interrelationship of the steps in the linking process and the central role of translation activities. The direction of the arrows and the multiple arrows between boxes indicate, respectively, which of the steps logically precede other steps and which steps may be bypassed. The entire process may be followed in linear fashion in a new interaction with a new client involving a new resource base. However, in situations where the client and linker have been working on a continuing project and a resource base has been established, linker time will likely be spent on task renegotiation, translation and presentation while little, if any, time will need to be spent on context specification, diagnosis and resource collection.

The dynamics of the linking situation are further reflected in Figure 2 which illustrates the multiple forces observed to activate the linking process. Linking agents sought client contact when they perceived a client need, they learned something new and believed it deserved client attention, or their work load permitted taking on new activities. The linkers also sought client contact when asked to disseminate an RDx resource (e.g., Research Within Reach on Reading). They referred to this latter

FIGURE 1

THE LINKING PROCESS

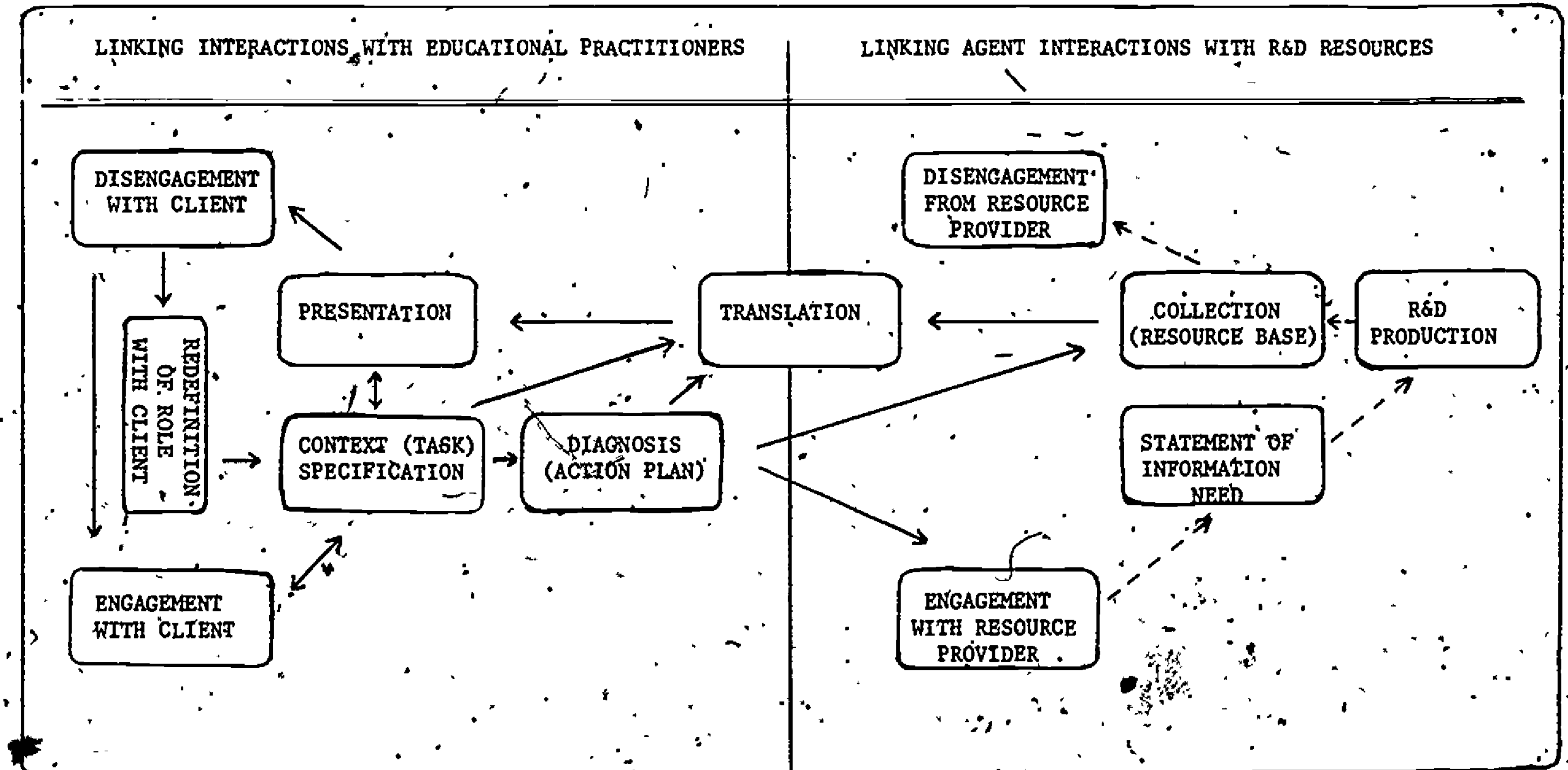
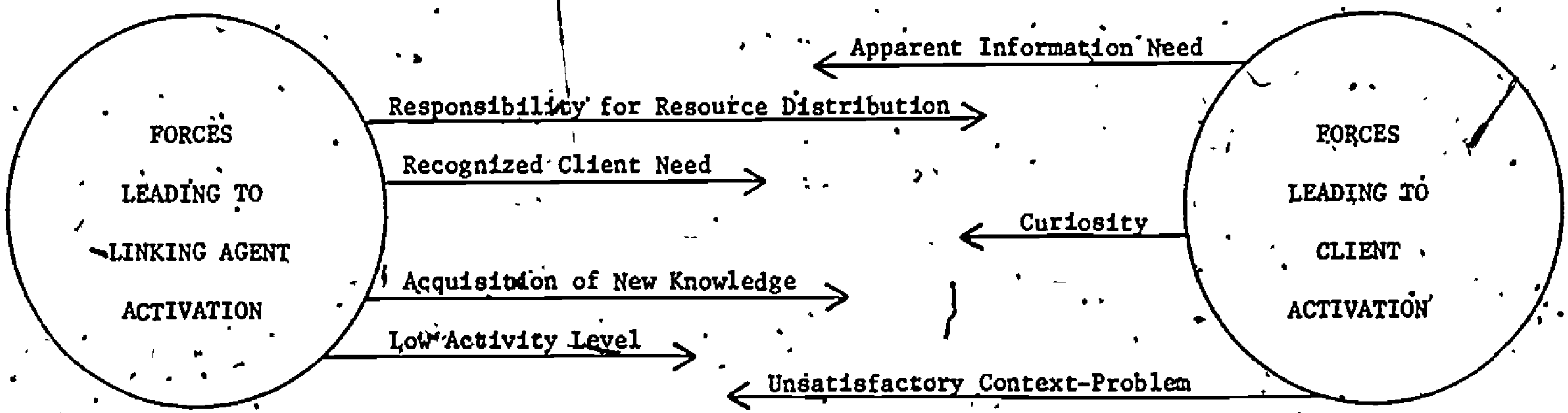


FIGURE 2

FORCES ACTIVATING LINKING PROCESSES



instance of linking as resource-centered linking (i.e., top-down dissemination of a product, program, etc.). Clients also activated the process when they were aware of linker services and desired general information support pertinent to specific lines of work, they were curious about the linker's role, or they had a task or a problem that required additional information or clarification.

The linking process as described to this point provides a fairly detailed description of what educational linking agents do and what activities are involved in the transfer of educational R&D from research to practice. The linking agents spent a great deal of time getting to know clients and their work contexts. They became familiar with information resources available. They conducted information searches related to client tasks and transformed information into forms meaningful and useful to their clients. They designed and delivered presentations aimed at increasing client knowledge and utilization of information. Overall, the linking agents related to a variety of different people in various situations and interacted with both practitioners and the research community. In the context of the ongoing dynamics of the linking process they translated problems into ideas and ideas into potential information solutions.

<u>Question 2</u>: What decisions do linking agents make in order to organize their activities?

Analysis of the data resulted in a list of forty-eight linker activities which were coded as decisions. Cluster analyses of these activities suggested that linkers were faced with decisions in four main areas. Each decision area represented a dilemma in that linkers were faced with

alternative choices or ways of performing. The choices in each area were represented as extremes on a continuum. Table 2 presents the four decision areas and the choices in each area.

