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ABSTRACT

The primary goal of an Interactive Research and Development (IR&D) project is to encourage teachers to begin to use research findings and practices in their teaching and to develop some basic inquiry skills which they may used as a means of solving educational problems. Secondary goals are to enable teachers and researchers to study a specific question of interest to them, and to provide participants the opportunity to engage in a meaningful professional development activity with educators from other role groups. A final goal of an IR&D project is to generate useful research which when disseminated will benefit the educational community. This paper describes the steps for developing and implementing an IR&D project within a limited budget. The basic foundation of such a project is teamwork between teachers, researchers, and staff developers. The roles and responsibilities of each of these participants are described. Following a discussion on the nature and objectives of the collaboration of team members, a description is given of the IR&D project conducted at Texas Tech University which was developed and implemented in 1980 and terminated in 1982. (JD)

The Low Budget/Almost No Budget Approach To Interactive Research and Development: An Implementation Game Plan

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The Low Budget/Almost No Budget Approach[1] To Interactive Research and Development: An Implementation Game Plan

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Interactive research and development (IR&D) is a strategy which brings teachers, educational researchers, and staff development specialists together to identify and research questions of interest to the teachers on the team and to collaboratively plan a means of disseminating their research findings. In 1980 Texas Tech University (TTU) Teacher Corps Project in Lubbock, Texas, launched an IR&D project based on the model developed through the Interactive Research and Development on Teaching (IR&DT) study conducted by Far West Laboratory (Tikunoff, Ward & Griffin, 1979). The IR&DT study was funded through a grant from the National Institute of Education and involved two research teams in California and Vermont. The Texas Tech project was developed in consultation with the original IR&DT developers from Far West Lab, Dr. Gerald Pine of Oakland University, a noted authority on collaborative action research, and the staff of The Research and Development Center for Teacher Education at the University of Texas at Austin, well-known researchers in the area of program implementation.

The Texas Tech IR&D project was implemented using existing resources and had no external source of special funding--thus, it was a low-budget approach. The project received many inquires for information resulting from publicity

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on the project which appeared in the local Teacher Corps project newsletter which was disseminated nationally and from referrals made by Far West Lab and Dr. Pine. A sufficient number of requests about how to organize such a project prompted the project coordinator to develop a publication which could provide additional information. The resulting publication, Six-Step Guide to Developing and Implementing an Interactive Research and Development Project (Huling, 1980), was designed to assist college or university faculty and administration to develop and implement an IR&D project. In the 5 years since this publication was developed a great deal has been learned about interactive research and development from the TTU project and two subsequent NIE funded projects (Griffin, Lieberman & Jacullo-Noto, 1982; Oja & Pine, 1983). In addition, recent research has increased understanding about what types of specific interventions program facilitators need to make to bring about successful implementation and how to plan for and organize educational change.

Purpose of the Paper

The goal of this paper is to use as a starting point the steps for developing an IR&D project proposed by Huling (1980) and to incorporate what has been learned about how to successfully conduct IR&D as well as how to develop an effective implementation game plan. This paper is not intended to be a comprehensive explanation of interactive research and development. Other papers are available to provide background information on IR&D (Huling, Trang & Correll, 1981; Tikunoff & Mergendoller, 1983; Tikunoff, Ward, & Griffin, 1979). This paper is intended to serve as a guide to persons already knowledgeable about IR&D who are considering implementing such a project in their own setting. An IR&D project could be implemented by various types of institutions including a college or university, a school district, or

an education service agency. One of the best arrangements is for the project to be a collaborative endeavor involving the various organizations of the intended participants. The emphasis of this report is how an IR&D project can be developed and implemented using a low budget/almost no budget approach.

But first, a word of caution -- to expect to develop and implement an IR&D project when there are no resources available is unrealistic. However, if there is commitment to the idea of having an IR&D project, the amount of dollar resources required can be kept to a minimum. The fewer dollars available, the more creativity required in the project design and the more flexibility needed on the part of the sponsoring institution(s). It is the premise of this paper that, "If there is a will, there is a way," and it is the author's goal to point out some of the ways that might be employed by those attempting to implement an IR&D project on a limited budget.

The Basics of IR&D

Definition of IR&D

Interactive research and development is a strategy which brings teachers, educational researchers, and staff developers together as a team to identify and research questions of interest to the teachers on the team and to collaboratively plan a means to disseminate their research findings.

Need for IR&D

Demands for improvement bombard the classroom. However, many useful research findings and practices remain unused even though their application might be beneficial. A review of the literature related to the use of educational research (Huling, 1981) indicates that most teachers generally do not use research findings and practices to improve their teaching, nor do they look to research as a means of solving educational problems. In most cases,

teachers have not received the training necessary to use or conduct research effectively, nor do they recognize the benefits to be gained from using research in teaching. At the same time, educational researchers strive to produce studies that will be relevant and useful to practitioners while staff developers continually struggle to provide teachers with meaningful professional development aimed at improving educational practice. For these reasons, interactive research and development can be a beneficial activity for teachers, researcher, and staff developers.

Goals of an IR&D Project

The primary goal of an IR&D project is to encourage teachers to begin to use research findings and practices in their teaching and to develop some basic inquiry skills which they may use as a means of solving educational problems. Secondary goals are to enable teachers and researchers to study a specific question of interest to them and to provide participants the opportunity to engage in a meaningful professional development activity with educators from other role groups. A final goal of an IR&D project is to generate useful research which when disseminated will benefit the educational community.

Essential Features of IR&D

Six major features must be present for a research and development effort to be judged interactive (Tikunoff, Ward, & Griffin, 1979). Generally, not all features will exist in an ideal form, but all must be manifested in some way.

1) team composition -- team must consist of at least one teacher, one researcher, and one staff development specialist (see Figure 1 for contributions each participant makes to the IR&D effort);

Figure 1

Contributions to IR&D of Team Participants

Participant	Contribution
TEACHER	Knowledge and skill in teaching (and learning) within the complex setting of the classroom, thus better assuring validity of the research question. Control of teaching and learning within the classroom setting. Awareness of the effect(s) particular r and d procedures may have upon the classroom, thereby providing validity assurance.
RESEARCHER	Knowledge and skill in scientific inquiry (Note: by this is implied more than technical research skills.) Knowledge and skill in utilizing multiple research paradigms in order to approach best the problem under investigation and attend to the context in which the r and d effort will be conducted. Knowledge and skill in applying multiple research methods, e.g., qualitative as well as quantitative methods. Broad knowledge regarding already available information about teaching and learning.
TRAINER (STAFF DEVELOPER)	Knowledge and skill in transferring/applying both research outcomes and methods in training programs. Knowledge and skill in adapting outcomes from one setting for use in another e.g., dissemination strategies. Knowledge and skill in developing training processes and products. Broad knowledge of already existing training processes and products.

Tikunoff, W., Ward, B. & Griffin, G. Interactive Research and Development on Teaching Final Report. Far West Laboratory for Educational Research and Development, San Francisco, CA, 1979.

2) nature of collaboration -- all three roles working with parity in decision making and assuming equal responsibility to identify, inquire into and resolve problems/concerns of classroom teachers;

3) problem-solving focus -- problems must emerge from the mutual concerns and inquiries of the team and, above all, must attend to the teachers' problems;

4) conducting concurrent R&D -- as the research is being conducted, the team can focus on how the data collection and analysis techniques can be used as training mechanisms; research findings can be incorporated later once they are available;

5) maintaining the integrity of the classroom -- IR&D is sensitive to the complexity of the classroom setting and to the extent to which research and development may interfere with these settings; it is the team's goal to select and use data sources, data collection procedures, training procedures, etc., that do not intrude upon the naturalness of the everyday settings in which teaching and learning occur; all research and development activities should be conducted in an ongoing teaching-learning situation without undue interference with the natural flow of classroom events;

6) IR&D as an intervention strategy for

<u>people</u>:

original participants -- teachers gain a new way of looking at teaching and learning concerns and new skills to use in considering and resolving these concerns; researchers may become aware of new critical research issues and gain credibility with teachers in general; staff developers benefit by getting new content for staff development programs

and by having the advantage of having staff development programs planned collaboratively;

later participants in resulting development programs -- have the benefit of context developed firsthand by practitioners in real classroom settings, presented through a delivery system that was developed collaboratively;

institutions: (the classroom, the school, the school district and the institution of higher education) through participation in a project that accommodates the mutual and individual concerns of its participants, modifications in teaching, learning, and teacher training should result; the strategy proposed to make the schooling experience somehow better for teachers and students by encouraging collaborative, classroom-based research.

Role Descriptions of Researchers and Staff Developers

Researcher -- The role of the researcher is to listen to the concerns of the teachers and to help translate these concerns into research questions. Once the questions have been established, it is the researcher's responsibility to coordinate the review of the related research and to share these findings with team members.

Furthermore, the researcher should involve team members in developing a design of the study and outlining time tables for the project. Contingent upon the nature of the study, the researcher will need to be available to assist teachers conduct research in their classrooms and to answer questions and help solve problems as they arise.

The researcher is also to represent the "research viewpoint" as the team develops their development/dissemination plan. Finally, when the team has

completed its research, the researcher will supervise the writing of the final research report.

Staff Developer -- It is the role of the staff developer to listen to the concerns of teachers and to identify those concerns which are most likely to be of interest to other teachers as well. A designated goal of the project is to develop a plan for the dissemination of research findings, and consequently the research questions need to be of interest to other teachers as well as those on the team. The role of the staff developer, therefore, is to help define the question in such a way that research findings will be relevant to other teachers.

At the same time the researcher is coordinating a review of the related research, the staff developer will coordinate a review of the related staff development literature and the share this with the team.

As the research project progresses, it is the responsibility of the staff developer to involve the team members in planning for the dissemination of the research findings. The staff developer is expected to be familiar with the successful practices in inservice education and to see that these practices are considered if the development/dissemination plan includes a training program.

In order to get the work of the team underway more quickly, many IR&D teams have found it helpful for the researchers and staff developers to temporarily disregard their independent role assignments and to share research and staff development responsibilities. Generally, as the work of the team progressed, the researcher and staff developer began to assume their specific role responsibilities.

More Information About The TTU IR&D Project

In the spring of 1980, the Texas Tech University Teacher Corps project began investigating possible approaches to address a staff development interest in conducting action research that was indicated by teachers in the three Teacher Corps project schools through a faculty needs assessment. A halftime staff person assumed responsibility for reviewing the relevant research and literature on the topic of action research. (This person was later assigned to be the project coordinator, still on a halftime basis.) After considering several models of action research, the Teacher Corps staff selected interactive research and development as the best approach for their situation. The IR&D model was particularly appropriate for use by Teacher Corps because IR&D stresses collaboration and dissemination. The primary objective of Teacher Corps was to implement change through a collaborative effort involving the institution of higher education, the local school district, and the community served by identified project schools. Also, one of the Teacher Corps' mandates was to disseminate educational programs and practices.

In early fall 1980, 13 teachers from the three project schools volunteered to participate in the IR&D project. Five university professors were selected to serve as researchers in the project, and three Teacher Corps staff members were selected to serve as staff developers. Researchers and staff developers were selected on the basis of their willingness to participate, their demonstrated research and development skills, and their past history of working successfully with classroom teachers. The teachers were enrolled in an independent research course at the university and thus were provided with the opportunity to earn three hours of graduate course credit in education for their participation in the project.

The participants were provided with approximately 12 hours of initial training in general research practices and procedures and in the essential features of interactive research and development. Also during the initial training, teachers identified general areas of research interest and were provided with an opportunity to interact with all of the researchers and staff developers who were involved in the project. Participant evaluations from the training session were extremely positive.

Within a week after the initial training, the project coordinator had organized six research teams based on the research interests and team member preferences expressed by the participants. Each team consisted of one to three teachers, one researcher, and one staff developer. Two teams included elementary teachers, two included junior high teachers, and two included high school teachers. As soon as team assignments were made, all research teams met under the direction of the project coordinator for their first team meeting. From that point on, each team met and worked independently.

Each team was charged with the responsibility of identifying a research question, conducting a research project using an appropriate methodology and design, and collaboratively planning a means of disseminating their research findings. Teams were also required to submit a research report and a dissemination report when its work was completed. The teams were allowed flexibility in determining the time frames for their studies. Although the project coordinator encouraged the teams to at least complete the data collection phase of their study by the end of the semester, the final decision on the time frame was left entirely to the individual teams.