TABLE 2

DECISION AREAS AND CHOICES INVOLVED IN LINKING

Decision Areas	Activity Choices
Scheduling	High Participation vs Low Participation
Coordination	Formalized vs Informal
Style	Directive vs Responsive
Role	Specialist vs Generalist

Basically, the linkers had to decide whether to: work with a few clients on a limited number of state priorities or many clients on multiple state priorities (scheduling dilemma); formalize their planning and support activities or operate more informally with greater flexibility (coordination dilemma); interact with clients in a directive or a responsive manner, (style dilemma); and/or present themselves as an information specialist or a generalist to each client (role dilemma). The decisions the linkers made, in each area, at any given time, significantly influenced the functional nature of the linking that occurred. Examples of some of the decision alternatives faced by linkers in each decision area, are presented in Appendix IV.

The Scheduling Dilemma

This dilemma reflected the fact that the linkers had a fixed amount of time available to serve the client system. Considering the time available, the linkers had to make decisions about which state clients and priorities to serve, how many clients to serve, and the frequency of their interaction with the clients. The dilemma involved a choice between serving a few key clients and state priorities or a larger number of clients and state priorities.

For the purposes of the study frequent interaction with many different clients was labeled as high participation in the client system. Linker preparation time between interactions was usually short. Infrequent interaction with fewer clients was labeled as low participation and preparation time between interactions was more lengthy.

Essentially, linkers had to schedule their time and activities to balance their interaction within the client system. Too frequent interaction might result in broad coverage of the state's priorities but shallow support for any given priority. Too little interaction might result in the provision of quality support but for only a few of the state's priorities. In any event, the nature of the support activities negotiated with a particular client considerably influenced the number of other clients, and concomitant state priorities, with which a linker could potentially interact.

The linkers' general approach to this dilemma was to conduct periodic negotiations with client management staff to review state priorities,

determine the locus of Rx efforts and establish mutual expectations about the distribution of work. Requests for or the initiation of new linker services were always carefully weighed in light of the state's priorities and the linkers' projected workload over the next month or two.

During the four months of the study, the linkers were observed to have negotiated different solutions to the scheduling problem with their respective clients and client systems. In one case a linker visited the client site approximately every other month to conduct a series of workshops for a representative group of clients. Another linker scheduled monthly visits to provide information to ongoing multiple projects. In the last case interaction with clients was more frequent. The linker met almost weekly with a client project work team to provide information and over-the-shoulder advice. In any case each visit to a client site was used as an occasion to touch base with current and potential clients. In addition to working with at least one long-term client project each of the linkers also responded to a variety of one-time information requests which were initiated somewhat randomly.

Several trends were observed regarding the scheduling dilemma. For example, when a major linker support effort was negotiated and the time prior to presentation was long, the linkers tended to devote their time to preparation and interaction with clients was low. On the other hand, when information needs were less major and the times prior to presentation shorter, the linkers tended to have a higher rate of interaction with clients, assuming they had available time. As the linking agents increased

their participation with clients, however, it was observed that less time became available for independent information collection, translation and preparation activities. Thus it was necessary to continually monitor and balance the scheduling of services to insure that adequate time was available to accommodate clients' priorities and expectations.

The Coordination Dilemma

The coordination dilemma reflected the fact that linkers were faced with the ever present problem of managing their day-to-day, behind the scenes support activities and client interaction activities. Essentially linkers had to decide whether to formalize their support activities and more systematically plan their activities with clients -- as opposed to operating more informally. The degree of activity-formalization and planning varied among linkers and across tasks. Some interesting trends were observed, however, that added further to the description of the linking process.

For example, some attempt was made to formalize various aspects of the linking process. Linking agents created and used standardized written forms to record client information needs, to record information about client tasks and system characteristics, to record client evaluations of their performance and to document their interactions with client. Linkers prepared standard briefing materials to describe their role to clients and other audiences. They tended to follow standard procedures or routines in collecting R&D resources on priority work topics: they received monthly "current awareness" reading materials from their resource center; screened

appropriate professional journals, conducted computer searches, and created "major information files". The above attempts to standardize usually involved activities under direct linker control.

The linkers tended to be less formal in their interactions with clients. They did not use questionnaires or structured interviews to obtain data on client tasks, system characteristics or needs. They relied primarily on face to face verbal dialogues to obtain the desired information.

Linkers also varied in the degree of formal planning they engaged in for given linking steps. In some cases, linking agents spent a great deal of time and effort planning interactions with clients. In other cases, interactions were spontaneous and more flexible. Frequently, a linking interaction would involve both formal and informal planning. For example, a chance meeting with a client might involve some informal exploratory discussion regarding client needs and potential linker services, followed-up by a planned meeting with a structured agenda to achieve specific ends, followed-up by further informal discussion regarding after-thoughts or spinoffs from the meeting.

Overall, three general types or levels of linker-client interaction were observed, each involving successively more linker planning. Exploratory meetings (Type I) usually required little advance planning, had no formal agenda, were focused on the client and involved the exploration of possible linker-client ways of working together. Participatory meetings (Type II) required more linker preparation (not extensive collection, translation or delivery though), had formal agendas established by the clients, and usually involved linker participation, at the client's discretion, as

an ad hoc contributing member of the planning or work group. Delivery meetings (Type III) required extensive linker planning including an agenda to structure linker-client interaction, and involved the formal presentation of information by linking agents.

The above observations revealed that the coordination or management of linker activities varied in degree of formalization. Linkers tended to formalize repetitive or routine activities under their control. They also sought, where possible, to engage in formal planning of their interactions with clients. Generally speaking, linkers tended to engage in the most formal planning for tasks that were of the greatest significance to the client system.

The Style Dilemma

This dilemma reflected the fact that the linking agents made choices about their style of interaction with clients. Linking style refers to the extent to which the linking agents directed the interactions involved in the transfer of R&D information to clients. Linker behaviors on this decision dimension ranged from directive through collaborative to responsive activities. Directive activities were linker initiated, prescriptive, advocacy referenced and often resulted in the linker defining the client's task and information need. Responsive linker activities occurred in reaction to client initiatives, involved solicitation of, and listening to, clients' ideas, opinions and points of view, and usually resulted in the client defining a task and information need. Collaborative activity involved the mutual definition of tasks and information needs, and shared work and responsibility for their accomplishment.

The study demonstrated that the linkers varied their style or degree of directiveness depending on the task and their relationship with the client. Context specification and needs assessment were usually conducted in a responsive style. Linkers probed, and listened, and paraphrased clients' ideas. In some cases, during diagnosis, the linkers tended to exercise more direction and suggested definitions of the client's problems and information needs, for the client's response. The linkers generally were observed to be more directive with clients who had difficulty in stating an information need or problem.

The nature of linker collaborative activities was also of interest. On several occasions linkers used opportunities for collaborative activities with clients as occasions to model various behaviors such as problem-solving, needs assessment, use of resource files, workshop presentations, etc., for clients. These "directed collaborative" activities were usually one-time efforts directed at increasing clients' capacity to perform the modeled behavior.

Interestingly enough, greater variability was observed between linkers than within linkers with respect to linker directiveness. The degree of directiveness exerted appeared to be related more to the linkers preferred communication style than to any particular linking step or activity. Overall, no series of linker activities was observed to be totally directive or totally responsive. Most linker activities involved a balance along the continuum from directive to responsive.

The Role Dilemma

Observation of the linkers' activities also revealed that they were faced with making choices about the nature of services to be provided to clients. In some cases, they chose to provide information specialist services. In other cases, they acted as information generalists. As specialists, they translated content into the client's language system, and assisted with its application to the task at hand. As generalists, they provided knowledge and services related to information management. Generalists' knowledge and skills were generally transferable across content domains.

Linking agents frequently provided specialist services when they had the time to engage in extensive information collection, analysis and translation activities to prepare information for clients' use. They wrote discussion papers and prepared information packets or workshop presentations to render R&D-based information of use to clients. In essence, they became specialists in the content domain. When circumstances did not permit their serving as specialists, linkers often brokered the content specialist services of other linkers, researchers or practitioners for clients' use. When client information needs were relatively light, the linkers also served as direct conduits for original untransformed information. These frequent transfers required little linker preparation and resulted in the sharing of a variety of R&D-related information with clients (bibliographies, fugitive papers, proposals, program manuals, sample instruments, single journal articles, names of contact people, and assorted bits of wisdom) usually in response to client requests.

Generalist services were also frequently provided to clients. Linkers directed clients in the collection and translation of needed information and/or prepared workshops aimed at increasing clients' information management skills. Specific linker activities in this area included: workshops on linking agentry, instruction in the preparation of discussion papers or information packets, and instruction in the conduct of information searches.

As a matter of course, linkers were observed to balance their activities between the roles of generalists and specialists. The profile most often observed was that of a linker working as a specialist with clients on at least one project, and as a generalist with clients on several other projects.

Discussion

The decision alternatives involved in linker scheduling, coordination, style and role represented potential dilemmas to linking agents. Decisions in each of these areas had to be guided by the trade-offs involved in the larger context of the linkers' primary role and clients' priorities.

Scheduling decisions required linkers to balance their work load to insure adequate time for delivery of quality services to clients. High or low linker participation in the client system per se, was neither inherently good or bad. Overall, from the Rx perspective, the primary consideration was to insure that clients priorities were being met. Linkers therefore had to assess carefully requests for their services in light of clients' priorities and their own workload, time available and need for slack time.

The observation of differences in linker communication style both within linkers during a given linking interaction and between linkers on different linking interactions was of interest. Table 3 presents the pros and cons of different linking styles. A responsive linking style

TABLE 3

LINKING STYLES

Pros	Cons
DIRECTIVE	
• Focuses on specific issues deemed important by the linking agent.	• Increases the possibility that issues of significance to the client may be overlooked.
• Is to the point and hence requires less interaction time.	• Provides less understanding of client's thoughts and views of the situation/problem.
• Emphasizes linking agent's definition of the situation.	• Increases probability of resistance.
RESPONSIVE	
• Enables linking agent to gain a better understanding of client's thoughts and views of the situation/problem.	• Is more time consuming.
• Provides greater detail to the situation.	• Requires more communication skills.
• Helps establish rapport and reduces resistance.	• May provide more information.
• Emphasizes client's definition of the situation.	

generally consumed more time and required greater communication skills but resulted in better rapport with the client. Generally speaking, linkers in any situation need to be conscious of (their) linking style and their client's communication style to insure that conflicts do not occur.

Finally, the observation that linkers made decisions regarding their role to better meet client needs added another dimension to the linking process. This finding suggested that linkers need to examine their tolerance and capacity for role variety when initiating any series of interactions with clients.

Question 3: What factors influence linker activities?

To answer this question linker observation and interview data were examined to determine the forces influencing linker activities. The examination revealed that almost all linker activities involved the consideration of multiple, opposing forces. The various categories of forces observed were: personal, interpersonal, client, organizational, policy, NIE, RDx and RBS. Client related forces were found to exert the strongest influence on RBS Rx linking agent activities. The forces which influenced linker decisions in each of the decision areas, and the direction of their influence, are presented in Tables 4-7. The relationship of the forces to each of the linking dilemmas is described as follows.

TABLE 4

FORCES INFLUENCING SCHEDULING DECISIONS

Low Participation	High Participation
← Linking agent need for autonomy	Linking agent need for affiliation →
← An interdependent task	Client receptivity requests →
← Client autonomy	An interactive task →
← Non-client related responsibilities	Client diversity →
← Political risks	High status entitlement →

TABLE 5

FORCES INFLUENCING COORDINATION DECISIONS

High Formalization	Low Formalization
← Similarity of requests	Constantly changing client system →
← Task significance	Linking agent tolerance for uncertainty →
← Large information need	Client diversity →
← Limited time	Diversity of information needs →
	Resource uncertainty →
	Multiple accountabilities →

TABLE 6

FORCES INFLUENCING STYLE DECISIONS

Directive	Responsive
← Linking agent need for control	Clear client request →
← Linking agent credibility	Verticle contact with client system →
← Limited time	Client centered approach →
← Designated distributions	Linking as information transfer →
← Information fidelity	
← Linking as problem solving	
← Ambiguous client request	

TABLE 7

FORCES INFLUENCING ROLE DECISIONS

Specialist	Generalist
← Linking agent past experience with information needed	Linking agent lack of interest about information needed →
← Linking agent interest about information needed	Request for generalist services →
← Lack of other sources for information needed	Under utilization of internal sources →
← Request for specialist services	Linking agent information overload →
← Time available	History as a generalist →
← History as a specialist	

Scheduling Forces

Table 4 lists the forces which influenced linkers toward either high or low participation in the client system. It can be seen that linkers who: (1) preferred group affiliation and group identity (affiliation need); (2) received frequent client requests and recommendations (client receptivity); (3) became involved in client tasks requiring frequent input (interactive task); (4) agreed to serve a diversified group of clients (client diversity); and/or (5) received multiple requests from legitimate authority sources in the client system (status entitlement) — tended to be moved toward high participation or frequent interactions with the client system.

On the other hand, linkers who: (1) preferred independent as opposed to group activity (autonomy need); (2) became involved in tasks requiring lengthy collection, translation and preparation activities (interdependent task); (3) became involved with clients preferring limited linking agent participation or visibility (client autonomy); (4) were absorbed in various RDx maintenance duties such as transaction log or progress report preparation (non-client related tasks); and/or (5) encountered political shifts such as changes in leadership or work priorities in the client system (political risks) — tended to be moved toward lower participation in the client system.

All of the above forces were observed to influence the extent of linker interaction with the client system. At any given time one or several of these forces might be in operation tending to result in either

linker over-involvement (too much work) or linker under involvement (too little work) with the client system. Linkers therefore had to consider these forces and anticipate their consequences in order to attempt to provide continuous services to multiple clients in the client system. To achieve this the linkers actively balanced their rates of engagement and disengagement with clients in order to maintain a resource of slack time. The linkers found that this was best accomplished by specifying client tasks and linker services in terms of clearly defined goals, expectations and delivery dates. Clear client and linker expectations regarding delivery and disengagement facilitated the scheduling of additional linker services to other clients.

Coordination Forces

The forces which influenced linker decisions to coordinate or integrate their activities with clients' activities are presented in Table 5. The left side of the table cites forces which influenced linkers to formalize, standardize or plan-in-advance their activities. The forces listed on the right influenced linkers to take a less formal, more spontaneous approach to their linking activities.

Linkers were influenced to formalize or plan-in-advance their activities when: (1) they received multiple requests over time for similar information (request similarity); (2) they received requests to work on client tasks of high significance involving many client members (task significance); (3) an extensive amount of information was required for a client's task (large information need); and/or (4) a limited amount

of time was available to provide the desired client services (limited time).

Conversely, linkers were influenced or pressured to maintain a less formal, more spontaneous approach to their linking activities when: (1) they encountered an evolving, ever changing client system (constantly changing client system); (2) their own tolerance for uncertainty was high (tolerance for uncertainty); (3) they were constrained to work with diverse clients who differed in role, authority level, education and information need (client diversity); (4) they received requests from many different sources for quite varied content (diversity of information needs); (5) there was uncertainty over the availability of desired information resources (resource uncertainty); and/or (6) they were accountable to a number of varied sources such as their clients, the RDx, the Rx, RBS and NIE.

Two generally opposing forces were observed to frequently influence or pressure linker coordination decisions: task significance and client diversity. Tasks of extreme importance to the client system pressured linkers to coordinate or manage their activities by advance planning and formalization of linker-client interactions. Having to deal with a diversity of clients, however, moved linkers toward coordination of their efforts by informal procedures to facilitate flexibility of communication and interaction with clients. The mutual occurrence of these forces presented somewhat of a dilemma to linkers.