The research topics the six teams selected were: impulsivity in young children, attitudes toward reading, peer-tutoring, math teachers' concerns about team teaching, cognitive restructuring and mastery learning, and

attitudes toward handicapped students. Throughout the study, the project coordinator assisted the teams by relaying the information to researchers and staff developers that the teacher participants provided by responding to open-ended questions. Also, the coordinator organized monthly meetings of the researchers and staff developers for the purpose of discussing progress and problems related to the project. The progress of each research team was monitored by the coordinator through team meeting logs being submitted by each team after each of their meetings. Finally, the project coordinator organized a reporting session for participants at the end of the semester so that all participants could be informed of the activities of each of the teams. At this session, four teams had completed the data collection phase of their research projects, and two teams were still collecting data.

All of the teams continued to work through the spring semester and an additional two teams were organized at the high school, making a total of eight teams to participate in the first year of the project. All of the first year teams completed their work in the summer. During the second year of the project (1981-82) it was decided to begin all teams in the fall and to structure the project to last the entire school year. The five second year teams investigated research topics of the use of computers in teaching home management skills, the effects of participation in a leadership program on the overall school experienc_, methods to facilitate comprehension of literature, a comparison of three methods of teaching mathematics to disabled junior high students, and the effects of using crafts to increase student motivation. The IR&D project was discontinued after 2 years of operation due to the discontinuance of the Teacher Corps project and many staff changes.

A dissertation study was conducted to investigate the experience of the first six teams in the project (Huling, 1981). The study concluded that during the course of participating in the project, teachers experienced a significant change in concerns about the use of research findings and practices in their teaching and that teachers did to a significant degree acquire skills, interests and attitudes likely to promote their future use of research in their teaching. (This dissertation study was awarded the 1982 Association of Teacher Educators' Distinguished Dissertation Award in Teacher Education.) Other positive outcomes were also experienced by researchers and staff developers who reported that they had benefitted greatly from working in an ongoing manner with teachers in public school settings. In addition, a number of professional publications were generated by the coordinator and various participants from the research conducted in the project (Correll, Huling, & Trang, 1981-82; Correll, Huling, & Trang, 1983; Huling & Johnson, 1983; Huling, Richardson, & Hord, 1983; Huling, Trang, & Correll, 1981; Johnson & Huling, 1984.)

A Framework for Organizing an Implementation Game Plan

In 1980, Huling proposed six steps for developing and implementing an IR&D project:

1) Making the Initial Decisions
2) Assigning an IR&D Project Coordinator
3) Recruiting IR&D Participants
4) Training IR&D Participants
5) Organizing IR&D Teams
6) Supporting IR&D Teams

Since that time researchers at the Research and Development Center for Teacher Education have perfected a method for planning educational change efforts called the implementation game plan (Hall & Hord, 1984). Through their studies of numerous change efforts, R&DCTE researchers investigated the day-to-day interventions change facilitators made that influenced the success or failure of implementation. One useful way of categorizing these interventions is to consider the function or purpose the interventions are intended to serve. These functional categories have been labeled Game Plan Components (GPCs) since in combination they comprise the total implementation game plan. The six functional categories and their definitions are as follows:

GPC 1: Developing Supportive Organizational Arrangements	Actions taken to develop policies, plan, manage staff, funds, restructure roles and provide space, materials, and resources to establish and maintain use of the innovation. (Examples: Hiring new staff; seeking/receiving funds; providing innovation-related equipment.)
GPC 2: Training	Actions taken to develop positive attitudes, knowledge and skills in relation to innovation use, through formal structured and/or pre-planned activities. (Examples: Holding workshops; modeling/demonstrating use of the innovation; observing and providing feedback related to a pre-specified task.)
GPC 3: Providing Consultation and Reinforcement	Actions (often idiosyncratic, problem-specific, targeted at an individual or small group) taken to encourage and to assist individuals in solving problems related to innovation implementation. (Examples: Holding brief conversations about how it is going; facilitating a problem-solving group; providing "comfort and caring" sessions.)
GPC 4: Monitoring and Evaluating	Actions taken to gather, analyze or report data about the implementation and outcomes of a change effort. (Examples: Analyzing pre-post learner assessments; administering end-of-workshop questionnaire; conferencing with teachers to survey how the new program is going.)

GPC 5: External Communication	Actions taken to inform and/or gain the support of individuals or groups external to the users. (Examples: Reporting to the Board of Education; making presentations at conferences; developing a public relations campaign.)
GPC 6: Dissemination	Actions taken to broadcast innovation information and materials to encourage others to adopt the innovation. (Examples: Mailing descriptive brochures to potential adopters; making charge-free demonstration kits available; training and providing regional innovation representatives.)

Through research it has been indicated that while many change efforts involve interventions in all six components, the first four components are the most critical to program implementation (Hord, Huling & Stiegelbauer, 1983). In addition, interventions in the various GPCs are necessary throughout the change effort and often occur concurrently. This is to say that the facilitator will often be intervening in various GPCs at any given time rather than completing GPC 1 interventions before moving on to GPC 2 interventions, etc.

An Implementation Game Plan for an IR&D Project

In this section of the paper, the implementation game plan format will be used to approach the development and implementation of an IR&D project. This game plan begins at the point that the decision has been made to have an IR&D project and does not include the reading and discussion that must occur in the process of deciding whether or not to have an IR&D project. The game plan is graphically displayed in Figure 2 and a sample timeline for a Fall implementation of a one year project is shown in Figure 3. A description and explanation of the interventions in each game plan component are included in the following subsections. It should be emphasized that the interventions and processes described are by no means totally comprehensive nor will they be the