Two examples of general solutions to the above dilemma arrived at by the linkers were to either (1) package the information into smaller components of content and conduct a series of workshop presentations for the diverse client group, illustrating the applicability of a given content component from the diverse perspectives represented, in each of the workshops, or (2) package the information into larger content components and make presentations to clients grouped homogeneously. In each case provisions were made for audience participation and questioning throughout. Thus, the linkers addressed the coordination dilemma by balancing the nature of formal (planned, written and/or structured) and informal (unstructured, flexible, open-ended, discussion-based) activities that occurred.

The above examples, provided an interesting illustration of the value of interpersonal linking agent assistance. No one set of written materials, on their own, can be readily adaptable to the needs of varied audiences. However, written materials accompanied by linker's presentation, explanation and face-to-face discussion can be adapted to the needs of diversified audiences. Clients can readily ask questions and relate or adapt new ideas to their work needs.

Style Forces

A number of forces were observed to effect the interaction style linkers chose to use with clients. Table 6 presents the forces which induced linkers to be either directive or responsive.

Linkers who: (1) preferred to lead, direct and prescribe actions (need for control); (2) were perceived as having or being able to obtain relevant knowledge (linker credibility); (3) had constraints on the time available to deliver services (limited time); (4) were required to distribute specific sources of information (designated distributions); (5) found an obvious solution to a client problem (information fidelity); (6) believed in a problem-solving, solution-based approach to linking (problem-solving); and/or (7) received unclear descriptions of clients' tasks and situations or unclear requests for services (ambiguous client requests) — tended to prefer or be influenced toward a directive linking style.

From the opposite perspective, linkers who: (1) received unambiguous statements of client tasks, projects, goals and information needs (clear client request); (2) interacted vertically across all levels of authority structure in a client system (verticle contact); (3) viewed linking as a client centered process (client centered approach); and/or (4) viewed linking as a process established to transfer information to clients for use for a variety of purposes (linking as information transfer) — tended to adopt a linking style that was responsive.

Overall, the Rx linkers were observed to be more responsive than directive, confirming their position that their activities were client-centered. A tension or conflict was frequently observed, however, between the linkers' desires to be responsive and clients' difficulties in expressing their needs. When client requests were ambiguous the linkers

used one of two approaches. They either adopted a directive style, probed for more specific information and conducted brainstorming or problem solving sessions. Or, they remained generally responsive to client requests as stated. In general the directive approach led to more constructive linker-client interactions when client requests were ambiguous.

Role Forces

Table 7 outlines the forces identified as influencing linker decisions about the role linkers adopted in providing services to clients. The forces which influenced linkers to act in specialist or generalist roles are listed in the left and right parts of the table, respectively.

It can be seen in Table 7, that linkers were influenced to provide information specialist services to clients when: (1) linker had past experience and/or formal education in the information request area (experience); (2) the linkers had a strong interest in learning about the informaton requested (interest); (3) the nature of the information requested was such that the linker had to process it in depth (lack of other sources); (4) clients specifically requested technical assistance in applying specific information to a given task (request for specialist services); (5) there was sufficient time in both the linker's and the client's schedule to permit specialist activities (time available); and/or (6) the linker had established a history in the client system of acting in a specialist role (history as specialist).

Linkers were more prone to provide information generalists services to clients when: (1) the linker had no special interest in the information area (disinterest); (2) clients specifically requested assistance with the development of information management or dissemination capacity skills (request for generalist services); (3) the requested information existed in the client system (under utilization of internal sources); (4) the linker was overloaded with work on a variety of information collection and translation tasks (information overload); and/or (5) the linker had established a history in the client system of acting in an information generalist role (history as a generalist).

Two observations are worthy of note regarding the above results. First, it was observed that linkers who had established histories of acting as either information specialists or generalists encountered resistance from clients when they tried to change their dominant role. Second, linkers tended to provide services in information areas that were compatible with their own areas of interest and expertise.

Analysis and Discussion of Forces

The forces bearing on linker decisions were reviewed systematically to determine if any generalizations could be made regarding groups of forces and linkers' subsequent activities. Several general patterns of relationships emerged. The most prevalent cluster of forces considered across the four linker decision areas were client related forces. Forces related to the linking agents themselves were next most prevalent. Finally, time was continually a major consideration which influenced decisions in all areas.

The observed pattern of dominance of client related forces supported the Rx linkers' perception and description of their job and activities as "client-centered". In summary, the client related forces which influenced linking agent activities were: client' requests; the type of services requested and expected; the degree of request ambiguity; the frequency of requests; the repetition of similar requests; clients' information state -- the kind, amount and diversity of information needed and the availability of the information; the nature of the client's task and its significance to the client system; clients' need for autonomy; the rate of client system change; and the size, diversity and nature of the linking agent's contact with the client system.

The next most frequently considered cluster forces which influenced linkers' activities related to the personal attributes of the linkers: i.e,, linkers' education, interests, expertise, tolerance for uncertainty, views about linking, and needs for autonomy, control and affiliation.

In addition, the force of time exerted a continuous discernible influence on linkers' activities. The availability of time was directly related to the provision of specialist services, the adoption of a responsive style, engagement in informal activities and high participation in the client system. Interestingly enough, the available R&D base and the extended linker-client environment (i.e., NIE and RDx) only infrequently influenced day-to-day linker activities.

In summary, the linking process was observed to be influenced by a host of client related, linker related and time related forces or factors. Each linker-client interaction therefore involved consideration of a variety of personal, interpersonal and organizational forces.

Summary and Implications

The present study was conducted from a program process evaluation frame of reference to determine and describe (1) the activities engaged in by three Regional Exchange (Rx) linkers to transfer R&D-based information into educational practice, (2) the decisions the linkers were required to make, and (3) the forces or factors which influenced the linkers' decision-making. Some 336 separate linker activities, consisting of actions, verbal behaviors and decisions were coded by a participant observer during the four month field study. Analyses via inductive content analytical procedures resulted in the production of a functional taxonomy of linker activities. The results indicated that there were seven functional steps in the linking process. Each step involved from two to six primary activities which in turn were comprised of basic activities. Viewed collectively, the basic activities, primary activities and functional steps constitute the linking process.

The functional linking steps consisted of: engagement, context specification, diagnosis, collection, translation, presentation and disengagement. In brief, Rx linkers had to (1) establish and maintain relationships with state clients and information resource bases; (2) learn about clients' tasks, work environments and information needs; (3) diagnose clients' needs and negotiate specific services to be delivered in support of clients' work efforts; (4) search for and collect R&D-based information relevant to clients' needs; (5) translate the information into a format and language suitable for clients' use; (6) personally present and explain the information to clients; and (7) disengage from a given client-service contact and negotiate new services with the same or different clients.

The steps in the linking process or cycle were not followed in rote fashion. Rather, they were implemented with flexibility. Consideration was given to the history of the linker-client relationship, the task negotiated and the availability of a resource base. Component steps which already existed were not repeated unnecessarily.

In the course of engaging in the functional steps and primary activities central to the linking process, the Rx linkers had to make decisions regarding (1) scheduling (which state clients and priorities to address; how many and how frequently?); (2) coordination (which activities could or should be formalized; how much planning was necessary or desirable?); (3) style (should a directive or a responsive style be employed; which style would result in the greatest client benefit?); and (4) role (would the client's needs best be satisfied if information specialist or generalist services were provided?)

Linkers' decisions in the four areas cited above were influenced by a variety of forces. Client related forces were found to have the most bearing or influence on linkers' decisions. Linkers' experience, background and preferences also had a significant influence on linkers' decisions.