Figure 2

Interactive Research and Development Project

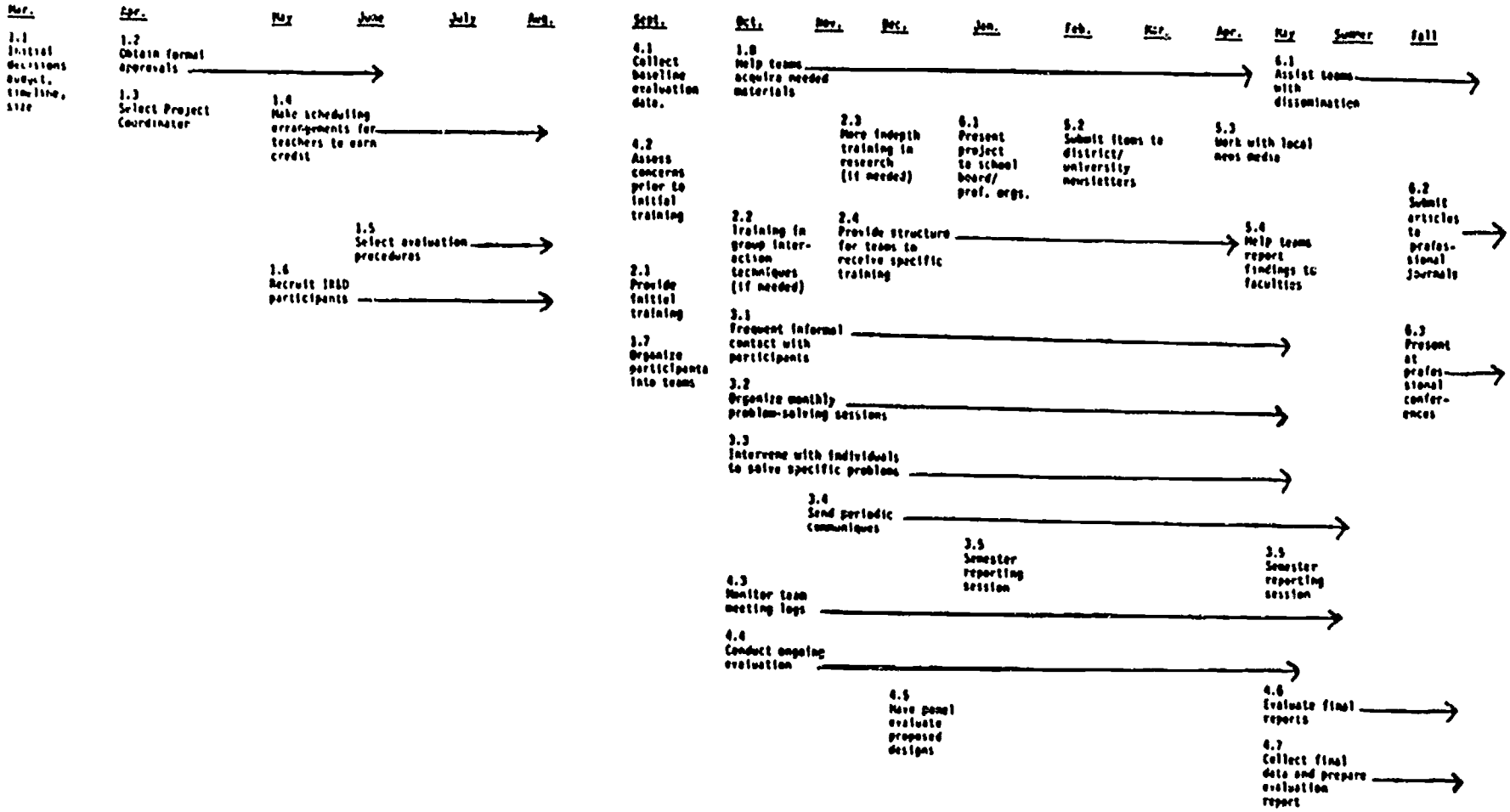
Implementation Game Plan

CPC1	CPC2	CPC3	CPC4	CPC5	CPC6
Developing Organizational & Supportive Arrangements	Training	Providing Consultation & Reinforcement	Monitoring & Evaluating	External Communication	Dissemination
1.1 Make initial decisions including timeline, budget and size of project.	2.1 Provide initial training in IRSD and basic research procedures.	3.1 Organize a structure to allow the coordinator to have frequent informal contact with project participants to provide ongoing coaching.	4.1 Collect baseline evaluation data from participants prior to initial training (pretest).	5.1 Present project to school board and/or professional teacher organizations.	6.1 Assist individual teams with the dissemination of their study findings.
1.2 Obtain formal approval from the participating institutions.	2.2 If needed, provide training in a in a group interaction techniques, shared decision making and collaboration.	3.2 Organize monthly problem solving sessions of researchers and staff developers.	4.2 Assess concerns of participants prior to initial training in order to design training to address their concerns.	5.2 Arrange for news items about the project to be included in district and/or university newsletters.	6.2 Submit article(s) about the project to professional journals.
1.3 Select an IRSD Project Coordinator.	2.3 As groups begin to formulate their research designs, if needed, provide a more indepth session on basic principles of educational research.	3.3 Intervene with appropriate individuals to solve problems identified by the coordinator from reviewing the team meeting logs and from other sources.	4.3 Monitor progress of the teams through team meeting logs completed at each team meeting.	5.3 When project is well underway, local news media may be interested in doing a story about the project.	6.3 Present session(s) about the project at professional meetings.
1.4 Make scheduling arrangements for teachers to earn credit.	2.4 Provide a structure through which individual teams may acquire specific training they need to conduct their research project.	3.4 Send periodic communiques highlighting the activities and progress of various teams for the purpose of providing recognition for noteworthy accomplishments and to promote camaraderie among teams.	4.4 Conduct ongoing formative evaluation of the project including administering evaluation instruments and periodically monitoring concerns of participants in order to accommodate emerging needs of participants.	5.4 Help teams arrange to report their findings to their faculties.	
1.5. Select evaluation procedures to be used in the project.		3.5 Organize a reporting session for all teachers in the project to share progress and problems at least once a semester.	4.5. Have researchers and staff developers serve as a panel to evaluate proposed research designs and dissemination plans of the various teams.		
1.6 Recruit IRSD participants.			4.6 Evaluate the final research reports and development/ dissemination plans produced by the teams.		
1.7 Organize participants into IRSD teams.			4.7 Collect final evaluation data from participants at the conclusion of the project (posttest) and prepare an evaluation report.		
1.8 Help individual teams acquire needed literature, materials and supplies					

Figure 5

Sample Timeline

For Fall Implementation of One-Year IR&D Project



only ones that could be used and will not necessarily be the best ones to use in any one specific setting. They are offered as a guide and should be adopted and enhanced as needed by the individual user.

GPC 1: Developing Organizational and Supportive Arrangements

As with any new project there will be many organizational arrangements to attend to especially in the early phases of implementation. These include such things as selecting a project coordinator, establishing a budget, obtaining formal approvals for the project, etc. Once the project is underway it is still necessary to provide a supportive function to ensure that there are adequate facilities, supplies and resources for the day-to-day operation of the project.

1.1 Make Initial Decisions: Timeline, Budget & Size of Project. Before serious planning for an IR&D project can get underway it is necessary for the sponsors to make some initial decisions about budget and timeline. A first step is to establish the targeted start-date and to work backwards allowing sufficient time to make the necessary preparations for the project. The length of the project also needs to be determined. Duration of the project can vary from one semester to two years or longer. Prior experiences with IR&D suggest that at least a full school year is needed, but a one semester project is possible if circumstances dictate. The maximum number of teams that will be allowed to participate during the first cycle of IR&D should be determined in advance.

The budget (however limited) must be established. It will be necessary to determine what actual dollars are available from what sources and then to look at the existing system to identify resources which can be marshalled for the project. The expenses involved in the project include compensation for the project coordinator and project participants and operating expenses

related to training, support services for the IR&D teams, and secretarial assistance. A set dollar amount that each team will be allowed to spend during their work in the project should be established. (The TTU project provided each team with $200.) Again, the fewer dollars available to support the project, the more creativity required in the project design and the more flexibility needed on the part of the sponsoring institution(s). No one should be expected to participate without some type of appropriate compensation.

The following are tips on where to look for dollars, how to use existing resources in the system, and ways to provide non-monetary compensation for participants.

From the University

*Some universities have small research grants ($500 to $2,000) available for which university faculty can apply. Special arrangements can be made for one or more of these grants to be earmarked for use in an IR&D project.

*Most deans have some discretionary funds which can be used for faculty development. Since IR&D is a valid development activity for researchers, these faculty development funds might be obtained.

*Funds used to employ graduate students as teaching assistants could be used to pay a halftime project coordinator.

*Professors serving as IR&D researchers could be compensated by teaching one fewer class than their regular teaching load.

*If staff developers are not available through the school district and must be provided by the university, graduate students who have had previous teaching experience and have future staff development aspirations could be used. These persons could be allowed to earn course credit toward their degrees or paid as teaching assistants.

*Teachers should be given the opportunity to earn graduate course credit for their participation. The university might arrange to reduce or waive enrollment fees.

From the School District

*IR&D is a staff development activity for teachers, therefore it is appropriate to request district staff development funds to support an IR&D project.

*District staff development personnel could serve as IR&D staff developers as a part of their regular job. (Other job responsibilities should be shifted to allow time for this new assignment.)

*If teachers must pay to earn graduate course credit for their participation in the project, the school district might legitimately pay this expense.

Secretarial Support

*A moderate amount of secretarial support (and supplies) will be required for an IR&D project. (The TTU project had a secretary assigned 1/4 time to the IR&D project.) This secretarial support can be provided by any of the institutions involved, but it is important that the project secretary be readily accessible to the project coordinator.

1.2 Obtain Formal Approval From the Participating Institutions. This step may seem too obvious to mention, but the caution here is to obtain formal approval in writing in advance. This precaution needs to be taken to avoid investing a great deal of time and work only to find out that approval is not granted at some critical point in the chain of command. Obtaining approval may require official action by the school board, the university faculty council, or some other governing body and these approval processes may take several months. The point to be made here is to find out what approvals are needed and to take care of these matters as soon as possible before a great deal of time and energy is invested.

1.3 Select and IR&D Project Coordinator. Coordinating an IR&D project is a major responsibility and cannot be executed on a "spare time" basis. The project coordinator will probably need to be assigned at least halftime to the project. The Texas Tech project was coordinated by a halftime Teacher Corps

staff person. The project coordinator could be a university faculty member, school district staff persons, or possibly a graduate student. The coordinator needs to be a person who works well with others and who has had experience in managing an educational project. Ideally, the coordinator would have had a variety of experiences in education including classroom teaching. It is also helpful for the coordinator to be a person who has had experience in staff development and collaborative program development and implementation. A sound background in educational research will also be an advantage. This project, like most new programs, will have some very busy periods and some slower periods, so the coordinator needs to be willing to be flexible enough to handle the varying work load.

The project coordinator should be assigned early enough to have sufficient time to become knowledgeable about IR&D. If possible, the project coordinator will find it helpful to visit with the project staff of some ongoing IR&D project and to interact with persons who are already engaged in it. Of primary importance is that the project coordinator fully understand the rationale and essential features of IR&D before he/she is expected to recruit other persons into the project.

1.4 Make Scheduling Arrangements for Teachers to Earn Credit. One of the best incentives for teachers is to allow them to earn college and/or local staff development credit for their participation in the project. Arrangements for staff development credit must be worked out with the local school district. If teachers are to be offered the opportunity to earn graduate course credit, special arrangements will need to be made with the university. Potentially teachers could earn three hours course credit for each semester they participate in the project, although most universities have a limit on how many hours can be earned through non-traditional classes. One method of

allowing participating teachers to earn graduate credit is to enroll them in an independent research course under the professor serving as their team's researcher. Another method is to create a special course, designate one of the participating professors as the "instructor of record," and enroll all teacher participants in that course.

Every attempt should be made to keep the cost of earning credit as small as possible for the teacher. This may mean that the university either reduces or waives fees or that the school district pays the fees for the participating teachers. Either way, these arrangements need to be made in advance rather than waiting to deal with them during the week of university registration.

1.5 Select Evaluation Procedures to be Used in the Project. The evaluation procedures selected for use in the project will depend on the goals for the project of the sponsoring institution(s) and their own evaluation needs for internal and external purposes. The possibilities for evaluation are extremely numerous and varied, but a few guiding questions will help in selecting evaluation procedures:

1) What do we hope to accomplish with this project?

2) What measures are available to help determine if we accomplished our goals?

3) What will be the criteria for success?

Whatever the level of sophistication used in the evaluation procedures, the evaluation plan needs to be established in advance. This is especially important so that arrangements can be made to gather the baseline (pretest) data from participants prior to their participation in the initial training. The most important things to consider in selecting evaluation procedures is the individual institution's interest in and need for evaluation data and how the evaluation data will be used. Selecting procedures that will generate the

data in such a manner that it can be used for its intended purposes is critical.

1.6 Recruit IR&D Participants. IR&D participants will be from three constituencies: classroom teachers, educational researchers, and staff development personnel.