Considered as a whole the above findings describe a client-centered, time-bound, interpersonal communication process which functions to link R&D information with educational practice. The components of the process are summarized in Figure 3. The forces on the left are the factors which

FIGURE 3

COMPONENTS OF THE LINKING PROCESS

FORCES → LINKER DECISIONS → LINKER ACTIVITIES → RESULTS

FORCES

STATE EDUCATION AGENCY

- Task
- Information Need
- System Characteristics
- Environment

LINKING AGENT

- Education
- Experience
- Interests

TIME

ENVIRONMENT

- RBS
- RBS-Rx
- RDx
- NIE

R&D INFORMATION BASE

LINKER DECISIONS

DECISION AREAS

(Dilemmas)

- Scheduling
- Coordination
- Style
- Role

LINKER ACTIVITIES

FUNCTIONAL LINKING STEPS

- Engagement
- Task Specification
- Diagnosis
- Collection
- Translation
- Presentation
- Disengagement

RESULTS

TRANSFER

OF

R&D

INFORMATION

influenced linkers' decision-making. The four decision areas, which can be represented as presenting dilemmas to linkers, are cited next. Decisions in any of the four areas substantially influenced the qualitative nature of the basic and primary activities linkers engaged in to operationalize the steps of the linking process. In fact, a case can be made from a technical perspective that each linking cycle completed was operationally unique in that different combinations of forces, and subsequent linkers decisions, resulted in the linkers' implementations of select basic and primary linking activities, in unique sequences with unique interpretation and emphasis. Functionally speaking, however, implementation of the linking steps through a complete cycle usually resulted in the transfer of R&D information from research to practice regardless of the observed configuration of basic linking activities. Overall, the results of the study revealed some of the complexities of the linking process from an ongoing, dynamic perspective.

Implications for Linking Agentry

A number of conclusions or implications, pertinent to the implementation of the steps in the linking process and the organization of linking agentry, were derived from the study and are presented as follows.

Engagement

- When serving a specific client system, linking agents should initiate relationships with a representative cross-section of staff in the client system and should maintain them, even when they are not directly working together. This will make the linking agents more accessible to requests and will tend to avoid a

firefighting approach to the utilization of R&D.

Context Specification

- When collecting information about a client system linking agents should attempt to obtain information from multiple sources (human and documentary) at multiple levels in the organization. The priority and significance of potential tasks should then be verified with client system management staff.

Diagnosis

- In working with clients linking agents should make very explicit thorough brochures, presentations and/or personal discussions: their agencies' charge and role (agencies' goals); the specific services they are able to provide (individual expertise); and the specific services they are interested in providing (individual interests). Ambiguous client requests can often be attributed in part, to a lack of clear and thorough information about the nature of linking services available.

- Linkers should strongly consider taking a directive approach when they encounter clients who have difficulty in stating a clear request for services. Linker-led client brainstorming or problem solving sessions facilitate closure on relevant linking tasks.

Collection

- Where possible, linkers should anticipate client needs (based on context specification activities) and initiate collection work on resource bases that are most likely to be of relevance to anticipated linker-client interactions or collaborative efforts.

Translation

- Linking requires that linking agents translate R&D-based information into the language of the client and encourage clients to apply their own labels to the phenomenon. The importance of language to the transfer process is critical from the perspective of initial client understanding and ultimate client ownership. Availability of or access to information are insufficient to ensure clients' utilization of the information.

Presentation

- Time is a critical factor in most linking situations. Linking agents should attempt to maintain a resource of slack time in order to have sufficient flexibility to respond to clients' requests in time. Given the time-bound nature of linking, it was observed that information presented to clients was of use only if it was available at the time needed.
- Face-to-face interactions between linkers and clients are essential to the linking process. Face-to-face interactions facilitate clients' testing, questioning and feedback regarding the information presented. Linkers can then further explain, reinterpret re-present, or elaborate on the information presented. Personal interaction undoubtedly leads to greater client cognitive understanding of the information and its relevance. Personal interaction also appears to facilitate or influence clients' affective commitment to use the information. In the final analysis, the affective and cognitive aspects of the linking process are probably equally important.

Disengagement

- Linkers need to be aware of the history or entitlement they have established with the client system. They should expect that attempted role changes (e.g., from information generalist to specialist) will likely meet with some degree of resistance from former clients.

Linking from an Organizational Perspective

- Linking agencies should establish clearly stated goals and service descriptions and illustrate to client systems how these goals and services are congruent with clients' goals and work activities.
- Linking agencies should also initiate, establish and maintain relationships with potential client systems (state departments, intermediate state agencies or school districts in a region).
- Agencies should also consider a form of matrix organization to facilitate the use of their linking agent staff across different client systems to maximize staff use and client service. This latter approach requires the linking agency to designate a primary contact person for each client system to coordinate agency-system activities.
- Given linkers' tasks to work across a range of clients with varied information needs, to work autonomously to translate R&D-based information into forms meaningful to clients, and to move in and out of various client groups — linking agencies need to institute organizational support mechanisms which foster openness, sharing, autonomy and a sense of identity among linking agents.

- Linking agencies also need to be sensitive to the high degree of flexibility called for in linking work. Linkers are disposed to provide specific services in consideration of a range of external client, intrapersonal, and time related forces. As a result, linking agents work in a situation which demands role variety, style adaptability, information variety and concomitantly, a high tolerance for uncertainty. All of these factors support the assertion that linking agencies and agents need to be highly flexible.
- Finally, both linking agencies and linkers need to be sensitive to the fact that linking is a consultative process that relies heavily on a wide range of communication skills. Linking relies on five general sets of skills: (1) interpersonal communication and consulting skills to establish/maintain client relationships and to obtain information about client task environment, goals, and needs; (2) networking skills to span boundaries, develop information sources and obtain desired resources; (3) analytical information search, selection, management, analysis, and synthesis skills to access and process information quickly and efficiently; (4) creative information translation, bisociation and interpretation skills to translate varied sources of information and jargon into conceptual frameworks and language understandable and relevant to clients; (5) general educational skills to design the varied presentations needed to deliver information to clients in instructive, motivating and relevant ways.

Implications for Linker Agent Training

Three general implications for the training of linking agents were derived from the study. Effective linking agents were observed to (1) adapt their activities to the needs of varied clients in the context of a larger educational effort (i.e., state education agency); (2) demonstrate communication liaison, networking, analytical information search and analysis, information interpretation and translation, and instructional skills; and (3) demonstrate flexibility in decisions related to negotiating and scheduling activities, interaction style with clients and service role with clients.

Using these observations as general criteria it is suggested that linker training involve (1) case study, hands-on type experiences to familiarize linking agents with the educational system(s) they will be working with: i.e., their components, maintaining forces, politics, and current goals, operations and improvement efforts; (2) a series of training workshops designed to prepare linkers in the five key skill areas identified as requisites for linking; and (3) supervised field experiences or simulations to give linkers opportunities to experience the linking process, their preferred styles of acting and alternative ways of acting — to provide a full understanding of their role as an ongoing decision-maker.

Implications for the Evaluation of Linking Efforts

Evaluation studies can be conducted to: (1) describe ongoing linking activities (program documentation or program processes); (2) appraise the degree to which focused linking activities meet their goals and

objectives (specific goal achievement or objectives-based); (3) provide information for the improvement of linking activities (formative); and (4) provide information about the overall effectiveness of linking activities (outcomes-based or summative).

The present study was primarily an example of program process evaluation. The results were used by the participants in a formative sense to help them better understand and modify their linking behavior. From a technical perspective the present study was not a formal formative evaluation in that the study did not overtly address the relative impact of the observed linking activities on clients' subsequent information use. Substantial definitional and methodological groundwork was accomplished, however, that should facilitate subsequent evaluation studies (descriptive, formative and summative) of the linking process.

Accordingly, the methodology employed in the present study (participant observation and inductive content analysis procedures) appears relevant to the descriptive study of linking in other contexts. For example, the linking process activities of other Regional Exchanges or the linking process efforts associated with various state sponsored school improvement efforts could be studied using the present methodology.

The results of the study also provided a taxonomy of activities and a goals and objectives structure that can be used to guide more comprehensive formative and summative evaluations of linking agentry. If the linking steps, decision areas, forces and organizational-related factors are accepted as a framework, a number of questions can be posed, relevant to the formative and summative evaluation of client-centered linking.