Potential researchers and staff developers should be recruited prior to recruiting teacher participants. Very likely, once the researchers and staff developers have been selected, they can assist in recruiting teachers for the project.

Approximately four months prior to the targeted implementation date, the project coordinator should present the plan for the IR&D project to the university faculty and the school district administration, and ask persons who might be interested in participating as researchers or staff developers to indicate their interest. After this initial presentation, it is appropriate for the project coordinator to contact individuals who are likely candidates for participation.

The selection of researchers is critical to the success of the IR&D project. Expertise in research is not all that is required, as researchers must be able to work well with teachers in a collaborative fashion, be willing to allow the team to determine the research questions, and be willing to devote the time necessary to the project. Researchers should either be compensated monetarily or be provided release time from their regular teaching load.

In prior IR&D projects there has been some debate over which types of professors would be selected to serve as researchers. Some believe those with well-established research backgrounds should be selected while others feel that those professors who are early in their careers and need research

experience are better candidates. Often the well-established researchers already have research projects in progress and have very little time to devote to IR&D. On the other hand, less-experienced researchers welcome the opportunity to conduct research in the public schools in order to gain the experience and generate the publications they may need for promotion and tenure.

Ideally, staff developers should be persons whose jobs entail the planning and implementing of professional development programs. The best option is to involve school district staff development personnel as the IR&D staff developers. However, if such persons are not available, very likely there are university faculty members who have expertise in educational professional development or graduate students who have had formal course work in staff development and who have future staff development aspirations. These persons also should receive monetary compensation for their work or have their other job responsibilities shifted to allow time for their IR&D responsibilities. If a graduate student is used, he/she should be paid or allowed to earn course credit for his/her involvement.

As much as possible, the coordinator should keep in mind what types of teachers will likely be participating in the project, and should attempt to recruit researchers and staff developers accordingly. Once researchers and staff developers have been selected, recruitment of teachers can begin. Teachers should be provided with an incentive to participate such as the opportunity to earn university credit or local staff development credit. If funds are available, teachers could also be paid a small stipend for their participation.

The ideal situation is for teachers who will eventually be placed together on a team to be at the same school and have similar teaching

concerns. Therefore, if the project coordinator, researchers or staff developers are aware of such teachers, these teachers should be contacted and offered the opportunity to participate. Teachers should understand that it is not necessary for them to have a research question in mind prior to beginning the project as part of the team's function is to work together to identify a research question of common concern. If teachers from the same school cannot be recruited, the project can be conducted with teachers from different schools, but this introduces more difficulty in finding common meeting times and places.

1.7 Organize Participants Into Teams. This organizational step is one of the most critical as the "match" that is achieved will to a large degree determine how successfully the team will operate. Each IR&D team will be comprised of one to four teachers, one researcher, and one staff developer. Teams could be organized prior to any training activities or team assignments could be made after initial training and participants have had the opportunity to interact with one another. The latter was the case with the Texas Tech IR&D project.

Several sources of data should be taken into account when assigning participants to IR&D teams. One source is to have participants indicate their general area of interest for a research project (i.e. reading, discipline, instructional methods, etc.) during the initial orientation and training session. During the training session an interaction activity can be organized to provide participants with the opportunity to interact with one another. The coordinator can then gain input from the participants concerning their interests and preferences related to team assignments. Again, it is important to have teachers on the team located in the same school if possible to simplify meeting arrangements and other logistics.

After the participants are assigned to teams, the project coordinator should arrange the first meeting where all participants will meet with their individual teams. After this initial meeting, members of each IR&D team will determine when they need to meet and when the most convenient meeting time is.

1.8 Help Teams Acquire Needed Materials. Once the IR&D teams have been organized and have begun work, the project coordinator will continue to play a supporting role in regard to the work of the IR&D teams. This support very likely will entail helping the teams run computer searches of related literature, getting materials photocopied, and ordering and purchasing materials the teams need for their work. In some instances, it may be necessary to provide secretarial support to some teams. The coordinator should also monitor the expenses of each team to ensure that their spending is within the allotted budget. In short, the coordinator should provide organizational and logistical support for the teams in order to free them to focus on their research and development efforts.

GPC 2: Training

While some training is certainly important in an IR&D project, especially in the initial phase of the project, the concept of IR&D is not founded on the premise that extensive ongoing training will be required. The very nature of IR&D requires a "hands-on" approach of learning by doing rather than by learning in formal training situations. With this in mind, however, it is important that the coordinator continually monitor the work of the individual teams and be ready to intervene with training if the need arises.

2.1 Provide Initial Training. All participants in the IR&D project should participate in initial orientation and training activities. These initial training activities should enable participants to get acquainted with each other, to become familiar with the essential features of IR&D, and to

understand the advantages of IR&D and how this model is different from typical educational research and development. In addition, participants should receive some training in basic principles of educational research and study design. Also during this session, common research interests of the participants should be identified in order to help with the organization of the IR&D teams. The Texas Tech project's initial orientation and training was conducted during two evening sessions 6-9 p.m. and one all-day session 8:30 a.m. to 4 p.m. (see Appendix A). One lesson that was learned from the Texas Tech IR&D project training is that it is better if the researchers and staff developers do not serve as presenters during the training because teachers tend to view presenters as "authority figures" thus hindering the "team building" that needs to take place once the teams are organized.

2.2 If Needed, Provide Training in Group Interaction and Collaboration. Depending upon the prior experiences of the participants in working in collaborative arrangements, it may be helpful to provide some type of training in group interaction techniques, shared decision-making and collaboration. In this instance it is unwise to assume that the participants will have the skills necessary to function as a part of a collaborative team just as it unwise to assume that they do not. It will be up to the project coordinator to monitor the situation to determine whether such training would be beneficial or not.

2.3 If Needed, Provide Additional Training on Principles of Research. Some teams once they have settled on a research topic and are attempting to formulate their study may need or desire more in-depth training in principles of research and study design. Generally, the researcher on the team takes the lead in this area and can provide the expertise needed to formulate research

questions and develop the study design. However, some teams may want additional training and this should be provided either through formal training or by arranging for a qualified person to work with the team in an informal way.

2.4 Provide Structure for Teams to Receive Specific Training. Depending upon the research project selected, some teams may wish to acquire specific types of training and a structure should be provided to allow them to do this. An example of this type of situation might be a team who wants to do a study that would require a specific type of classroom observation and team members might want to receive training in conducting focused classroom observations. In this instance, part of the team's operating budget would be spent to pay for the training and possibly to pay substitute teachers if needed. The project coordinator should be prepared to help make arrangements for training activities such as these.

GPC 3: Providing Consultation and Reinforcement

Providing consultation and reinforcement has been identified as a critical key to implementation success (Hord & Huling, 1985). Included in this game plan component are such things as problem-solving, "back-patting," and "hand holding." Bruce Joyce refers to this same type of assistance as "coaching" (1982). The long range success of the overall project may very well depend on the amount and quality of consultation and reinforcement provided by the project coordinator.

3.1 Arrange for Frequent Informal Contact with Participants. One of the best ways to provide ongoing coaching and problem solving is to organize a structure for the project coordinator to have frequent informal contact with project participants. This will entail the coordinator "being around" and continually initiating informal conversations by asking the questions

"How's it going?" and "Do you need any help?" The more rapport the coordinator builds with participants, the more likely problems will be dealt with as they arise rather than being allowed to build into insurmountable obstacles.

3.2 Organize Monthly Problem-Solving Sessions for Researchers and Staff Developers. Researchers and staff developers can be a resource to each other to help solve problems they may be encountering in their work with individual teams. In addition, monthly meetings with researchers and staff developers will allow the project coordinator to better monitor the progress of the teams and determine if interventions need to be made. The reason for not including teachers in these monthly meetings is purely logistical. Generally, the researchers and staff developers participating in a project will have a more flexible schedule than the teachers and can meet during the day. The meeting time required of teachers is best utilized if it is reserved for work on their individual team's project. Also, depending upon the number of teams in the IR&D project, monthly meetings of all participants could be too large to function as a productive problem-solving session.

3.3 Intervene as Needed with Specific Individuals. The project coordinator may identify specific problems or stumbling blocks from reviewing team meeting logs or from some other source. Examples of these types of problems might be an individual who continually misses meetings or a team that is planning a study that is far beyond the scope of their resources. It will be necessary for the coordinator to work with the individuals involved and to provide whatever assistance is necessary to resolve these problems as soon as possible. In an IR&D project, like most other aspects of life, these types of problems rarely go away by themselves and, if unattended, are likely to escalate into bigger stumbling blocks than they are to disappear.

3.4 Send Periodic Communiques. The project coordinator should send period communiques to project participants. These communiques can serve as an informal progress report/newsletter and should highlight activities of the various teams as well as communicate messages from the coordinator. These communiques need not be sophisticated nor professionally produced in order to provide recognition for noteworthy accomplishments and to promote comradery among the various teams in the project.

3.5 Organize Reporting Sessions at the End of Each Semester. Participants in the project will naturally be interested in what other teams are studying and learning. For this reason a reporting session should be conducted once each semester to allow participants to hear a brief report from each team in the project and to share concerns and problems. The reporting session should also be an informal social gathering to allow participants to interact with those from the other teams. In the Texas Tech IR&D project, a picnic dinner of sandwiches and chips was served during the evening reporting sessions and these sessions were well-received.

GPC 4: Monitoring and Evaluating

Monitoring and evaluating should be an ongoing process in any implementation effort. Monitoring and evaluating are necessary both for the purpose of determining the outcomes of the project (summative evaluation) and to gather information to help determine what types of interventions need to be made along the way (formative evaluation). In addition, before one can have confidence in the evaluation of outcomes, it is necessary to first evaluate implementation. To state it another way, before questions about the effects of IR&D can be answered, it is necessary to first determine that teams are, in fact, operating in ways consistent with the concept of IR&D. The evaluation measures selected for use in a specific IR&D project will vary depending upon

the needs and interests of the project sponsors. Regardless which measures are used, it will be necessary to collect data at several points along they way.

4.1 Collect Baseline Evaluation Data. Before participants receive initial training and organize into teams it is important to collect baseline evaluation data. Demographic data should be collected and any measures (pretests) which are to be used to assess changes in participants should be administered at this time.

4.2 Assess Participant Concerns Prior to Training. In order to make the initial training session as meaningful as possible, it is helpful to collect concerns data from participants prior to the training. Stages of Concern (Hall & Loucks, 1978) is a useful tool for identifying the concerns participants have about their involvement with a new project. The Stages of Concern Questionnaire (Hall, George & Rutherford, 1979), yields quantitative data which can be used as a pretest measure. These data can then be used to structure training activities in a manner so that participant concerns are addressed.

4.3 Monitor Team Meeting Logs. The coordinator should monitor the progress of individual teams by having them submit a team meeting log after each meeting (see Appendix B). These logs should be used to help the coordinator determine what types of assistance need to be provided. In addition, a file of each team's logs should be kept as documentation of the actions of the team for later use in analyzing and understanding the evaluation data.

4.4 Conduct Ongoing Evaluation and Monitor Concerns. Depending upon the evaluation design, certain instruments or measures may need to be administered at one or more mid-points in the project. The coordinator should be sensitive

both to the need to collect evaluation data and to the danger of overburdening participants with surveys and/or questionnaires.

Because participant concerns change over time, it is helpful to periodically monitor these concerns in order to intervene appropriately. Open-ended statements of concern (Newlove & Hall, 1976) is one of way of gathering Stages of Concern data. To gather open-ended concerns data, participants are asked to respond in writing to a stem statement which reads, "When I think about my involvement in IR&D, I am concerned about..." These responses can then be analyzed for purposes of facilitating implementation and used in evaluation to trace changes in concerns as they emerge over time.

4.5 Have Panel Evaluate Proposed Study Designs. Researchers and staff developers in the project can serve as a review panel and make recommendations related to each others' research designs and development/dissemination plans. A portion of the monthly problem-solving meetings should be devoted to this task. It is best if researchers and staff developers are provided with the plans in advance of the meeting so that they can have time to review them and formulate their recommendations. Depending on the number of teams involved, it may be necessary to schedule meetings in addition to the monthly problem-solving sessions for the purpose of evaluating proposed study designs and development/dissemination plans.