Given the proposed framework, a formative evaluation of the client-centered linking process might be focused around the following questions:

- What are the key goals and objectives of client-centered linking?
- What are the most important activities and characteristics of a client-centered linking operation? (Linking steps, decisions, forces)
- Are these important activities being implemented? (e.g., engagement, context specification, collection -- agency goals, agency support for linkers, inter-agency relationships, etc.)
- Are the activities contributing to the achievement of the objectives? (i.e., Are key state priorities being served and is R&D based information being translated from research into practice?)
- What adjustments in the implementation of the linking steps; linkers' decisions regarding scheduling, coordination, style and role; linker training and preparation; and/or linker agency organizational activities might lead to the attainment of the objectives?
- Which approaches to diagnosing and serving client system needs work best?
- Which linking style or role works best -- in what situations?
- What problems are involved in implementing the linking steps; in reaching linker decisions; in providing organizational support for linkers; in managing a client-centered linking operation? How can these problems be solved?

- What measures can be suggested to operationally define: (1) the degree to which client system priorities are being met and (2) the degree to which information is being transformed from research to practice?

The study also surfaced several issues of relevance to the summative evalution of linking efforts. Given the fluid nature of client-centered linking, how do you evaluate the effectiveness of linking efforts from an organizational management perspective and from an impact or information-use perspective. Overall, general observations gleaned from the study discount the use of any simple linker-client frequenty-of-interaction measure to attest to either efficient management or effective impact. Answers to the qualitative questions "What state (client) priority was involved?", "What specific use was made of the information?", and "Who was affected by the information use?" -- far outweigh the notion of simple frequency tallies of linker-client interactions with regard to the assessment of linker activity impact.

For example, a relatively brief series of interactions with key state clients might result in the utilization of R&D-based information in the design of a statewide school improvement process, impacting all of the school districts in the state. This brief series of linker-client interactions might potentially be more significant than more numerous contacts with other clients that deal with more routine and internal applications of information.

The ultimate effectiveness of given linker-client interactions can therefore only be appraised fully if consideration is given to the

significance of the client priority being addressed, the actual use made of the information and the larger audience affected by the information use. Similarly, evaluations of the effectiveness of the management of linker operations in a client-centered context need to examine the viability of extant organizational strategies for the identification of high priority client system needs, the matrix management of linkers to deal with the identified needs, the support systems developed to facilitate the linkers' activities, and the relative opportunities for work in the client system.

Implications for Further Research

As was noted above the present study constituted a first descriptive step in the study of linking from a dynamic perspective. In that regard, the linking activities of three Rx linkers working as consultants with state department of education staff on state priority tasks related to school improvement and dissemination were examined.

Additional study is needed of linkers' activities (1) to determine if similar steps and linker decisions are involved in other linking contexts; (2) to examine the alternative component tasks and primary activities involved in each of the steps to determine which are most effective; (3) to distinguish further between client-centered and resource-centered linking; (4) to more fully operationally define the conditions or outcomes which constitute a successful transfer of R&D based information from research to practice; and (5) to operationally define measures of linking effectiveness that consider clients' valuing, use, priority context and ultimate audience application of the information provided.

Select Bibliography

Baldridge, J.V., & Deal, T.E. (Eds.) Managing Change in Educational Organizations. Berkeley: McCutchan Publishing, 1975.

Butler, M., & Paisley, W. Factors Determining Roles and Functions of Educational Linking Agents. San Francisco: Far West Laboratory for Educational Research and Development, 1978.

Center for New Schools. Assistance Strategies of Six Groups That Facilitate Educational Change at the School/Community Level. Washington, D.C.: Department of Health, Education and Welfare, 1977.

Cohen, G. External Agency Roles and School Improvement Processes: An Annotated Bibliography. Philadelphia: Research for Better Schools, 1977.

Crandall, D.P. Training and Supporting Linking Agents. In N. Nash & J. Culbertson (Eds.), Linking Processes in Educational Improvement. Columbus, Ohio: University Council for Educational Administration, 1977.

Duncan, C.W. Director of Linking Agents: Providing Management and Support. Paper presented at the annual meeting of the American Educational Research Association, Toronto, March, 1978.

Emrick, J.A. & Peterson, S.M. A Synthesis of Findings Across Five Recent Studies of Educational Dissemination and Change. Washington, D.C.: National Institue of Education, 1978.

Fisher, E.M. Implementation of Innovations as a Series of Exchanges. Pittsburgh: Learning, Research and Development Center, 1978.

Glazer, M. The Research Adventure: Promise and Problems of Field Work. New York: Random House, 1972.

Guba, E.G. Methods of Collecting and Analyzing Naturalistic Data. Paper prepared for the Study of School Improvement Processes, Research for Better Schools, Inc., 1979.

Hall, G.E. Ethnographers and Ethnographic Data, An Iceberg of the First Order for the Research Manager. Paper presented at the annual meeting of the American Educational Research Association, Toronto, March 1978.

Hall, G.E. Implications for Planned Dissemination, Implementation, and Evaluation Revealed in the SRI/NDN Evaluation and Levels of Use of the Innovation Studies. Paper presented at the annual meeting of the American Educational Research Association, Toronto, March, 1978b.

Havelock, R.G. Planning for Innovation Through Dissemination and Utilization of Knowledge. Ann Arbor: Institute for Social Policy, 1971.

Havelock, R.G. The Change Agents Guide to Innovation in Education. Englewood Cliffs: Educational Technology Publications, 1973.

Holsti, O.R. Content Analysis for the Social Sciences and Humanities. Reading, Mass.: Addison-Wesley, 1969.

Hood, P.D., & Cates, C.S. Alternative Approaches to Analyzing Dissemination and Linkage Roles and Functions. San Francisco: Far West Laboratory for Educational Research and Development, 1978a.

Lippitt, R., Watson, J., & Westley, B. The Dynamics of Planned Change. New York: Harcourt, Brace and Co., 1958.

Madey, D.L., & Baker, R.F. Developing Empirical Descriptions of Educational Linkage Agents: A Study of the Relationships Among Educational Linkage Agent Roles and Selected Linkage Agent Functions. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, 1979.

Nash, N., & Culbertson, J. (Eds.). Linking Processes in Educational Improvement. Columbus, Ohio: University Council for Educational Administration, 1977.

Piele, P. Review and Analysis of the Role, Activities, and Training of Educational Linking Agents. Eugene: University of Oregon, 1975. (ERIC Clearinghouse on Education Management)

Roberts, J.M.E. Implementation of Innovations in Educational Organization and Instruction. Philadelphia: Research for Better Schools, 1978.

Zaltman, G. & Duncan R. Strategies for Planned Change. New York: John Wiley & Sons, 1977.

Zaltman, G., Florio, D.M., & Sikorski, L.A. Dynamic Educational Change. New York: The Free Press, 1977.

APPENDIX I

Interview Guide - - - - - - - - - - - - Interview #1 with Rx Staff

Generally describe what you do?

What's a day like for you?

Why do you do (refer to answer provided in question 1)?

What do you need to know about a client to work with him/her?

How do you get this information?

What do you do with this information once you've got it? Do you retain it? How?

How many people do you interact with in a day? How many are clients? How many are information sources?

What are your primary sources of R&D information?

What percent of your time is in the field? Would you prefer it to be more or less? Why? What prevents it from being more or less?

How do you know when you've done a good job? For example?

How do you know when you've done a lousy job? For example?

What do you see as the major constraints on your activities as a dissemination specialist?

What do you call yourself? What title is on your business card? How do your clients know you? What do they call you?

What kinds of things provide an opportunity for you to give a client R&D information? For example?

What do you like most about your job?

What do you wish you could do differently but for some reason you can't? Why can't you? Specifically:

Who are your clients? Specifically, who are you working with now?

How did your work with them begin?

How long have you been working with them?

What's the average length of time you work with a client?

What are their needs?

How did you find out what their needs are?

What have you done for them so far?

How did they respond?

What do you plan to do for them in the future? Why?

What will you have to do in order to provide this service?

How will you know when to end your work with/for them?

How do you know if they are sitisfied? If your work is valued or used?

How frequently do you talk with the other Rx staff about your clients? Why?

What other things do you talk to Rx staff about? How often?

What is your unique contribution to the Rx? Do you feel the others appreciate and/or find this useful?

Is there anything specific that you'd like me to note while I observe your interactions with either clients or Rx staff? Any activities you specifically want input or feedback about?

Interview Guide - - - - - - - - - - - - Interview #2 with Rx Manager

What is the relationship of the Rx to RBS?

What kinds of interactions do you have with the Rx client states? What has your involvement been with each state?

Do you have a profile of an ideal dissemination specialist?

What activities of your staff do you encourage?

What do they do that you'd prefer they not do?

How do you let the staff know you think they've done a good job? A lousy job?

Do you see each staff member as having a unique contribution to the Rx? Explain?

APPENDIX II

Categories resulting from content analysis of Interview #2 data.

Titles given Rx staff role
Services provided to SEAs
Rx role with SEAs

Rx-client relationship building
Responses to client requests
Request clarification

Negotiation of services provided
Client characteristics
Client resistance

Client investment in project
Incentives for SEAs to work with Rx
Strategies for getting clients to value R&D outcomes — ownership

Rx contributions to SEAs
Rx agendas with SEAs
Type of information needed to do the Rx job

Sources of R&D information
Information search processes
Timing of activities/time required

Preparation of deliverables
Strategies when not knowledgeable
Feedforward

Attitudes toward change/views of change
Parameters on Rx work and services delivered
Opportunities

Visions
Rx internal relationships/communication
Rx manager role

Rewards to Rx staff
Miscellaneous

APPENDIX III
TAXONOMY OF LINKER ACTIVITIES

ENGAGEMENT -- *(Major Linking Step)*

Contact client - *(Primary Linking Activity)*

- initiates contact -- *(Basic Linking Task)*
- responds to client initiation

Presentation of self

- describes:
  - -own experience
  - -own education
  - -own interests
- displays:
  - -skills
  - -knowledge
  - -specific literature citation
  - -non-specific literature citation
  - -personal associations
- describes own role related to:
  - -RBS
  - -RDx
  - -NIE
  - -client system

Personal acquaintance

- inquires about client's:
  - -experience
  - -education
  - -skills
  - -interests
  - -role in client system
- expresses:
  - -interest in client
  - -understanding
- validates client's experience

CONTEXT SPECIFICATION

Task specification

- inquires about client:
  - -work effort
  - -problem
  - -need for assistance
  - -idea or point of view
- listens to discussion of:
  - -client work effort
  - -client problem
  - -client need for assistance
  - -idea or point of view
- agrees with client:
  - -work effort
  - -problem
  - -need for assistance
  - -idea or point of view
- disagrees with client:
  - -work effort
  - -problem
  - -need for assistance
  - -idea or point of view
- qualifies client:
  - -work effort
  - -problem
  - -need for assistance
  - -idea or point of view
- probes client:
  - -work effort
  - -problem
  - -need for assistance
  - -idea or point of view
- paraphrases client:
  - -work effort
  - -problem
  - -need for assistance
  - -idea or point of view
- gives opinion about:
  - -client work effort
  - -client problem
  - -client need for assistance
  - -client idea or point of view
- defines client:
  - -work effort
  - -problem
  - -need for assistance
  - -idea or point of view

Task scope

- inquires about client's
  - -staff
  - -associates
  - -constituents
- inquires about organizations and agencies involved
- listens to discussion of client's:
  - -staff
  - -associates
  - -constituents
- listens to discussion of organizations and agencies involved
- agrees about client's:
  - -staff
  - -associates
  - -constituents
- agrees with organizations and agencies involved
- disagrees about client's:
  - -staff
  - -associates
  - -constituents
- disagrees with organizations and agencies involved
- qualifies comments about client's:
  - -staff
  - -associates
  - -constituents
- qualifies comments about organizations and agencies involved
- probes about client's:
  - -staff
  - -associates
  - -constituents

- probes about organizations and agencies involved
- paraphrases comments about client's:
  - -staff
  - -associates
  - -constituents
- paraphrases organizations and agencies involved
- gives opinion about client's
  - -staff
  - -associates
  - -constituents
- gives opinion about organizations and agencies involved
- defines people who:
  - -are involved
  - -should be involved
- defines organizations and agencies that are:
  - -involved
  - -should be involved

Task significance

- inquires about:
  - -potential impact on client's task
  - -how task relates to other client system efforts
  - -why task is important
  - -why task is relevant
- listens to discussion of:
  - -potential impact of client's task
  - -how task relates to other client system efforts
  - -why task is important
  - -why task is relevant
- agrees with:
  - -potential impact of client's task
  - -how task relates to other client system efforts
  - -why task is important
  - -why task is relevant
- disagrees with:
  - -potential impact of client's task
  - -how task relates to other client system efforts
  - -why task is important
  - -why task is relevant
- qualifies:
  - -potential impact of client's task
  - -how task relates to other client system efforts
  - -why task is important
  - -why task is relevant
- probes:
  - -potential impact of client's task
  - -how task relates to other client system efforts
  - -why task is important
  - -why task is relevant
- paraphrases:
  - -potential impact of client's task
  - -how task relates to other client system efforts
- qualifies why task is:
  - -important
  - -relevant
- gives opinion about:
  - -potential impact of client's task
  - -how task relates to other client system efforts
  - -why task is important
  - -why task is relevant
- defines:
  - -potential impact of client's task
  - -how task relates to other client system efforts
  - -why task is important
  - - why task is relevant

DIAGNOSIS

Information need

- inquires about information/assistance:
  - -required for task
  - -available to client
  - -available to Rx
  - -needed
- listens to discussion of information assistance:
  - -required for task
  - -available to client
  - -available to Rx
  - -needed
- agrees with information/assistance:
  - -required for task
  - -available to client
  - -available to Rx
  - -needed
- disagrees with information/assistance:
  - -required for task
  - -available to client
  - -available to Rx
  - -needed
- qualifies information/assistance:
  - -required for task
  - -available to client
  - -available to Rx
  - -needed
- probes information/assistance:
  - -required for task
  - -available to client
  - -available to Rx
  - -needed
- paraphrases information/assistance:
  - -required for task
  - -available to client
  - -available to Rx
  - -needed
- gives opinion about information/assistance:
  - -required for task
  - -available to client
  - -available to Rx
  - -needed
- defines information/assistance:
  - -required for task
  - -available to client
  - -available to Rx.
  - -needed

Resource assessment

- inquires about:
  - -people available
  - -time available
  - -money available
- listens to discussion of:
  - -people available
  - -time available
  - -money available
- agrees about:
  - -people available
  - -time available
  - -money available
- disagrees about:
  - -people available
  - -time available
  - -money available
- qualifies comments about:
  - -people available
  - -time available
  - -money available
- probes about:
  - -people available
  - -time available
  - -money available
- paraphrases comments about:
  - -people available
  - -time available
  - -money available

- gives opinion about:
  - -people available
  - -time available
  - -money available

- defines:
  - -people available
  - -time available
  - -money available

- acknowledges limitations of:
  - -client
  - -RBS
  - -RDx
  - -self
  - -R&D informaton sources

Action planning

- inquires about what the client has done to date to accomplish the task

- inquires about what others have done

- inquires about what the client system has done

- listens to discussion of what:
  - -the client has done to date to accomplish the task
  - -others have done
  - -the client system has done

- qualifies what:
  - -the client has done to date to accomplish the task
  - -others have done
  - -the client system has done

- probes what:
  - -the client has done to date to accomplish the task
  - -others have done
  - -the client system has done

- paraphrases what:
  - -the client has done to date to accomplish the task
  - -others have done
  - -the client system has done

- gives opinion about what:
  - -the client has done to date to accomplish the task
  - -others have done
  - -the client system has done

- defines what:
  - -the client has done to date to accomplish the task
  - -others have done
  - -the client system has done

- prescribes action of client or of client system

- promises own action

- agrees with what:
  - -the client has done to date to accomplish the task
  - -others have done
  - -the client system has done

- disagrees with what:
  - -the client has done to date to accomplish the task
  - -others have done
  - -the client system has done

- proposes actions of:
  - -client
  - -self
  - -other

COLLECTION

Identify collection domain

- determine:
  - -parameters of content domain to be collected
  - -time available for collection
  - -money available for collection
  - -people available to assist collection
  - -sources of information available
  - -descriptors to identify content domain

Recall information

- recall information from:
  - -own memory
  - -past experiences at conferences
  - -current awareness reading
  - -formal education
  - -workshops
  - -prior searches

Retrieve sources

- retrieve sources readily accessible from:
  - -personal files
  - -personal contacts
  - -Rx resource center

Search of sources

- search for new sources of information:
  - -scan journal indexes
  - -scan bibliographies
  - -run computer search
  - -conduct library search

- obtain:
  - -articles
  - -books
  - -bibliographies

TRANSLATION

Review resource base

- review:
  - -bibliographies
  - -titles
  - -materials briefly (articles, books, proposals, manuals, newsletters)

Select sources

- determine criteria for selection

- select sources that are:
  - -important
  - -reliable
  - -recommended

- does not reduce collection of materials

Generate information from sources

- read sources

- summarize content of sources into meaningful information

Analyze information

- content analyze across all sources

- interpret content

- reduce content on basis of:
  - -amount of information
  - -relevance of information
  - -information
  - -timeliness of information
  - -support for Rx credibility

Bisociation of content information with client context

- associate information with:
  - -client language -- will they understand this?
  - -client problem -- will this help them?

-client need — do they need to know this?
-client motivation — will they do it?
-client potential — can they do it?

- select information/ideas to present:
  - -as evidence for client's beliefs
  - -to trigger client's ideas
  - -to verify client's point of view
  - -to acknowledge client's view
  - -to deny client's point of view
  - -to expand client's knowledge

Reframe information into client's language

- redefine terminology according to client's language
- create definitions of new terminology in client language

PRESENTATION

Design information presentation

- determine purpose of presentation:
  - -client receipt of information
  - -client knowledge of ideas
  - -client change in attitude, value, behavior
- select key ideas from information that:
  - -will interest client
  - -will motivate client
  - -will be relevant to client's task
  - -are dominant in literature and frequently discussed
- organize key ideas
- illustrate key ideas
- develop form of written presentation:
  - -memo
  - -letter
  - -outline
  - -paper
  - -proposal
  - -information packet
  - -handout
- develop form of verbal presentation:
  - -phone call
  - -person to person meeting
  - -small group presentation
  - -workshop

Preparation of presentation

- prepare materials:
  - -typing
  - -printing
  - -assembling
  - -packaging
- construct audio-visual aids
- identify and/or create exercises to support information
- practice verbal presentation

Preparation of information

- transfer information:
  - -verbal presentation of information to clients
  - -visual display of materials
  - -give materials to client
- relate information to client:
  - -describe information and materials
  - -interpret information
  - -illustrate ideas
  - -associate ideas with client task
  - -translate ideas to client language

- motivate client:
  - -prescribe use of information
  - -advocate information or ideas
  - -suggest benefits of information or ideas
  - -suggest consequences of not utilizing
  - -offer rewards for utilization
  - -offer threats for non-utilization
- reiterate:
  - -restate key ideas
  - -provide opportunity for client to apply ideas
  - -provide opportunity for client to practice skills

DISENGAGEMENT

<u>Closure</u>

- reinforce client receipt or utilization of information (compliment, reward, give credit)
- solicit client evaluation of Rx effort:
  - -verbal
  - -written
- solicit client request for additional services:
  - -inquiry into other client tasks
  - -volunteer further assistance
  - -identify need for further assistance
- statement that work together is finished

<u>Redefinition of relationship</u>

- statement to stay in contact even though this task together is finished
- set appointment to discuss further assistance
- statement of termination of relationship

LINKER DECISION ALTERNATIVES INVOLVED IN THE MAJOR LINKING STEPS

Linking Steps	Decision Areas			
	Scheduling	Coordination	Style	Role
ENGAGEMENT (client contact and relationship building)	To initiate contact with 1. Multiple potential clients 2. One potential client To present self as 1. Available for frequent interaction 2. Available for limited interaction	To contact clients by 1. Formal planned meeting 2. Informal networking	To contact clients by 1. Initiating meetings 2. In response to client initiations	To present self as 1. Knowledgeable in content domain 2. Knowledgeable about how to obtain and utilize information
CONTEXT SPECIFICATION (identify client task and related system characteristics)	To define task by 1. Linking agent and client interaction 2. Client alone prior to linking agent participation To obtain knowledge of client system 1. During interactions with clients 2. By reading descriptions prior to meeting with client To work on tasks requiring 1. Frequent linking agent participation 2. Infrequent linking agent participation	To obtain information about system characteristics 1. Using written forms 2. In conversations To work on tasks requiring 1. Planning 2. Immediate action	To obtain understanding about system characteristics 1. By providing information and definitions 2. By soliciting client's information and definitions To obtain common understanding 1. By imposing linking agent or R&D language and frame of reference 2. By accepting client's language and frame of reference	To work on tasks requiring 1. Content expertise 2. Information management assistance

Linking Steps	Decision Areas			
	Scheduling	Coordination	Style	Role
DIAGNOSIS (determine information needed, and actions to be taken)	To conduct diagnosis 1. During interactions with clients 2. Prior to participation with clients To plan activities 1. Requiring frequent linking agent participation	To obtain knowledge of client's information need 1. Using written forms 2. In conversations	To obtain knowledge of a client's need 1. By initiating and directing a need assessment 2. By accepting the client's stated information need To plan activities 1. By waiting for a client request 2. By volunteering assistance To plan activities 1. By prescribing client actions 2. By proposing linking agent actions	To define the information needed 1. As readily available to the linking agent 2. As requiring an extensive search To engage in need assessment in order 1. To establish a need for a specific source 2. To identify a client's information inequity
COLLECTION (search for and retrieve R&D information sources)	To schedule collection time 1. According to client time demand 2. According to time needed to collect sources	To collect sources of R&D information 1. By a formal search 2. Through personal contacts	To initiate a search 1. Based on linking agents external judgments that a need exists 2. Based on client's realization of need and request for assistance	To obtain R&D collection 1. Through ongoing current awareness reading and networking 2. Upon demand from client To collect R&D sources 1. Independent of client 2. In collaboration with client — to provide an example for clients To select sources based on their 1. Reliability and validity 2. Relevance

Linking Steps	Decision Areas			
	Scheduling	Coordination	Style	Role
TRANSLATION (transform R&D sources into a form meaningful and useful to clients)	<u>To select information</u> 1. To apply to a wide range of clients 2. To apply to a specific client <u>To schedule translation</u> 1. According to client time demands 2. According to time needed to analyze and synthesize	<u>To engage in translation</u> 1. Prior to the presentation 2. Prior to and spontaneously during presentation	<u>To select ideas that will</u> 1. Have an impact on clients 2. Be useful to clients	<u>To engage in translation</u> 1. To transform information 2. To provide an example for clients
PRESENTATION (design, prepare and present information and assistance:)	<u>To design delivery</u> 1. With high client interaction 2. With low client interaction <u>To servies multiple clients</u> 1. By repeated presentations 2. By one presentation designed for a diverse audience	<u>To design presentation</u> 1. As didactic 2. As experiential <u>To present materials</u> 1. According to plan 2. Spontaneously as appropriate <u>To encourage client participation and feedback</u> 1. As questions following presentation 2. As dialogue throughout presentation	<u>To present information</u> 1. To provoke and challenge client thinking and actions 2. To support client thinking and actions	<u>To present ideas</u> 1. As the best solution 2. As alternatives <u>To engage in delivery</u> 1. To present R&D information 2. As an example for clients

king Steps	Decision Areas			
	Scheduling	Coordination	Style	Role
ENGAGEMENT definition of lationship th client)	To perform disengagement activities 1. At a rate equal to or less than engagement 2. At a rate slightly greater than engagement To perform disengagement because 1. Linking agent overload 2. Task completion	To disengage 1. According to time schedule planned in advance 2. Upon task completion	To disengage 1. Based on linking agent initiative 2. Based on client initiative	