4.6 Evaluate Final Research Reports and Development/Dissemination Plans. At the conclusion of the project each team should be required to submit a research report and a development/dissemination plan. These documents can be evaluated by the project coordinator, by the panel of project researchers and staff developers, or by outside evaluators. The decision on who should evaluate research reports and dissemination plans and what evaluation criteria

should be used will again depend on the needs and interests of the project sponsors.

4.7 Collect Final Evaluation Data and Prepare Evaluation Report. The posttest administration of any formal evaluation measures used should be conducted at the conclusion of the project. All of the evaluation data should then be analyzed and interpreted for inclusion in a formal evaluation report. In addition, arrangements should be made to collect follow-up data if such data are required in the evaluation plan.

GPC 5: External Communication

In most projects such as an IR&D project, there is outside interest about the project by various groups both inside and outside the field of education. Attending to these external communication matters can result in several benefits such as providing recognition for the participants and providing some "positive press" for the institutions involved. In addition, success stories about the positive things happening in education are sorely needed to counteract the many "doom and gloom" stories that appear about teachers, schools, and education, in general.

5.1 Present Project to School Board and/or Professional Organizations. Too often school boards do not hear about the positive things teachers do but rather find themselves in conflict with teachers over contractual issues. Both teachers and school boards should find it refreshing to interact about a topic such as IR&D. Not only would such a presentation provide positive recognition for the participants, but school board members could be better informed about the issues of concern to teachers. Another potential audience for such a presentation would be the local professional teachers' organization as well as other teachers.

5.2 Place Items in District or University Newsletters. Some school districts and universities have internal newsletters which feature the activities of their faculties and staffs. An item on the IR&D project and its participants would be appropriate for inclusion in such a newsletter.

5.3 Work with Local News Medias. When the IR&D project is well underway and functioning smoothly, the coordinator might want to consider working with the local news media on a story about the project. Often newspapers and television stations welcome the opportunity to publicize something positive about the local schools. It will be important for the project coordinator to check with participants in advance concerning their feelings about this type of publicity.

5.4 Encourage Teams to Report Study Findings to Their Faculties. As teams are concluding their research they should be encouraged to report their findings to their own faculties. Other faculty members may have the same concerns and questions that were investigated by the IR&D team and could benefit from being informed about the findings of the team. Finally, such a presentation could provide positive recognition for the participating teachers and could result in other teachers wanting to participate in future cycles of the IR&D project.

GPC 6: Dissemination

Dissemination activities differ from external communication activities in their purpose. External communication activities are for the primary purpose of informing only, while dissemination activities are for the purpose of persuading someone else to adopt or use the program or information being shared. With an IR&D project, information can be disseminated about the project itself or about the research findings of the individual teams.

Various channels are available for the dissemination of educational programs and research findings.

6.1 Assist Individual Teams with Dissemination. Each IR&D team will submit a development/dissemination plan as a part of their work. Depending on the elements of the plan, the project coordinator may need to provide assistance or support for the team in carrying out their proposed efforts. For example, if they choose to submit an article to a professional journal, they may need secretarial support in preparing the manuscript. If they wish to present a training session in their school district, they may need help in making meeting arrangements and/or in arranging release time for the session.

6.2 Submit Journal Articles About the IR&D Project. One way to receive widespread dissemination for a project is to publish in professional journals. There are several keys for having articles accepted for publication. The first is to target the appropriate journal by selecting one whose readership would be interested in and could benefit from learning about IR&D. Once the journal is selected, the article should be prepared in the appropriate style and be within the length requirements specified by the journal. The coordinator should consider involving some project participants as co-authors.

6.3 Present at Professional Meetings. Presentations at professional meetings is another effective way to disseminate information about a project. However, these presentations entail travel expenses to and from the meetings, therefore, it is important to propose only to those conferences which the presenters believe will be the most beneficial for them to attend both in terms of dissemination mileage and their own professional growth. Again, the project coordinator should consider involving some project participants as co-presenters.

Conclusion

An IR&D project can be worthwhile and beneficial for both the individuals and institutions involved. However, organizing and implementing an IR&D project takes time, energy and resources and can be quite challenging. This paper is offered as a guide to persons who are considering implementing an IR&D project in their own setting and need to do so on a limited budget. The implementation game plan presented can serve as a starting point. As stated earlier, the interventions and processes described are by no means the only ones that could be used and will not necessarily be the best ones to use in any given setting. The user is encouraged to adapt and enhance the implementation game plan as needed. The author wishes the readers of this paper the best of luck in their research endeavors and hopes their experiences with IR&D will be equally rewarding to those of her own.

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Appendix A

Interactive Research and Development

Orientation and Training Session

Room 106, Lubbock ISD Central Office Annex, 1628 19th Street

Thursday, September 11, 1980 (6-9 p.m.)

6:00 - 6:15--Welcome
6:15 - 6:45--Getting Acquainted Activity
6:45 - 7:30--Administer Evaluation Instruments (Pre-tests)
7:30 - 7:45--Break
7:45 - 8:00--Problem Identification Questionnaire
8:00 - 8:45--History of Educational Research
8:45 - 9:00--Wrap-Up Activities

Thursday, September 18, 1980 (6-9 p.m.)

6:00 - 7:00--Action Research as Professional Development and the Importance of Integrating Research and Practice
7:00 - 7:30--Essential Features of Interactive Research and Development
7:30 - 8:00--Major Issues in American Educational Research in the 1980's
8:00 - 8:30--Findings from a 1980 Local Educational Problems Survey and How To Interpret the Survey Findings
8:30 - 9:00--Question and Answer Session

Friday, September 19, 1980 (8:30 a.m. - 4 p.m.)

8:30 - 9:30--Steps in Conducting Typical Educational Research; Common Experimental Designs Used in Educational Research
9:30 -10:30--Within Subject Designs Appropriate for Educational Research; Clarifying Research Problems
10:30 -11:30--Description of Successful Collaborative Action Research Projects; Ways Teachers Can Utilize and Disseminate Their Research Findings

1:00 - 1:30--Use of Ethnographic Techniques in Educational Research
1:30 - 3:30--Group Interaction Activity for Teachers, Researchers and Staff Developers
3:30 - 4:00--Evaluation of Orientation and Training Session

Interactive Research & Development Project

Team Meeting Log

Date of Meeting:

Team Members Present:

Team Members Absent:

Research Topic:

Material Discussed and/or Decisions Made:

Date, Time and Place Set for Next Team Meeting: